

2010 National Fire Code of Canada (NFC)

## Errata Package

Selected replacement pages have been produced for the NFC.

Please print and insert in your copy of the Code.



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## Code Development

### Development of the National Model Codes

The Canadian Commission on Building and Fire Codes (CCBFC) is responsible for the content of the National Model Codes. The CCBFC is an independent body made up of volunteers from across the country and from all facets of the code-user community. Members of the CCBFC and its standing committees include builders, engineers, skilled trade workers, architects, building owners, building operators, fire and building officials, manufacturers and representatives of general interests.

The CCBFC is advised on scope, policy and technical issues pertaining to the Codes by the Provincial/Territorial Policy Advisory Committee on Codes (PTPACC), which is a committee of senior representatives from provincial/territorial ministries responsible for the regulation of buildings, fire safety and plumbing in their jurisdictions. The PTPACC was created by the provinces and territories, with provision of guidance to the CCBFC as one of its main functions. Through the PTPACC and its subcommittees on building, fire and plumbing regulation, the provinces and territories are engaged in every phase of the model Code development process.

The Canadian Codes Centre of the National Research Council's Institute for Research in Construction provides technical and administrative support to the CCBFC and its standing committees. The National Research Council publishes the National Model Codes and periodic revisions to the Codes to address pressing issues.

The broader code-user community also makes a significant contribution to the model Code development process by submitting requests for changes or additions to the Codes and by commenting on the collected proposed changes during the public reviews that precede each new edition.

The CCBFC takes into consideration the advice received from the provinces and territories as well as code users' comments at each stage of Code development. The scope and content of the Model Codes are determined on a consensus basis, which involves the review of technical, policy and practical concerns and debate on the implications of these concerns.

More information on the Code development process is available on the Internet at [www.nationalcodes.ca](http://www.nationalcodes.ca). Printed copies of this information may also be requested from the Secretary of the CCBFC, whose address is provided at the end of this Preface.

### Code Requirements

Every NFC requirement must address at least one of the Code's three stated objectives, namely:

- safety
- health
- fire protection of buildings and facilities

In dealing with proposed changes or additions to any of the National Model Codes, the CCBFC considers many issues such as the following:

- Does the proposed requirement provide the minimum level of performance—and no more than the minimum—needed to achieve the Code's objectives?
- Will persons responsible for Code compliance be able to act on or implement the requirement using commonly accepted practices?
- Will enforcement agencies be able to enforce the requirement?
- Are the costs of implementing the requirement justifiable?
- Have the potential policy implications of the requirement been identified and addressed?
- Is there broad consensus on this requirement among Code users as well as among provincial and territorial governments?

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Guidelines for requesting changes to the NFC are available on the Internet at [www.nationalcodes.ca](http://www.nationalcodes.ca). Printed copies of the guidelines may also be requested from the Secretary of the CCBFC, whose address is provided at the end of this Preface.

## Objective-Based Code Format

The National Fire Code (NFC) was published in an objective-based code format for the first time in 2005. This was the result of ten years of work on an initiative that arose out of the strategic plan adopted by the Canadian Commission on Building and Fire Codes (CCBFC) in 1995.

The NFC comprises three Divisions:

- Division A, which defines the scope of the Code and contains the objectives, the functional statements and the conditions necessary to achieve compliance;
- Division B, which contains acceptable solutions (commonly referred to as “technical requirements”) deemed to satisfy the objectives and functional statements listed in Division A; and
- Division C, which contains administrative provisions.

A more complete description of this division-based structure is included in the section entitled Structure of Objective-Based Codes.

Apart from the inclusion of changes resulting from the normal Code development process, the provisions in Division B are essentially the same as those found in the 2005 edition of the NFC. Each requirement in Division B is linked to:

- objectives (such as safety or health) which individual requirements help to address,
- functional statements (statements on the functions of the building or facility that a particular requirement helps to achieve), and
- intent statements (detailed statements on the specific intent of the provision).

## Objectives

The NFC's objectives are fully defined in Section 2.2. of Division A. Most top-level objectives have two levels of sub-objectives.

The objectives describe, in very broad terms, the overall goals that the NFC's requirements are intended to achieve. They serve to define the boundaries of the subject areas the Code addresses. However, the Code does not deal with all the issues that might be considered to fall within those boundaries.

The objectives describe undesirable situations and their consequences, which the Code aims to avoid occurring in buildings or facilities. The wording of most of the definitions of the objectives includes two key phrases: “limit the probability” and “unacceptable risk.” The phrase “limit the probability” is used to acknowledge that the NFC cannot entirely prevent those undesirable situations from happening. The phrase “unacceptable risk” acknowledges that the NFC cannot eliminate all risk: the “acceptable risk” is the risk remaining once compliance with the Code has been achieved.

The objectives are entirely qualitative and are not intended to be used on their own in determining compliance with the Code.

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## Functional Statements

The NFC's functional statements are listed in Section 3.2. of Division A.

The functional statements are more detailed than the objectives: they describe conditions in the building or facility that help satisfy the objectives. The functional statements and the objectives are interconnected: there may be several functional statements related to any one objective and a given functional statement may describe a function of the building or facility that serves to achieve more than one objective. There is a table at the end of each Part in Division B listing the sets of functional statements and objectives that have been attributed to requirements or portions of requirements in that Part.

Like objectives, functional statements are entirely qualitative and are not intended to be used on their own in determining compliance with the Code.

## Intent Statements

Intent statements explain, in plain language, the basic thinking behind each Code provision contained in Division B. Intent statements, each of which is unique to the provision with which it is associated, explain how requirements help to achieve their attributed objectives and functional statements. Like the objectives, the intent statements are expressed in terms of risk avoidance and expected performance. They offer insight into the views of the responsible standing committees on what the Code provisions are intended to achieve.

The intent statements serve explanatory purposes only and do not form an integral part of the Code provisions: as such, they are similar in function to appendix notes. Due to the sheer volume of intent statements—thousands for the NFC alone—they are only published as a separate electronic document entitled “Supplement to the NFC 2010: Intent Statements,” which is available on-line at [www.nationalcodes.ca](http://www.nationalcodes.ca).

All this additional information—objectives, functional statements and intent statements—is intended to facilitate the implementation of the Code in two ways:

- **Clarity of intent:** The objectives, functional statements and intent statements linked to a Code requirement clarify the reasoning behind that requirement and facilitate understanding of what must be done to satisfy that requirement. This added information may also help avoid disputes between practitioners and officials over these types of issues.
- **Flexibility:** The additional information allows for flexibility in Code compliance. A person seeking to propose a new method or material not described or covered in the Code will be able to use the added information to understand the expected level of performance that their alternative solution must achieve to satisfy the Code.

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## Structure of Objective-Based Codes

The National Fire Code (NFC) is organized into three Divisions.

