

How to interpret the Canadian Biosafety Standards and Guidelines (CBSG)

1 Part I - The Standards

INTERPRETING THE MATRIX LAYOUT

Part I contains the biosafety requirements for engineering controls and facility design (**Chapter 3 – Physical Containment Requirements**) and administrative controls and procedures (**Chapter 4 – Operational Practice Requirements**). The requirements are organized into tables, called “matrices” (sing. “matrix”) (e.g., matrix 3.2 contains requirements pertaining to containment barriers.)

Example of a matrix layout

matrix #	requirement #	matrix title	containment level (CL)				
			CL2	CL2-Ag	CL3	CL3-Ag	CL4
3.2		Containment Barrier					
3.2.1		Openable windows positioned on the containment barrier are to include effective pest control and security.	■				
		[Only applies to CL2 laboratory work areas.]					
3.2.2		Windows on the containment barrier to be non-opening and sealed.	□ P	■	■	■	■

Exempted areas are listed in square brackets below the requirement.

Increased requirement for CL2 laboratory work areas where prions are handled.

The areas applicable to each containment level

Type of work area(s)	CL2*	CL2-Ag*	CL3	CL3-Ag	CL4
Laboratory work areas	✓		✓		✓
Large scale production areas	✓		✓		✓
SA zones (including animal rooms) [†]	✓		✓		✓
LA zones [‡] (including animal cubicles and PM rooms)		✓		✓	✓

*includes activities involving prions or animals infected with prions

[†]animal containment zones where the animals are contained in primary containment caging

[‡]animal containment zones where the room itself provides the primary containment

2 The Transition Index

INTERPRETING TRANSITION INDEX ENTRIES

Located between Parts I and II, the Transition Index provides information on **why** a requirement from Part I is needed, supplementary information, and indicates where to find further guidance on the subject in Part II. (Each requirement has a corresponding entry in the Index, using the same numbering convention.) The Transition Index does not include additional requirements but rather provides information and recommendations only.

Transition Index layout

matrix #	requirement #	References to relevant sections of Part II (The Guidelines)
3.2	Containment Barrier	
3.2.2		Sealed windows provide biosecurity and help maintain the air pressure differentials where inward directional airflow is provided. Biosecurity in general is discussed in Part II, Chapter 6, and inward directional airflow is discussed in G10.1.

Matrix Legend

- Required physical containment element
- Required physical containment element, required for CL2 large scale production areas and SA zones only (not CL2 laboratory work areas)
- P Increased physical containment requirement beyond CL2 or CL2-Ag for activities involving prions

The absence of a symbol in the tables indicates that the item is not required. Any additional exceptions to the requirement are noted below the text in square brackets.

SA zone Small Animal containment zone (where caging within an animal room provides primary containment)

LA zone Large Animal containment zone (where animal cubicles provide primary containment)

PM room Post Mortem room

Ag Agriculture; CL2/3 requirements apply to animal work conducted in LA zones

3 Part II – The Guidelines

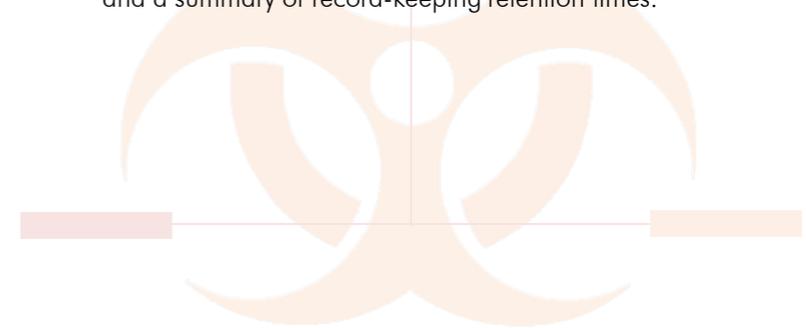
AN OVERVIEW OF THE GUIDELINES

Chapters 1 through 20 in Part II (The Guidelines) provide information on **how** to achieve the biosafety requirements outlined in Part I, and address the concepts required to develop a thorough and risk-based biosafety management program. It provides overall guidance for personnel rather than specific guidance or standard operating procedures (SOPs).

