

# Pesticide Storage

## INTRODUCTION

The purpose of this fact sheet is to inform producers of safe pesticide storage practices. A pesticide storage building is a facility designed to prevent the accidental release of pesticides into the environment. Agricultural pesticides can be toxic to humans, in addition to entire ecosystems. A very small amount of pesticide can contaminate an entire aquifer and result in an unfit drinking source. Some pesticides can remain in the environment for many years.

The size and design of the pesticide storage facility depends on the quantity and type of pesticides stored. Consequently, the first step in sound pesticide management is to minimize the quantities used and stored on the farm.

Small quantities of pesticides can be stored year round in a secured, insulated metal cabinet designed with appropriate spill containment. A low-wattage electric bulb will provide enough heat in the cabinet to ensure the chemicals do not freeze during the winter. A separate, free-standing building, used exclusively for the storage of pesticides, may be required to store larger quantities of pesticides. A new building, properly sited and constructed, generally provides enhanced security at a lower cost than trying to modify an existing structure.

## SELECTING A SITE

Human and environmental safety should be priorities when selecting a site to construct a storage facility.

- The building should not be constructed in an area prone to flooding.
- Roof and runoff water should be diverted away from the storage site.
- Pesticide storage facilities should be located downhill of or below any wells.
- The storage site must be accessible year round to farm and emergency vehicles.

Pesticides should be stored at a safe distance and location away from wells, watercourses, farm ponds, lakes or buildings.

Please note: *The regulations or guidelines in your province must be consulted for minimum separation distance requirements.*



Example of pesticide storage building

Safe separation distances should also be maintained from:

- fuel and fertilizer storages;
- flammable, combustible, incompatible materials;
- floodplains; and
- surface drainage and road ditches.

In addition, the quantity of pesticides that can be stored at sites within municipal wellhead capture zones may be restricted.

## GENERAL PLANNING AND DESIGN CONSIDERATIONS

Pesticide storage facilities should be constructed using an approved engineering plan that meets all federal, provincial and municipal regulations. Typical design requirements:

- Should have a minimum fire-spread protection rating of one hour;
- Interior wall and ceiling should be constructed using 15.9 mm Type X gypsum board;
- Walls contain metal cladding or sheathing; and
- Must have a fire alarm (checked regularly).

A well-designed pesticide storage building should be partitioned into two sections – one for pesticide storage and the other to be used as an anteroom. The anteroom should be completely sealed off from the pesticide section to provide a non-contaminated area for safety equipment and protective clothing.

Each section of the facility should have a separate outside entrance. The storage entrance should have a concrete ramp and be able to accommodate bulk containers or a forklift.

Pesticide storage is not recommended over winter. However, if winter storage is necessary, use a cabinet or storage room which is separate, heated and sufficiently insulated within the building. The pesticides should be stored at temperature and moisture levels consistent with product label requirements.

The storage facility should also be locked and secure from unauthorized entry at all times.

### Impervious floors and spill containment curbs

The floor of the area used to store pesticides should be impervious to eliminate seepage. Reinforced concrete with either an epoxy sealer or a steel floor is an effective choice for floor material. There should be a continuous impervious perimeter curb or sill encompassing the floor of the pesticide storage room. The minimum curb height should be adequate enough to contain a spill 110% of the largest container in the room. The curb height should be able to contain a recommended 150% of the volume of all the stored pesticides housed in the facility. The floor curbs must be adequate to prevent liquid flow into adjoining rooms in the pesticide storage. The floor should slope inward and towards the centre to facilitate cleanup, but should not have any drain or opening in the floor nor connection to any public or private sewage system or public water storage.

### Electrical and lighting

Lighting inside the storage facility must be adequate to provide a safe working condition and to ensure all product labels and hazard warnings can be easily read. The exterior should contain sufficient lighting to ensure exterior warning signs are readable, prevent vandalism, and so emergency personnel are able to determine all dangers or risks before entering. All electrical installations must be installed by a licensed electrical contractor, to ensure the facility is wired to code.