### Division A: Compliance, Objectives and Functional Statements

Division A defines the scope of the NFC and presents the objectives that the Code addresses and the functions the building or facility must perform to help to satisfy those objectives.

Division A cannot be used on its own as a basis for operating a building or facility, or for evaluating a building's or facility's compliance with the Code.

### Division B: Acceptable Solutions

In the 2005 edition of the Code, the commonly used term “requirements” was replaced with the term “acceptable solutions” to refer to the technical provisions contained in the Code. The change in terminology reflects the principle that fire codes establish an acceptable level of risk or performance and underlines the fact that a code cannot describe all possible valid Code compliance options. The new term provokes the question “To whom are these solutions considered acceptable?” As indicated previously in this Preface, the acceptable solutions represent the minimum level of performance that will satisfy the NFC's objectives and that is acceptable to an authority that adopts the NFC into law or regulation.

Division B of the 2010 NFC contains most of the provisions from the 2005 NFC together with the changes and additions resulting from the normal updating process. Compliance with these acceptable solutions is deemed to automatically satisfy the linked Division A objectives and functional statements.

The requirements in Division B—the acceptable solutions—are linked to at least one objective and functional statement found in Division A. These linkages play an important role in allowing objective-based codes to accommodate innovation.

It is expected that the majority of Code users will primarily follow the acceptable solutions given in Division B and that they will consult Division A only in cases where it may serve to clarify the application of Division B's requirements to a particular situation or when they are considering an alternative solution.

### Division C: Administrative Provisions

Division C contains the administrative provisions relating to the application of the Code. Many provinces and territories establish their own administrative provisions upon adopting or adapting the NFC; having all the administrative provisions in one Division facilitates their customization to suit jurisdictional needs.

### Relationship between Division A and Division B

Sentence 1.2.1.1.(1) of Division A is a very important sentence: it is a precise statement of the relationship between Divisions A and B and is central to the concept of objective-based codes.

- 1)** Compliance with this Code shall be achieved by
  - a) complying with the applicable acceptable solutions in Division B (see Appendix A), or
  - b) using alternative solutions that will achieve at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the applicable acceptable solutions (see Appendix A).

# Errata

## Issued by the Canadian Commission on Building and Fire Codes

The Change History table that follows describes errata and editorial updates that apply to the National Fire Code of Canada 2010:

- Errata are corrections to existing text.
- Editorial updates are provided for information purposes only.

Code pages containing errata are identified with the words “Amended Page” in the footer; pages with editorial updates are not flagged.

Contact your local authority having jurisdiction to find out if these errata apply in your province or territory.

### Change History — National Fire Code of Canada 2010

Division	Code Reference	Change	Date (Y-M-D)	Description of Change
Preface	n/a	editorial update	2012-12-21	Text referring to application statements was deleted as these statements are no longer being published
B	Table 2.14.1.1.	erratum	2012-12-21	Attributions were added for Sentence 2.3.2.3.(2)
B	Table 3.4.1.1.	erratum	2012-12-21	Attributions for Sentence 3.2.7.5.(6) were deleted
B	Table 3.4.1.1.	erratum	2012-12-21	Attributions were added for Clause 3.2.7.8.(1)(b)
B	4.3.9.2.	erratum	2012-12-21	Article 4.3.10.2. was moved and renumbered Article 4.3.9.2.
B	4.3.9.3.	erratum	2012-12-21	Article 4.3.10.3. was moved and renumbered Article 4.3.9.3.
B	4.5.6.1.(1)	erratum	2012-12-21	Sentence was corrected to read “Except for vent risers and ...”
B	Table 4.12.1.1.	erratum	2012-12-21	Attributions were added for Sentence 4.1.7.3.(1)
B	Table 4.12.1.1.	erratum	2012-12-21	Attributions for Sentence 4.2.9.5.(1) were deleted
B	Table 4.12.1.1.	erratum	2012-12-21	Attributions for objective OS1.1 for Sentence 4.3.12.3.(6) were deleted
B	Table 4.12.1.1.	erratum	2012-12-21	Attributions for Clause 4.3.13.5.(2)(a) were deleted
B	Table 4.12.1.1.	erratum	2012-12-21	Attributions were added for Sentence 4.3.13.6.(1)
B	Section 6.7.	erratum	2012-12-21	Title of Section was corrected to read “Smoke Alarms and Carbon Monoxide Alarms”
B	6.7.1.1.(3)	erratum	2012-12-21	Sentence was corrected to read “Carbon monoxide alarms ...”





**Table 1.3.1.2. (Continued)**

Issuing Agency	Document Number <sup>(1)</sup>	Title of Document <sup>(2)</sup>	Code Reference
ULC	CAN/ULC-S512-M87	Halogenated Agent Hand and Wheeled Fire Extinguishers	2.1.5.1.(3)
ULC	CAN/ULC-S531-02	Smoke Alarms	2.1.3.3.(1)
ULC	CAN/ULC-S536-04	Inspection and Testing of Fire Alarm Systems	6.3.1.2.(1)
ULC	CAN/ULC-S552-02	Maintenance and Testing of Smoke Alarms	6.7.1.1.(1)
ULC	CAN/ULC-S553-02	Installation of Smoke Alarms	2.1.3.3.(3)
ULC	CAN/ULC-S554-05	Water Based Agent Fire Extinguishers	2.1.5.1.(3)
ULC	CAN/ULC-S561-03	Installation and Services for Fire Signal Receiving Centres and Systems	6.3.1.3.(1)
ULC	CAN/ULC-S566-05	Halocarbon Clean Agent Fire Extinguishers	2.1.5.1.(3)
ULC	CAN/ULC-S601-07	Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids	4.3.1.2.(1) 4.3.3.2.(1)
ULC	ULC-S601(A)-2001	Refurbishing of Steel Aboveground Horizontal Tanks for Flammable and Combustible Liquids	4.3.1.10.(2)
ULC	CAN/ULC-S602-07	Aboveground Steel Tanks for Fuel Oil and Lubricating Oil	4.3.1.2.(1)
ULC	ULC-S603-00	Steel Underground Tanks for Flammable and Combustible Liquids	4.3.1.2.(1) 4.4.3.2.(4)
ULC	ULC-S603(A)-2001	Refurbishing of Steel Underground Tanks for Flammable and Combustible Liquids	4.3.1.10.(3)
ULC	CAN/ULC-S603.1-03	External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids	4.3.1.2.(1) 4.3.8.6.(1) 4.3.10.1.(1) 4.5.3.1.(1)
ULC	CAN/ULC-S612-07	Hose and Hose Assemblies for Flammable and Combustible Liquids	4.6.5.1.(1)
ULC	ULC-S615-98	Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids	4.3.1.2.(1) 4.3.8.6.(2) 4.4.3.2.(4)
ULC	ULC-S615(A)-2002	Refurbishing of Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids	4.3.1.10.(3)
ULC	CAN/ULC-S620-07	Hose Nozzle Valves for Flammable and Combustible Liquids	4.5.7.1.(2) 4.6.5.2.(1)
ULC	ULC-S630(A)-2001	Refurbishing of Steel Aboveground Vertical Tanks for Flammable and Combustible Liquids	4.3.1.10.(2)
ULC	CAN/ULC-S633-99	Flexible Underground Hose Connectors for Flammable and Combustible Liquids	4.5.6.14.(2)
ULC	CAN/ULC-S642-07	Compounds and Tapes for Threaded Pipe Joints	4.5.5.1.(1)
ULC	ULC-S644-00	Emergency Breakaway Fittings for Flammable and Combustible Liquids	4.6.5.2.(4)
ULC	ULC-S651-07	Emergency Valves for Flammable and Combustible Liquids	4.5.7.1.(3) 4.6.6.3.(1)
ULC	CAN/ULC-S652-08	Tank Assemblies for the Collection, Storage and Removal of Used Oil	4.3.1.2.(1)
ULC	CAN/ULC-S653-06	Aboveground Steel Contained Tank Assemblies for Flammable and Combustible Liquids	4.3.1.2.(1)
ULC	ULC-S655-98	Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids	4.3.1.2.(1) 4.3.2.1.(7) 4.6.2.1.(3)
ULC	CAN/ULC-S660-08	Nonmetallic Underground Piping for Flammable and Combustible Liquids	4.5.2.1.(3) 4.5.6.14.(2)
ULC	ULC-S661-10 <sup>(5)</sup>	Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks	4.3.1.8.(1) 4.3.1.8.(2)