Topics discussed in Part II include:

- Fundamentals of biosafety and biosecurity
- Risk assessments
- Core biosafety program elements such as training and infectious material and toxin accountability
- Guidance on certain technical components such as air handling, decontamination, and waste management
- And more!

Part II also contains a comprehensive glossary of biosafety terms that appear in the CBSG (terms are written in **bold font** the first time they appear within the CBSG), and a list of the resources, standards, codes and relevant legislation that were used to develop the CBSG. The appendices contain diagrams depicting examples of containment levels, animal containment zones, animal housing/caging and a summary of record-keeping retention times.



Animal Containment Zones

An animal containment zone refers to a series of co-located animal rooms/cubicles, as well as associated corridors and support rooms (e.g., storage and preparation areas) of equal containment level, serviced by a single entry/exit. In a “**small animal containment zone**” (SA zone), animals are housed in primary containment caging. The room encompassing these cages is referred to as an “**animal room**”. Generally, work with animals in SA zones follow the same requirements as those for laboratory work areas. In a “**large animal containment zone**” (LA zone), the room itself provides the primary containment. The room or space housing the animals is referred to as an “**animal cubicle**”. In some cases, small-sized animals can be housed in an LA zone (e.g., chickens housed together in animal cubicles). In Part I, LA zone requirements have distinct columns for CL2 and CL3, labelled CL2-Agriculture (CL2-Ag) and CL3-Ag, respectively.

Biological Toxins

Biological toxins are poisonous substances that are naturally produced by microorganisms. In general, toxins capable of producing human or animal disease can be safely handled, at a minimum, in CL2 zones; however, additional physical containment or operational practices may be required, based on risk, and would be included as a condition of the importation permit or otherwise communicated by the PHAC.

Instances of Requirement Derogations

Since many activities with diagnostic specimens (e.g., extraction of genetic material from clinical samples, tissue fixation for histology) do not involve propagating the pathogen, the physical containment and/or operational practice requirements may be lower than the requirements for handling pure cultures. Similarly, certain physical containment and/or operational practice requirements for activities with pathogens not known to be transmissible by inhalation at CL3 may be derogated, depending on the work involved and the pathogen in question. In both cases, specific requirements would be included as a condition of the importation permit or otherwise communicated by the PHAC or the CFIA.

About the CBSG

The *Canadian Biosafety Standards and Guidelines* (CBSG) is a national reference document pertaining to work with human and terrestrial animal pathogens and toxins, and was jointly developed by the Public Health Agency of Canada (PHAC) and the Canadian Food Inspection Agency (CFIA). These standards and guidelines are used by laboratory researchers and workers in facilities where such pathogens and toxins are handled and stored. The CBSG combines and updates the following documents: *Laboratory Biosafety Guidelines 3rd Edition, 2004* (PHAC); *Containment Standards for Veterinary Facilities 1st Edition, 1996* (CFIA); and *Containment Standards for Laboratories, Animal Facilities and Post Mortem Rooms Handling Prion Disease Agents, 2005* (CFIA).

Web resources

The Canadian Biosafety Standards and Guidelines website

|| www.canadianbiosafetystandards.collaboration.gc.ca/index-eng.php

PHAC Centre for Biosecurity website

|| www.publichealth.gc.ca/pathogens

CFIA Office of Biohazard Containment and Safety (OBCS) website

|| www.inspection.gc.ca/english/sci/bio/bioe.shtml

The Public Health Agency of Canada e-Learning and Resources Portal

|| www.publichealth.gc.ca/training

Contact us

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Canadian Biosafety Standards and Guidelines

for Facilities Handling Human and Terrestrial Animal Pathogens, Prions, and Biological Toxins



First Edition

Canada

QUICK User Guide