



Biological Risk Management and Containment

Requirements for Laboratory Physical Containment Level 1 and 2 (PC1 and PC2)

Containment Laboratory Guidelines

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1. Who are these guidelines for?

These guidelines are intended for **principal investigators (PIs), designated persons in charge, designated laboratory person (DLPs)**, technical staff and students trained in the safe use of **risk biologicals** in appropriate containment and transitional facilities.

This information is also intended to assist departmental, school, faculty and Property Services managers and administrators to make decisions related to commissioning, maintaining and supervising laboratories within University of Auckland containment and transitional facilities.

2. What is the purpose of this document?

All laboratories and specialised containment/transitional facilities for animals and plants must, at all times, meet the minimum standards for PC1 or PC2 containment. The requirements for these containment levels have used AS/NZS 2243.3:2002 as guidance.

The requirements of the University and MPI related to signage and security must also be met prior to commissioning and recommissioning the laboratories for use.

3. Requirements for PC1 Containment Laboratories

3.1. Laboratory facilities

- Laboratory designed for ease of cleaning and surfaces are impervious to water and surfaces are resistant to acid, alkali and organic solvents.
- Floors smooth easy to clean and resistant to acid, alkali and organic solvents
- Fitted with a sink for handwashing. The taps should allow hands-free operation.
- Hooks are provided for storage of laboratory coats
- Open spaces between and under benches are accessible for cleaning.
- Eye wash facilities are provided.
- Access is limited to authorised personnel.
- A sign with biohazard symbol, level of containment and access restrictions to be posted at entrance.
- Autoclave facilities are readily available.

3.2. Personal Protective Clothing

- Laboratory coats to be worn.
- Closed footwear to be worn.
- Safety glasses or face shields to be worn where appropriate.
- Other PPE such as earmuffs, special gloves might be required as per risk assessment

3.3. Work Practices

- No eating or drinking in laboratory.
- No food or drink to be stored in laboratory.
- Long hair must be kept tied back.
- Mouth pipetting is prohibited.
- Production of aerosols on the open bench is minimised. Where there is any doubt, a Class II Hood is to be used for such manipulations.
- Laboratory coats to be removed before leaving the laboratory areas.
- Hands to be washed before leaving the laboratory.
- Work surfaces to be decontaminated after usage and after spills.
- Laboratory waste to be disposed accordingly (see Clean it/Kill it section).
- Significant spills and accidents to be reported immediately to supervisor (see section Clean it/Kill it for details).
- All cultures to be clearly labelled, dated and appropriately stored. Cultures must not be stored for long periods on the bench and are to be transferred to a storage area.
- A supply of clearly labelled disinfectants is available.
- Special care taken to reduce hand/mouth contact and to ensure reading/writing materials are not contaminate

4. Requirements for PC2 Containment laboratories

4.1. Ventilation of PC2 laboratories

There must be a directional airflow into the laboratory which is maintained by extracting air. Air must not be recirculated to areas outside the PC2 facility.

4.2. Laboratory Facilities

In addition to PC1 requirements the following must be present:

- Doors are to be self-closing
- Windows are closed and sealed
- All floors and walls to be smooth, easily cleaned and resistant to commonly used reagents.
- Floors must be coved to walls and plinths to facilitate cleaning.
- Internal fittings (lights, air ducts) must be easily cleaned.
- Horizontal surfaces (apart from benches) must be minimised to prevent dust accumulation
- Hand-washing sink must allow hands-free operation.
- Emergency eyewash station or one-use sterile eye treatment fluids to be available
- Freezers, fridges and other storage units in which recombinant or pathogenic material is stored must have biological hazard signage.
- Storage space is provided for any reference documents which are not to be used on bench
- Protective covers on any keyboards on workbenches.
- Specially marked containers for the transport of infectious material and a supply of clearly labelled disinfectants to be available.

4.3. Personal Protective Clothing

In addition to PC1 PPE the following will apply:

- Gloves to be worn when handling human blood, human tissue or infectious materials.
- Gloves to be discarded with laboratory waste before leaving laboratory.
- Lab coats are to be restricted to the PC2 area only

4.4. PC2 Specific Work Practices

In addition to PC1 work practises the following will be observed: Laboratory personnel to receive instruction and training in handling pathogenic material.

- Needles and syringes are disposed of in approved container. Needles are not separated from syringe before disposal.
- Laboratory staff to advise maintenance and service personnel of hazards.
- All clinical specimens to be regarded as potentially hazardous.
- Live organisms or media containing live organisms to be transported between laboratories in second unbreakable and closed container that can be easily disinfected.

- Glassware to be autoclaved or chemically sterilised before washing.
- All the waste to be chemically sterilized or autoclaved prior disposal.

4.5. Containment Equipment

- Class II Hoods to be certified annually as per AS 2252.2.
- Water operated venturi pumps are not to be used.
- Centrifuges with sealed rotors or safety cups are to be used for large volumes or high concentrations of micro-organisms.

5. Definitions

Designated laboratory person (DLP) means the trained person in each research group who has been given the authority to receive purchase requests made in SQERM and to make a formal request for a purchase order via PeopleSoft. In containment and transitional facilities DLPs will have additional training to enable them to scrutinise documentation for restricted items and provide support to researchers.

Designated person in charge means a staff member in any of the following roles: sector manager, facility manager, floor manager, technical manager or an appointed delegate.

Principal Investigator (PI): In the context of hazard containment and transitional facilities, a principal investigator is the holder of an independent grant administered by the University and the lead researcher for the grant project, usually in the sciences, such as a laboratory study or a clinical trial. The phrase is also often used as a synonym for "head of the laboratory" or "research group leader." The PI is responsible for assuring compliance with applicable University standards and procedures, and for the oversight of the research study and the informed consent process. Although the PI may delegate tasks, they retain responsibility for the conduct of the study.