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number <sup>(1)</sup>	Title of Document <sup>(2)</sup>	Code Reference
ULC	ULC/ORD-C30-1995	Safety Containers	4.1.5.8.(2) 4.2.3.1.(1) 4.2.6.4.(1) 5.5.5.2.(2)
ULC	ULC/ORD-C58.19-1992	Spill Containment Devices for Underground Flammable Liquid Storage Tanks	4.3.9.2.(2)
ULC	ULC/ORD-C107.12-1992	Line Leak Detection Devices for Flammable Liquid Piping	4.4.2.1.(11) 4.4.3.4.(2) 4.4.4.2.(1)
ULC	ULC/ORD-C107.21-1992	Under-Dispenser Sumps	4.3.9.2.(1) 4.6.3.2.(1)
ULC	ULC/ORD-C142.5-1992	Concrete Encased Steel Aboveground Tank Assemblies for Flammable and Combustible Liquids	4.3.1.2.(1)
ULC	ULC/ORD-C536-1998	Flexible Metallic Hose	4.5.6.14.(2)
ULC	ULC/ORD-C558-2009	Guide for the Investigation of Industrial Trucks, Internal Combustion Engine-Powered	3.1.3.1.(2)
ULC	ULC/ORD-C583-2009	Guide for the Investigation of Electric Battery Powered Industrial Trucks	3.1.3.1.(3)
ULC	ULC/ORD-C842-84	Guide for the Investigation of Valves for Flammable and Combustible Liquids	4.5.7.1.(1)
ULC	ULC/ORD-C1275-84	Storage Cabinets for Flammable Liquid Containers	4.2.10.5.(1)

**Notes to Table 1.3.1.2.:**

- (1) Some documents may have been reaffirmed or reapproved. Check with the applicable issuing agency for up-to-date information.
- (2) Some titles have been abridged to omit superfluous wording.
- (3) Code reference is in Division A.
- (4) Code reference is in Division C.
- (5) This standard replaces ULC/ORD-C58.15-1992.

**1.3.2. Organizations****1.3.2.1. Abbreviations of Proper Names**

**1)** The abbreviations of proper names in this Code shall have the meanings assigned to them in this Article (the appropriate addresses of the organizations are shown in brackets).

- ACGIH ..... American Conference of Governmental Industrial Hygienists  
(1330 Kemper Meadow Drive, Cincinnati, Ohio 45240-1634 U.S.A.;  
www.acgih.org)
- API ..... American Petroleum Institute (1220 L Street NW, Washington, D.C.  
20005-4070 U.S.A.; www.api.org)
- ASME ..... American Society of Mechanical Engineers (Three Park Avenue,  
New York, New York 10016-5990 U.S.A.; www.asme.org)
- ASTM ..... American Society for Testing and Materials International (100 Barr  
Harbor Drive, West Conshohocken, Pennsylvania 19428-2959 U.S.A.;  
www.astm.org)
- CCBFC ..... Canadian Commission on Building and Fire Codes (National Research  
Council of Canada, Ottawa, Ontario K1A 0R6; www.nationalcodes.ca)
- CCME ..... Canadian Council of Ministers of the Environment (360-123 Main  
Street, Winnipeg, Manitoba R3C 1A3; www.ccme.ca)
- CGA ..... Compressed Gas Association (4221 Walney Road, 5th Floor, Chantilly,  
Virginia 20151-2923 U.S.A.; www.cganet.com)
- CGSB ..... Canadian General Standards Board (Place du Portage, Phase III, 6B1,  
11 Laurier Street, Gatineau, Quebec K1A 1G6; www.pwgsc.gc.ca/cgsb)

**Table 2.14.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
(4)	[F81-OP1.2]
	[F81-OS1.2]
(5)	[F82-OP1.2]
	[F82-OS1.1]
<b>2.3.1.2. Movable Partitions and Screens</b>	
(1)	[F02-OS1.2]
<b>2.3.1.3. Decorative Materials</b>	
(1)	[F02-OS1.2]
<b>2.3.1.4. Interconnected Floor Spaces</b>	
(1)	[F02-OP1.2]
	[F02-OS1.2]
<b>2.3.2.1. Drapes, Curtains and Decorative Materials</b>	
(1)	[F02-OP1.2]
	[F02-OS1.2,OS1.5]
<b>2.3.2.2. Flame Retardant Treatments</b>	
(1)	[F82-OP1.2]
	[F82-OS1.2,OS1.5]
<b>2.3.2.3. Textiles in Group B Occupancies</b>	
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
<b>2.4.1.1. Accumulation of Combustible Materials</b>	
(1)	[F01,F02-OS1.2,OS1.1]
	[F01,F02-OP1.2,OP1.1]
(2)	[F01,F02-OS1.2]
	[F01,F02-OP1.2]
(3)	[F01,F02-OS1.2]
	[F01,F02-OP1.2]
(4)	[F01,F02-OS1.2]
	[F01,F02-OP1.2]

