

Respect

Excellence

Integrity

Leadership



Due Diligence and Compliance in Canadian Laboratories

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Public Works and
Government Services
Canada

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Canada Labour Code

- **The Government of Canada, through the *Canada Labour Code*, promotes and regulates a fair, safe, healthy and stable work environment**





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Bill C – 45

- **Bill C- 45 is federal legislation that amended the Canadian Criminal Code**
- **Legal duties for workplace health and safety, and serious penalties for violations that result in injuries or death**
- **New rules for attributing criminal liability to organizations, including corporations, their representatives and those who direct the work of others**





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Canada Labour Code Defence

- **A defence for a person charged of an offence is to prove that the person exercised due care and diligence to avoid the contravention**



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What is Due Diligence ?

- **Level of judgment, care, prudence, determination, and activity that a person would reasonably be expected to do under particular circumstances - CCOHS**



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Due Diligence Application

- **Employers shall take all reasonable precautions, under the particular circumstances, to prevent injuries or accidents in the workplace - CCOHS**



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Types of Laboratory

- General Chemistry
- Analytical Chemistry
- High-Toxicity
- Chemical Engineering
- Physics
- Clean Room
- Controlled Environment Room
- Radiation
- Clinical
- Gross Anatomy
- Pathology
- Biomedical
- Animal Research
- Insect Research
- Plant Pathogen
- Forensic
- Quarantine
- Fish Pathogen
- Proteomics – genomic science
- Nanotechnology



Treasury Board of Canada Secretariat



Treasury Board of Canada
Secretariat

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du Canada



Chapter 5-1 - Safety Guide for Laboratory Operations

Notice to the reader: This document is no longer in effect. It has been archived online and is kept purely for historical purposes.

Table of Contents

[1. Introduction](#)

[2. General laboratory design criteria](#)

[3. General safety practices](#)

[4. Radiation](#)

[5. Laboratory work in microbiology](#)

[6. Control, handling, and disposal of laboratory wastes](#)

[7. Medical surveillance](#)

[8. First-aid - Health and medical services](#)

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Codes, Guidelines and Standards

Codes

- Labor Code (OSHA)
- National Building Code
- National Fire Code
- National Plumbing Code
- Provincial Building Code
- Local and municipal regulations, bylaws and ordinances

Guidelines

- Health Canada
- CFIA
- Atomic Energy of Canada
- ASHRAE
- Canadian Council on Animal Care

Standards

- ASTM
- NFPA, IES, ACGIH, ANSI
- SMACNA
- CSASMACNA



Health and Safety Devices

Protection of Personnel and/or Products

- Fume hood
- Biosafety hood
- Glove box
- Emergency shower and Eyewash
- Emergency shut-off valves (natural and other central supply gases)
- Fire extinguishers
- Audio and visual emergency lights
- Emergency communications
- Etc



Health and Safety Devices

Protection of outdoor environment - Solids

- Incineration
- Rendering
- Chemical
- Microwave
- Radiation
- Hydro pulping
- Etc



Health and Safety Devices

Protection of outdoor environment - Air

- Air filters
- HEPA filters
- Hydrophobic (PTFE) filters
- UV light
- Gas phase Adsorber cells
- Air washers
- Air incinerators
- Dispersion and dilution
- Etc





Health and Safety Devices

Protection of outdoor environment - Liquids

- UV light
- Chemical
- Heat
- Radiation
- Etc





Effective OSH Organization

Everyone has clearly defined roles and responsibilities respecting work place safety and health

Information : - Human Resources Development Canada



Job Hazard Analysis

- To review job methods
- To uncover potential hazards
- To propose controls and
- Develop safe work procedure





Safe Work Procedures

- **Employees should do to protect their safety and health when performing a specific task**
- **Should be developed in a systematic manner**



OSH Representative

- **Group of people representing management and employee who are familiar with:**
 - **Codes**
 - **Regulations**
 - **Standards**
 - **Guidelines**
 - **Laboratory procedures**
 - **Etc**



Monitoring

- **Work Place Inspection**



Work Place Inspection



Work Place Inspection – Fume Hoods

- No more than 50% of work surface should be covered by equipment



Work Place Inspection – Fume Hoods

- **Not for flammable storage cabinet**



Work Place Inspection – Fume Hoods

- **Hazardous environment in the hood**



Work Place Inspection – Fume Hoods

Large Equipment - Two or three inches above the work surface to allow flow beneath and around equipment



Work Place Inspection — Fume Hoods

**Laminar flow intake
unachievable**



Work Place Inspection– Fume Hoods

- **Turbulence – Cross draft**
- **Spillage**



Work Place Inspection – Fume Hoods

- Automatic control is not part of the testing agent's scope
- Confusing label
- What do the readings mean?