**Table 2.14.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
(5)	[F02-OS1.2]
	[F02-OP1.2]
(6)	[F01-OS1.2,OS1.1]
	[F01,F02-OP1.2,OP1.1]
<b>2.4.1.2. Storage Rooms for Combustible Waste Materials</b>	
(1)	[F03,F02-OS1.2]
	[F03,F02-OP1.2]
<b>2.4.1.3. Waste Receptacles</b>	
(1)	[F01-OS1.1] Applies to portion of Code text: "... be removed from the premises."
(2)	[F01-OS1.1] Applies to the storage of combustible materials and ashes in the same container.
(3)	[F03-OS1.2]
	[F03-OP1.2]
(4)	[F03,F02,F01-OS1.2]
	[F03,F02,F01-OP1.2]
<b>2.4.1.4. Lint Traps for Laundry Equipment</b>	
(1)	[F01-OS1.1]
<b>2.4.2.1. Smoking Areas</b>	
(1)	[F01-OS1.1]
(3)	[F01-OS1.1]
<b>2.4.2.2. Signs</b>	
(1)	[F01-OS1.1]
<b>2.4.3.1. Open Flames in Processions</b>	
(1)	[F01-OS1.1]
<b>2.4.3.2. Flaming Meals and Drinks</b>	
(1)	[F01-OS1.1]
(2)	[F01-OS1.1]
(3)	[F01-OS1.1]
(4)	[F12,F02-OS1.2]
	[F12,F02-OP1.2]
<b>2.4.3.3. Devices Having Open Flames</b>	
(1)	[F01-OS1.1]
<b>2.4.4.1. Flammable and Combustible Liquids</b>	
(2)	[F01-OS1.1]
<b>2.4.4.2. Flammable Gases</b>	
(1)	[F01-OS1.1]
<b>2.4.5.1. Open Air Fires</b>	
(1)	[F01,F03,F02-OP1.2]
	[F01,F03,F02-OS1.2]
<b>2.4.6.1. Security</b>	
(1)	[F34-OS1.1,OS1.2]
	[F34-OP3.1]

**Table 2.14.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
<b>2.4.7.1. Use and Maintenance</b>	
(1)	[F01,F82,F81-OS1.1]
	[F01,F82,F81-OP1.1]
<b>2.5.1.2. Access Panels and Windows</b>	
(1)	[F12-OP1.2]
	[F12-OS1.2]
<b>2.5.1.3. Access to Roof</b>	
(1)	[F12-OP1.2]
	[F12-OS1.2]
<b>2.5.1.4. Access to Fire Department Connections</b>	
(1)	[F12-OP1.2]
	[F12-OS1.2]

**Table 3.4.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
(4)	(b) [F04-OS1.5,OS1.2]
	(b) [F04-OP1.2]
	(a) [F02-OP1.2]
	(a) [F02-OS1.2]
(5)	[F04-OP1.2]
	[F04-OS1.5,OS1.2]
<b>3.2.6.5. Heating Equipment</b>	
(1)	[F01-OS1.1]
(2)	[F01-OS1.1]
<b>3.2.7.2. Ignition Sources</b>	
(1)	[F01-OS1.1]
(2)	[F01-OS1.1] Applies to portion of Code text: "Smoking shall not be permitted within a <i>fire compartment</i> used for the storage of <i>dangerous goods</i> ..."
(3)	[F01-OS1.1]
<b>3.2.7.3. Ambient Conditions</b>	
(1)	(b) [F01-OS1.1]
	(b) [F40-OS3.4]
	(a) [F51,F52-OS1.1]
	(a) [F51,F52-OS3.4]
<b>3.2.7.4. Housekeeping</b>	
(1)	[F81,F01-OS1.1]
(2)	[F43,F81-OS3.4]
	[F43-OH5]
	[F43,F81-OS1.1]
<b>3.2.7.5. Storage Arrangements</b>	
(1)	(b) [F20-OS1.1,OS1.2] [F04-OS1.2,OS1.5]
	(b) [F20-OS3.4]
	(a) [F20-OS3.4]
	(a) [F20-OS1.1,OS1.2] [F04-OS1.2,OS1.5]
	(c) [F02-OS1.1]
	(c) [F02-OP1.2]
(2)	[F20-OS1.1,OS1.2] [F04-OS1.2,OS1.5] [F02-OS1.2]
(3)	[F02-OP1.2]
	[F02-OS1.2]
(4)	[F81,F43,F12-OS3.4]
	[F81,F12-OH5]
	[F81,F01,F12-OS1.1]
(8)	[F01-OP1.2]
	[F01-OS1.2]
(9)	[F81,F82-OS3.4]
	[F81,F82-OS1.1] [F10-OS1.5]

**Table 3.4.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
<b>3.2.7.6. Separation from Other Dangerous Goods</b>	
(1)	[F43-OS3.4]
	[F01-OS1.1]
(2)	[F43-OS3.4]
	[F01-OS1.1]
(3)	[F02-OS1.1,OS3.4]
<b>3.2.7.7. Corrosion Protection</b>	
(1)	[F80-OS3.4]
	[F80-OH5]
	[F80-OS1.1]
<b>3.2.7.8. Flooring Materials</b>	
(1)	(b) [F01-OS1.1]
(2)	[F01-OS1.1]
<b>3.2.7.9. Fire Suppression Systems</b>	
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02,F03-OP1.2] [F01-OP1.1]
	[F02,F03-OS1.2] [F01-OS1.1]
<b>3.2.7.10. Smoke Venting</b>	
(1)	[F12,F02-OP1.2]
	[F12,F02-OS1.2,OS1.5]
<b>3.2.7.11. Spill Control</b>	
(2)	(a) [F43-OS3.4]
	(a) [F01-OS1.1]
<b>3.2.7.12. Fire Department Access</b>	
(2)	[F12-OP1.2]
	[F12-OS1.2]
(3)	[F12-OP1.2]
	[F12-OS1.2]
<b>3.2.7.13. Labels</b>	
(1)	[F12,F81-OS3.4]
	[F12-OS1.1,OS1.2] [F81-OS1.1]
<b>3.2.7.14. Placards</b>	
(1)	[F12,F81-OS3.4]
	[F12-OS1.1,OS1.2] [F81-OS1.1]
(2)	[F12-OS3.4]
	[F12-OS1.2]
(3)	[F12-OS3.4]
	[F12-OS1.2]
(4)	[F12-OS3.4]
	[F12-OS1.2]



**4.3.8.4. Damage Repair**

1) Underground *storage tanks* that are in the process of being installed shall be inspected, and any damage to the tank shell, protective coating, fittings or anodes shall be repaired before they are lowered into the excavation.

2) Damage to *storage tank* shells shall not be repaired on site.

**4.3.8.5. Damage Prevention**

1) Underground *storage tanks* shall be lowered into the excavation by the use of lifting lugs and hooks and, where necessary, spreader bars to prevent damage to the tank shell, protective coating, fittings or anodes.

2) Any method of handling that might result in damage to the protective coating of the tank shall not be used.

**4.3.8.6. Installation**

1) Underground steel *storage tanks* shall be installed in conformance with Appendix A of CAN/ULC-S603.1, "External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids."

2) Underground reinforced plastic *storage tanks* shall be installed in conformance with Appendix A of ULC-S615, "Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids."

3) Underground *storage tanks* shall not be placed in direct contact with reinforced concrete slabs but shall be separated by not less than 150 mm of sand or other suitable material to evenly distribute the weight of the tank on the supporting base.

**4.3.8.7. Filling**

1) *Flammable liquids* or *combustible liquids* shall not be placed in an underground *storage tank* until

- a) the fill pipe and vent line have been installed in the tank, and
- b) all other openings have been sealed.

**4.3.8.8. Spillage**

1) If a spillage occurs, the escaped liquid and all soil contaminated by the spill shall be removed in conformance with Subsection 4.1.6.

**4.3.8.9. Anchorage**

1) Underground *storage tanks* shall be protected against hydrostatic forces which can cause the uplift of the tanks once they are empty. (See Appendix A.)

2) Where anchors and ground straps are used to resist the uplift forces referred to in Sentence (1), they shall be

- a) electrically isolated from the tank, and
- b) installed in such a manner that they do not damage the tank's shell, protective coating, fittings or anodes.

**4.3.9. Sumps****4.3.9.1. Installation**

1) A *dispenser sump* shall be provided under a dispenser, unless the dispenser is located on top of an aboveground *storage tank*.

2) A *spill containment sump* shall be provided at every underground *storage tank* fill point.

3) A *transition sump* shall be provided for all mechanical pipe connections located below *grade*.

4) A *turbine sump* shall be provided for all turbine pump assemblies located below *grade* or above *grade* where they are not readily visible.

5) In addition to the requirements of Article 4.3.9.2., the sumps referred to in Sentences (1) to (4) shall be installed in conformance with the sump manufacturer's instructions.

#### 4.3.9.2. Construction

1) *Dispenser sumps* shall conform to the construction and performance requirements of ULC/ORD-C107.21, "Under-Dispenser Sumps."

2) *Spill containment sumps* shall conform to the construction and performance requirements of ULC/ORD-C58.19, "Spill Containment Devices for Underground Flammable Liquid Storage Tanks."

#### 4.3.9.3. Leak Detection Monitoring

1) Where *dispenser sumps*, *turbine sumps* and *transition sumps* referred to in Article 4.3.9.1. are used in underground applications, they shall be provided with an electronic monitoring device to indicate the presence of liquid.

### 4.3.10. Corrosion Protection of Underground Steel Storage Tanks

#### 4.3.10.1. Corrosion Protection

- 1) Underground steel *storage tanks* and integral fittings subject to corrosion shall be
  - a) protected in conformance with CAN/ULC-S603.1, "External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids," or
  - b) protected by impressed current in conformance with NACE RP0285, "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection."

#### 4.3.11. Vents for Underground Storage Tanks

##### 4.3.11.1. Vent Design

1) Underground *storage tanks* shall be provided with vent openings and piping of sufficient cross-sectional area designed to vent the tanks during the maximum filling or withdrawal rate without causing the allowable stress for the tank to be exceeded.

##### 4.3.11.2. Materials and Construction

1) Except at *distilleries* covered in Section 4.10., vent piping materials and construction shall conform to Subsections 4.5.2., 4.5.3. and 4.5.5.

##### 4.3.11.3. Installation

- 1) Vent pipe outlets from underground *storage tanks* for Class I liquids
  - a) shall be located outside *buildings* higher than the fill pipe openings but not less than
    - i) 3.5 m above the adjacent ground level,
    - ii) 1.5 m from any *building* opening, and
    - iii) 7.5 m from any dispenser, and
  - b) shall discharge so that flammable vapours will not enter *building* openings or be trapped near any part of the *building*.
- 2) Vent pipe outlets from underground *storage tanks* for Class II or IIIA liquids shall be located outside *buildings* at a height that is above the fill pipe opening but not less than 2 m above finished ground level.
- 3) Vent pipes from underground *storage tanks* for *flammable liquids* or *combustible liquids* shall not be obstructed by any device that may cause excessive back pressure, except that vent pipes from underground *storage tanks* for Class II or IIIA liquids are permitted to be fitted with return bends, coarse screens or other devices to minimize the entry of foreign material.



- 5)** Immediate action shall be taken when a leak is suspected and the leak detection testing referred to in Sentence (1) shall be performed if
- a) a loss of liquid or a gain of water is indicated by any of the leak detection measures described in this Section, or
  - b) the level of water at the bottom of an underground *storage tank* exceeds 50 mm.
- 6)** Where *dispenser sumps*, *transition sumps* and *turbine sumps* are provided with electronic monitoring devices in accordance with Sentence 4.3.9.3.(1), the devices shall be interlocked with the dispenser or pump to shut it down upon detection of either product or a high liquid level.
- 7)** The minimum requirements referred to in Sentence (1) shall not preclude the appropriate use of alternative solutions, innovative new technologies, or methods capable of achieving the same objectives. (See Appendix A.)

**Table 4.4.1.2.A.**  
**Leak Detection Testing and Monitoring of Underground Storage Tanks**  
 Forming Part of Sentences 4.4.1.2.(1) and 4.4.2.1.(5)

Type of Containment	Commissioning Test	In-Service Monitoring		Leak Suspected
		Continuous	Periodic	
Single-walled <sup>(1)</sup>	N/A <sup>(2)</sup>	Inventory Reconciliation	Precision Leak Detection Test every 2 years	Precision Leak Detection Test
		Inventory Reconciliation and Monitoring Wells	Precision Leak Detection Test every 5 years	
		Statistical Inventory Reconciliation (SIR)		
		Automatic Tank Gauge	None required	
		Continuous In-Tank Leak Detection		
Double-walled <sup>(3)</sup>	Precision Leak Detection Test or Secondary Containment Test <sup>(4)</sup>	Secondary Containment Monitoring	None required	Precision Leak Detection Test or Secondary Containment Test <sup>(4)</sup>

**Notes to Table 4.4.1.2.A.:**

- (1) Applies to single-walled *storage tanks* of typical construction, including *storage tanks* that do not meet the requirements for double-walled *storage tanks*.
- (2) Not applicable because underground *storage tanks* must be of double-walled construction as per Sentence 4.3.8.1.(1).
- (3) Applies to double-walled *storage tanks*, which have an interstitial space that allows for monitoring using high- or low-tech methods.
- (4) The Secondary Containment Test is a precision test capable of detecting leaks in the interstitial space of the *storage tank*. Risers, connections and vents are also susceptible to leakage and must therefore also be precision-tested.