Work Place Inspection— Fume Hoods

- **PWGSC MD 15128**

Public Works and Government Services Canada
Mechanical and Maintenance Engineering
Real Property Branch

MD15128 - 2008

LABORATORY FUME HOODS

Guidelines for Owners, Design Professionals and
Maintenance Personnel



Work Place Inspection – Combined Exhaust

**Combined exhaust rate
vs. individual exhaust**



Work Place Inspection— Occupied Space & Exhaust

- Rest area and exhaust fan locations are incompatible



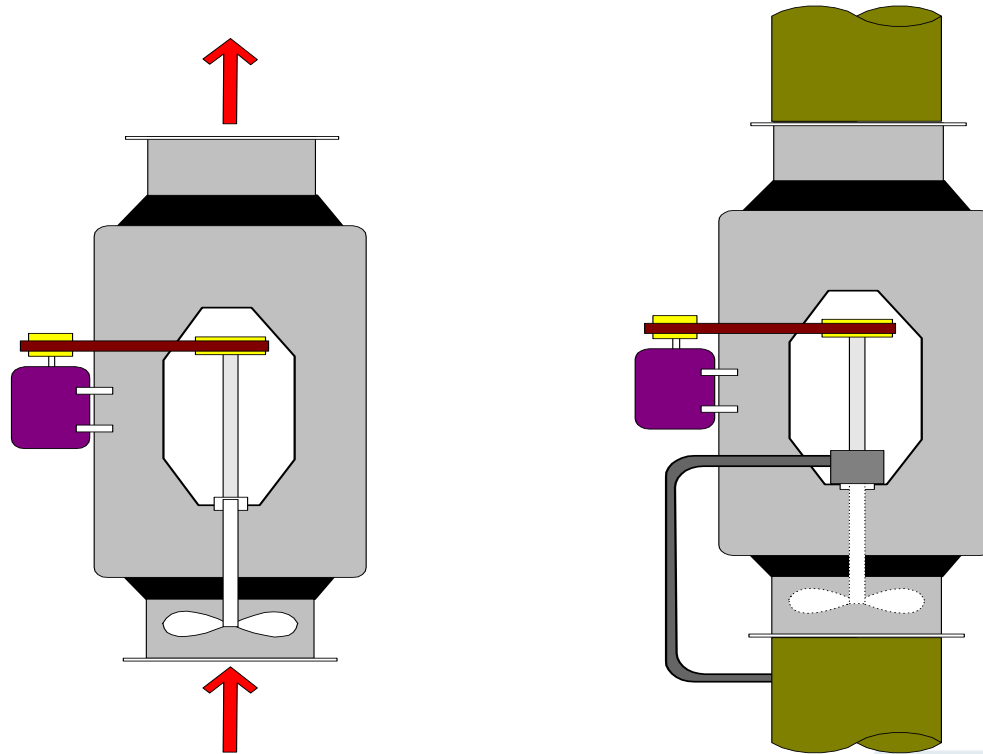
Work Place Inspection— Supply and Exhaust

- Reichert Solution



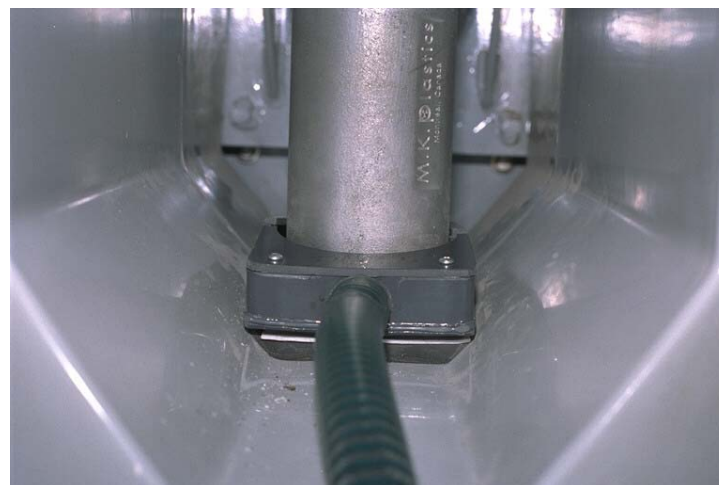
Work Place Inspection— Supply and Exhaust

- Reichert Solution



Work Place Inspection— Suggested Solution

- Reichert Solution



Work Place Inspection– Emergency Shower

- **Inaccessible**
- **Pathway obstructed**



Work Place Inspection— Emergency Shower

- Inaccessible - height



Work Place Inspection – Backflow Preventer

- ANSI Standard Z358.1-2009
- National Plumbing Code



Work Place Inspection – Doors

- **Pressure differential**
- **Fire regulation**
- **Proper internal equipment function**
- **Contain chemical vapors and odors**
- **Impact from other adjacent doors**



Work Place Inspection— Flammable Storage Cabinet

- National Fire Code
- NFPA 30 Flammable Storage Cabinet



Work Place Inspection— Flammable Storage Cabinet

- **NFPA 30 Flammable Storage Cabinets**
PROTECT flammables from fire



Fire burnt the exterior of the storage cabinet



Flammable solvents inside were protected from the fire

- **Source: AIHI**



Work Place Inspection— Flammable Storage Cabinet

- Vent or Not to Vent



Work Place Inspection— Chemical Storage

- National Fire Code
- Atomic Energy Board



Work Place Inspection – Flooring

- Flooring material



Work Place Inspection — Directional Air Flow

- Air infiltration or exfiltration between adjoining spaces



Work Place Inspection – Stack location and Air Intake

- Air Intake and exhaust



Work Place Inspection – Hazardous Place

- Warning sign



Work Place Inspection – Hazardous Place



Work Place Inspection – Floor Drain

- Sewage gas – negative pressure in labs



Work Place Inspection— Storage Room

- Return air path



Integrated Approach

- **Laboratory professional in the OSHA committee**
- **Monitoring**
 - **Work place inspection on a regular basis**
 - **Identify hazards when program changed**
 - **Set standards and related procedure**
 - **Training**



Questions