**Table 4.4.1.2.B.**  
**Leak Detection Testing and Monitoring of Aboveground Storage Tanks**  
 Forming Part of Sentence 4.4.1.2.(1)

Type of Containment <sup>(1)</sup>	Commissioning Test	In-Service Monitoring		Leak Suspected
		Continuous	Periodic	
Contained open <sup>(2)</sup> vertical tank	Visual inspection <sup>(3)</sup> during Liquid Media Test	Inventory Reconciliation and Secondary Containment Monitoring	API 653 or Tank floor inspection every 10 years	API 653 or Tank floor inspection
Contained open <sup>(2)</sup> horizontal tank	Visual inspection <sup>(3)</sup> during Liquid Media Test		None required	Visual inspection <sup>(3)</sup>
Double-walled <sup>(4)</sup>	Visual inspection <sup>(3)</sup>	Secondary Containment Monitoring	None required	Secondary Containment Test

**Notes to Table 4.4.1.2.B.:**

- (1) See Subsection 4.3.7.

Table 4.4.1.2.B. (Continued)

- (2) Applies to *storage tanks* contained in an open arrangement that do not meet the requirements for double-walled *storage tanks* and do not conform to Subsection 4.3.7.
- (3) Visual leak detection may apply to single- or double-walled *storage tanks* and piping. See Sentence 4.4.2.1.(8).
- (4) Applies to double-walled *storage tanks*, which have an interstitial space that allows for monitoring using high- or low-tech methods.

**Table 4.4.1.2.C.**  
**Leak Detection Testing and Monitoring of Underground Piping Systems**  
 Forming Part of Sentence 4.4.1.2.(1)

Type of Containment	Commissioning Test	In-Service Monitoring		Leak Suspected
		Continuous	Periodic	
Single-walled <sup>(1)</sup> and single-walled, buried mechanical threaded connections <sup>(2)</sup>	N/A <sup>(3)</sup>	Inventory Reconciliation	Pipe Leak Detection Test <sup>(4)</sup> every 2 years (annually for mechanical connections)	Pipe Leak Detection Test <sup>(4)</sup>
		Inventory Reconciliation and Monitoring Wells	Pipe Leak Detection Test <sup>(4)</sup> every 5 years (annually for mechanical connections)	
		SIR		
		Single Check Valve <sup>(5)</sup>		
		Electronic Line Leak Detection (with a detectable limit of 0.76 L/h monthly)	Electronic Line Leak Detection (with a detectable limit of 0.38 L/h annually)	
Continuous Electronic Line and Tank Leak Detection (with a detectable limit of 0.76 L/h monthly)	Continuous Electronic Line and Tank Leak Detection (with a detectable limit of 0.38 L/h annually)			
Double-walled <sup>(6)</sup>	Pipe Leak Detection Test and Secondary Containment Test <sup>(7)</sup>	Secondary Containment Monitoring	None required	Pipe Leak Detection Test <sup>(4)</sup> or Secondary Containment Test <sup>(7)</sup>

**Notes to Table 4.4.1.2.C.:**

- (1) Applies to single-walled piping systems of typical construction, including piping systems that do not meet the requirements for double-walled piping systems.
- (2) See Article 4.5.5.6.
- (3) Not applicable because underground piping systems must be of double-walled construction as per Sentence 4.5.6.1.(1).
- (4) The Pipe Leak Detection Test results shall conform to Sentence 4.4.3.4.(9) with a probability of detection of 0.95 or greater and a probability of false alarm of 0.05 or less.
- (5) Applies to suction line only.
- (6) Applies to double-walled piping systems, which have an interstitial space that allows for monitoring using high- or low-tech methods. Monitoring in a sump can be done in accordance with Table 4.4.1.2.E.
- (7) The Secondary Containment Test shall conform to Article 4.4.3.3.

**Table 4.12.1.1.**  
**Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 4**  
 Forming Part of Sentence 4.12.1.1.(1)

Functional Statements and Objectives <sup>(1)</sup>	
<b>4.1.3.1. Determination of Flash Point</b>	
(1)	[F01-OS1.1]
(2)	[F01-OS1.1]
(3)	[F01-OS1.1]
(4)	[F01-OS1.1]
<b>4.1.4.1. Hazardous Locations</b>	
(1)	[F01-OS1.1]
(2)	[F01-OS1.1]
<b>4.1.5.1. Additional Fire Protection Equipment</b>	
(1)	[F02,F03-OS1.2]
	[F02,F03-OP1.2]
<b>4.1.5.2. Ignition Sources</b>	
(1)	[F01-OS1.1] Applies to portion of Code text: "... a device, operation or activity that produces open flames, sparks or heat shall not be permitted in an area described in Article 4.1.1.1."
	[F01-OS1.1] Applies to portion of Code text: "Unless controlled in a manner that will not create a fire or explosion hazard ..."
<b>4.1.5.3. Smoking</b>	
(1)	[F01-OS1.1]
<b>4.1.5.4. Removal of Combustibles</b>	
(1)	[F01-OS1.1]
<b>4.1.5.5. Emergency Planning</b>	
(2)	[F12-OS1.2]
<b>4.1.5.6. Access for Firefighting</b>	
(1)	[F12-OS1.2]
	[F12-OP1.2]
	[F12-OP3.1]
<b>4.1.5.8. Basement Storage</b>	
(1)	[F43,F01-OS1.1]
(2)	[F02,F43-OS1.1]
<b>4.1.6.1. Spill Control</b>	
(1)	[F44-OS1.1,OS1.2] Applies to preventing spills from flowing outside the spill area.
	[F44-OP1.1,OP1.2] Applies to preventing spills from flowing outside the spill area.
	[F44-OH5]
(3)	[F44-OH5]
	[F44-OS1.1,OS1.2]
(4)	[F44-OP1.1,OP1.2]
	[F44-OS1.1,OS1.2]
	[F44-OH5]
<b>4.1.6.2. Drainage Systems</b>	
(1)	(a) [F44-OH5] Applies to the termination of the drainage system where it will not create a risk to public health.
	[F44-OS1.1,OS1.2,OS1.4]
	[F44-OP1.1,OP1.2]

(2)	[F03-OS1.2]
<b>4.1.6.3. Spills and Leaks</b>	
(1)	[F82,F44-OS1.1,OS1.2]
	[F82,F44-OP1.1,OP1.2]
(2)	[F44-OP1.1,OP1.2]
	[F44-OS1.1,OS1.2]
	[F44-OH5]
(3)	(a) [F01,F02-OS1.1]
	(b) [F02-OS1.1,OS1.2]
	(a) [F44-OP1.1,OP1.2]
(b) [F02-OP1.1,OP1.2]	
<b>4.1.7.1. Rooms or Enclosed Spaces</b>	
(1)	[F01-OS1.1] Applies to conformance to the appropriate provincial or territorial regulations or municipal bylaws.
	[F01-OS1.1] Applies to portion of Code text: "... shall conform ... to this Part, and the NBC."
<b>4.1.7.2. Ventilation Measures</b>	
(1)	[F01-OS1.1]
(2)	[F43-OS1.1]
(3)	[F01-OS1.1]
(4)	[F01-OS1.1]
	[F01-OP1.1]
(5)	(a) [F01-OS1.1]
	(b) [F11-OS1.1]
	(c) [F01,F02-OS1.1,OS1.2]
	(c) [F02-OP1.2]
<b>4.1.7.3. Location of Air Inlets and Outlets</b>	
(1)	[F01-OS1.1]
(3)	[F01-OS1.1]
(4)	[F01-OS1.1]
<b>4.1.7.4. Location of Mechanical Ventilation Exhaust Air Outlets</b>	
(1)	(a) [F01-OS1.1]
	(b) [F03-OP1.2]
	(b) [F03-OP3.1]
	(b) [F01-OS1.1] [F03-OS1.2]
<b>4.1.7.5. Make-up Air</b>	
(1)	[F01-OS1.1]
(2)	[F01,F44-OS1.2]
(3)	[F03-OS1.2]
	[F03-OP1.2]
<b>4.1.7.6. Recirculating Ventilation Systems</b>	
(1)	[F01-OS1.1]
	(a),(b)(i) [F11,F01-OS1.1]



**Table 4.12.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
(2)	(a) [F20,F21-OS1.1] (b) [F20,F21-OS1.1] Applies to the distance from a <i>building</i> foundation.
	(b) [F01-OS1.1] Applies to the distance from a <i>building</i> foundation.
	(b) [F81-OS1.1] Applies to the distance from <i>street</i> lines. (c) [F81-OS1.1]
	(a) [F20,F21-OH5] (b) [F20,F21-OH5] Applies to the distance from a <i>building</i> foundation.
	(b) [F01-OP3.1] Applies to the distance from a <i>building</i> foundation.
	(b) [F81-OH5] Applies to the distance from <i>street</i> lines. (c) [F81-OH5]
<b>4.3.8.3. Ground Cover</b>	
(1)	[F20,F81-OS1.1] [F20,F81-OH5]
(2)	[F20,F81-OS1.1] [F20,F81-OH5]
(3)	[F20,F81-OS1.1] [F20,F81-OH5]
(4)	[F81,F04,F20-OS1.1] [F81,F04,F20-OH5]
<b>4.3.8.4. Damage Repair</b>	
(1)	[F82-OH5] [F82-OS1.1]
(2)	[F82-OS1.1] [F82-OH5]
<b>4.3.8.5. Damage Prevention</b>	
(1)	[F81-OS1.1] [F81-OH5]
(2)	[F81-OS1.1] [F81-OH5]
<b>4.3.8.6. Installation</b>	
(1)	[F81-OS1.1] [F81-OH5]
(2)	[F81-OS1.1] [F81-OH5]
(3)	[F20-OS1.1] [F20-OH5]
<b>4.3.8.7. Filling</b>	
(1)	[F43-OS1.1] [F43-OH5]
<b>4.3.8.9. Anchorage</b>	
(1)	[F22-OS1.1] [F22-OH5]

**Table 4.12.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>		
(2)	[F81-OS1.1] [F81-OH5]	
<b>4.3.9.1. Installation</b>		
(1)	[F44-OH5] [F44-OS3.4] [F01,F44-OS1.1] [F01,F44-OP1.1]	
	(2)	[F43,F44-OH5] [F43,F44-OS3.4] [F01,F43,F44-OS1.1] [F01,F43,F44-OP1.1]
(3)	[F43,F44-OH5] [F30,F43,F44-OS3.4] [F01,F43,F44-OS1.1] [F01,F43,F44-OP1.1]	
	(4)	[F44,F82-OH5] [F44,F82-OS3.4] [F01,F44,F82-OS1.1] [F01,F44,F82-OP1.1]
<b>4.3.9.2. Construction</b>		
(1)	[F20,F44,F80,F81-OH5] [F20,F44,F80,F81-OS3.4] [F01,F20,F44,F80,F81-OS1.1] [F01,F20,F44,F80,F81-OP1.1]	
	(2)	[F20,F44,F80,F81-OH5] [F20,F44,F80,F81-OS3.4] [F01,F20,F44,F80,F81-OS1.1] [F01,F20,F44,F80,F81-OP1.1]
<b>4.3.9.3. Leak Detection Monitoring</b>		
(1)	[F43,F82-OS1.1] [F43,F82-OS3.4] [F43,F82-OP1.1] [F43,F82-OH5]	
<b>4.3.10.1. Corrosion Protection</b>		
(1)	[F80-OS1.1] [F80-OH5]	
<b>4.3.11.1. Vent Design</b>		
(1)	[F20,F81-OS1.1] [F20,F81-OH5]	



**Table 4.12.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
<b>4.3.11.3. Installation</b>	
(1)	(a)(i),(b) [F01-OS1.1]
	(a) [F43-OS1.1] Applies to the vent pipe outlets being higher than the fill pipe openings.
	(a)(iii) [F01-OS1.1]
	(a)(ii), (b) [F01-OS1.1]
	(a) [F43-OH5] Applies to the vent pipe outlets being higher than the fill pipe openings.
(2)	[F01-OS1.1] Applies to portion of Code text: "Vent pipe outlets from underground <i>storage tanks</i> for Class II or IIIA liquids shall be located outside <i>buildings</i> ..."
	[F43-OS1.1] Applies to the requirement for vent pipe outlets to be located outside <i>buildings</i> at a height that is above the fill pipe opening.
	[F01-OS1.1] Applies to the requirement for vent pipe outlets to be located outside <i>buildings</i> at not less than 2 m above finished ground level.
	[F43-OH5] Applies to the requirement for the vent pipe outlets to be located outside <i>buildings</i> at a height that is above the fill pipe opening.
(3)	[F20,F81-OS1.1] Applies to the requirement for vent pipes to not be obstructed by any device that may cause excessive back pressure.
	[F20,F81-OH5] Applies to the requirement for vent pipes to not be obstructed by any device that may cause excessive back pressure.
(4)	[F20,F81-OS1.1]
	[F20,F81-OH5]
(5)	(a),(b),(c) [F81,F20-OS1.1]
	(d) [F81-OS1.1]
	(a),(b),(c) [F81,F20-OH5]
	(d) [F81-OH5]
<b>4.3.11.4. Interconnection of Vent Pipes</b>	
(1)	[F20,F81-OS1.1]
	[F20,F81-OH5]
(2)	[F20-OS1.1]
	[F20-OH5]
(3)	[F01-OS1.1]

**Table 4.12.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
<b>4.3.12.1. Connections</b>	
(1)	[F43,F01-OS1.1]
	[F43-OH5]
<b>4.3.12.2. Openings for Measuring Liquid Level</b>	
(1)	[F43,F01,F81,F34-OS1.1]
	[F43,F81,F34-OH5]
<b>4.3.12.3. Fill Piping and Discharge Piping</b>	
(1)	[F43-OS1.1] Applies to portion of Code text: "Fill piping and discharge piping shall enter underground <i>storage tanks</i> only through the top of the tank ..."
	[F43-OS1.1] Applies to portion of Code text: "... discharge piping used in suction systems shall be sloped toward the <i>storage tanks</i> ."
	[F43-OH5] Applies to portion of Code text: "Fill piping and discharge piping shall enter underground <i>storage tanks</i> only through the top of the tank ..."
	[F43-OH5] Applies to portion of Code text: "... discharge piping used in suction systems shall be sloped toward the <i>storage tanks</i> ".
(2)	[F43-OS1.1]
	[F43-OH5]
(3)	(a),(b) [F01-OS1.1]
	(a),(c) [F01-OS1.1]
(4)	[F43,F01-OS1.1]
	[F43-OH5]
(5)	[F01-OS1.1]
(6)	(a),(c) [F43,F44,F82-OH5]
	(a),(c) [F43,F44,F82-OS3.4]
	(a),(c) [F01,F43,F44,F82-OP1.1]
	(b) [F01,F43-OP1.1]
	(b) [F43-OH5]
(7)	[F01,F43-OS1.1]
	[F01,F43-OS3.4]
	[F01,F43-OH5]
<b>4.3.13.1. Occupancy</b>	
(1)	[F01,F02-OS1.1]
	[F01,F02-OP1.1]
<b>4.3.13.2. Stationary Combustion Engines</b>	
(1)	[F01,F02,F03,F04,F43,F81-OS1.1,OS1.2]
<b>4.3.13.3. Maximum Static Head</b>	
(1)	[F20-OS1.1]
	[F20-OH5]
<b>4.3.13.4. Maximum Quantities and Location</b>	
(1)	(b) [F01-OS1.1] [F02-OS1.2]
	(b) [F01-OP1.1] [F02-OP1.2]

**Table 4.12.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
<b>4.3.13.5. Storage Tank Construction</b>	
(1)	(a) [F01,F20,F43,F80,F81-OS1.1]
	(a) [F01,F20,F43,F80,F81-OP1.1]
	(b) [F01,F43,F82-OS1.1]
	(b) [F01,F43,F82-OP1.1]
	(b) [F20,F43,F80,F81-OH5]
(2)	(b) [F01,F43,F82-OS1.1]
	(b) [F01,F43,F82-OP1.1]
	(b) [F20,F43,F80,F81-OH5]
<b>4.3.13.6. Piping Systems</b>	
(1)	[F01-OS1.1]
	[F01-OP1.1]
<b>4.3.13.7. Fire Compartments</b>	
(1)	[F03-OP1.2]
	[F03-OS1.2]



**6.5.1.3. Instructions**

1) Where an emergency power system is installed, instructions shall be provided for switching on essential loads and for starting the generator when this is not done automatically.

**6.5.1.4. Records**

1) Written records shall be maintained as required in CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings."

**6.5.1.5. Supply of Fresh Fuel**

1) Liquid fuel *storage tanks* shall be drained and refilled with fresh fuel at intervals not greater than 12 months. (See Appendix A.)

**6.5.1.6. Inspection of Unit Equipment**

- 1) Self-contained emergency lighting unit equipment shall be inspected at intervals not greater than one month to ensure that
- a) pilot lights are functioning and not obviously damaged or obstructed,
  - b) the terminal connections are clean, free of corrosion and lubricated when necessary,
  - c) the terminal clamps are clean and tight as per manufacturer's specifications, and
  - d) the battery surface is kept clean and dry.
- 2) Self-contained emergency lighting unit equipment shall be tested
- a) at intervals not greater than one month to ensure that the emergency lights will function upon failure of the primary power supply, and
  - b) at intervals not greater than 12 months to ensure that the unit will provide emergency lighting for a duration equal to the design criterion under simulated power failure conditions.
- 3) After completion of the test required in Clause (2)(b), the charging conditions for voltage and current and the recovery period shall be tested to ensure that the charging system is functioning in accordance with the manufacturer's specifications.

**6.5.1.7. Inspection of Emergency Lights**

1) Except as provided in Article 6.5.1.6., emergency lights shall be inspected at intervals not greater than 12 months to ensure that they are functional.

## **Section 6.6. Special Fire Suppression Systems**

**6.6.1. General****6.6.1.1. Testing, Inspection and Maintenance**

1) A special fire suppression system that meets the description given in any one of the standards referenced in Article 2.1.3.5. shall be tested, inspected and maintained in conformance with the appropriate requirements of that standard.

## **Section 6.7. Smoke Alarms and Carbon Monoxide Alarms**

**6.7.1. General****6.7.1.1. Inspection, Testing and Maintenance**

1) *Smoke alarms* shall be inspected, tested and maintained in conformance with CAN/ULC-S552, "Maintenance and Testing of Smoke Alarms."

2) A record shall be kept of all testing of *smoke alarms* installed in hotels and motels and shall be retained in conformance with Article 2.2.1.2. of Division C.

3) Carbon monoxide alarms shall be inspected, tested and maintained in conformance with the manufacturer's instructions.

## Section 6.8. Objectives and Functional Statements

### 6.8.1. Objectives and Functional Statements

#### 6.8.1.1. Attribution to Acceptable Solutions

1) For the purposes of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Table 6.8.1.1. (See A-1.1.2.1.(1) in Appendix A.)

**Table 6.8.1.1.**  
**Objectives and Functional Statements Attributed to the**  
**Acceptable Solutions in Part 6**  
Forming Part of Sentence 6.8.1.1.(1)

Functional Statements and Objectives <sup>(1)</sup>	
<b>6.1.1.2. Maintenance</b>	
(1)	[F82-OP1.2]
	[F82-OP3.1]
	[F82-OS1.2,OS1.5]
<b>6.1.1.3. Notification</b>	
(1)	[F11,F13-OP1.2]
	[F11,F13-OP3.1]
	[F11,F13-OS1.2,OS1.5]
<b>6.1.1.4. Protection during Shutdown</b>	
(1)	[F02-OP1.2]
	[F02-OP3.1]
	[F02-OS1.2,OS1.5]
<b>6.2.1.1. Inspection, Testing and Maintenance</b>	
(1)	[F82-OS3.1,OS3.2,OS3.3,OS3.4]
	[F82-OP1.2]
	[F82-OS1.2]
<b>6.3.1.1. Maintenance</b>	
(1)	[F02,F12-OS1.5,OS1.2]
<b>6.3.1.2. Inspection and Testing</b>	
(1)	[F82-OS1.5,OS1.2]
(2)	[F82-OS1.5,OS1.2]
<b>6.3.1.3. Central Stations and Their Fire Protection Signalling Systems</b>	
(1)	[F82-OS1.2,OS1.5]
<b>6.3.1.4. Voice Communication Systems</b>	
(2)	[F82-OS1.2,OS1.5]
(3)	[F82-OS1.2,OS1.5]

**Table 6.8.1.1. (Continued)**

Functional Statements and Objectives <sup>(1)</sup>	
(4)	[F82-OS1.2,OS1.5]