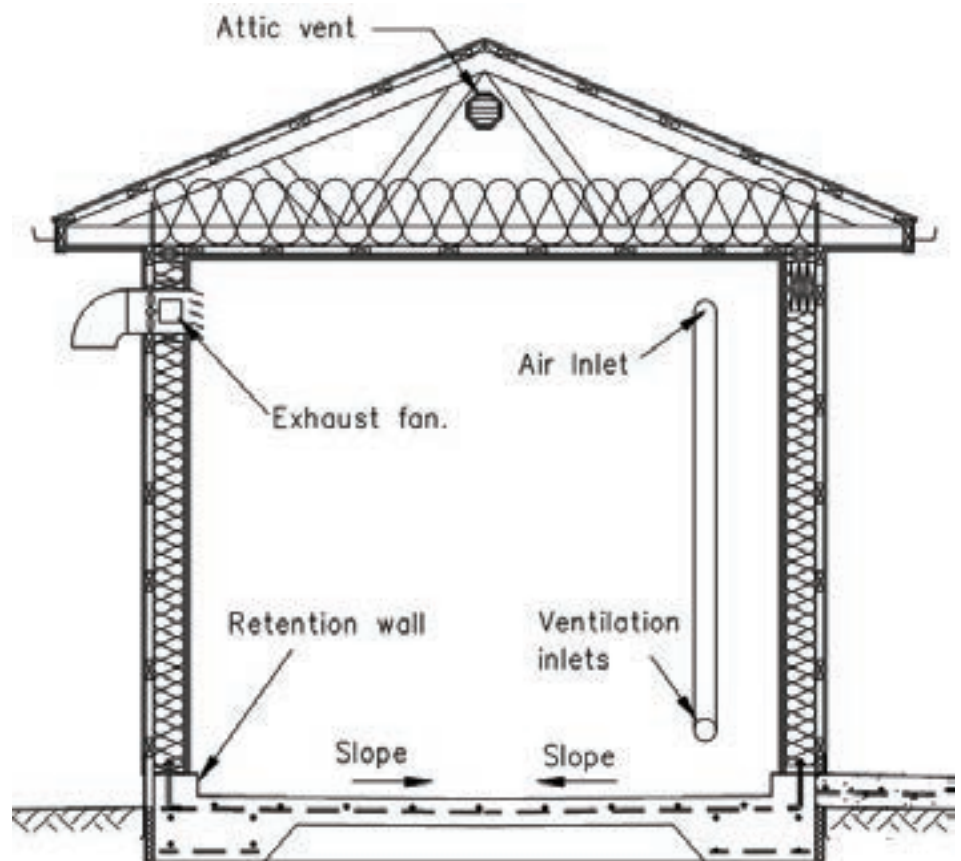
### Storage ventilation

The storage building must have adequate ventilation – natural or mechanical – to prevent the accumulation of toxic and/or flammable vapours. In addition, individual screened air inlets are required for each room.

A natural ventilation system should provide continuous eave venting as well as ventilation in the gable ends, and it should have exhaust louvers around the perimeter of the storage within 15 cm of the floor. A mechanical ventilation system should provide continuous eave venting as well as ventilation in the gable ends. The fan ventilation duct should extend to within 15 cm of the floor.

A louvered 20-25 cm diameter exhaust fan, wired to allow activation by an outside switch before entering the building or that activates automatically when the door opens, should ensure the removal of any accumulated odours and toxic fumes. Ventilation at ¼ to ½ air exchanges per minute is recommended.

The anteroom should be completely sealed off from the storage section, equipped with its own separate ventilation system.



Example pesticide storage building cross-section

## RECOMMENDED PESTICIDE STORAGE MANAGEMENT PRACTICES

The storage facility should be properly maintained, cleaned and inspected monthly. Any defects or damage to the building (fans, concrete, lights, locks, shelves, etc) must be repaired immediately to ensure safe and efficient use.

### Use shelving and pallets

Pesticides should not be stored directly on the floor in the facility. Pesticide containers must be placed on raised pallets or secured shelves (constructed above the spill containment curb). Metal shelving is recommended. If wood shelving is used, the wood should be sealed or lined to prevent pesticide absorption. Wooden pallets should be covered with plastic. To prevent spills or personal contamination, a maximum shelf height of 150 cm is recommended to ensure containers can be lifted safely while standing on the floor.

### Separation of stored products

Storing herbicides separate from insecticides and fungicides in the storage facility is recommended. Some herbicides are volatile and can contaminate other pesticides.

Store dry pesticides in a separate area or shelf above liquid pesticide containers to help prevent potential contamination from leaks and spills.

Store pesticides only in their original containers with the label intact, or in a substitute container approved by the manufacturer and appropriately labeled.

## PREPARATION FOR EMERGENCY

### Warning and safety signage

Doors to the pesticide storage facility must be adequately labeled with warning and safety signs. The regulatory requirements for exact wording, size and placement of signage may vary from jurisdiction to jurisdiction. Signs must be weather proof and clearly visible, and must contain the following:

- Warning of Danger;
- Indication that you are entering a **Pesticide/Chemical Storage facility**;
- Indicate **Authorized Personnel Only**;
- Indicate **No Smoking**; and
- Listing of all emergency and contact telephone numbers.

In addition, all facility entrances should be clearly marked.

### Personal protective safety equipment, MSDS sheets and First Aid

The pesticide storage facility must be equipped with two sets of approved personal protective equipment. Both sets must be properly maintained, functional and readily available.

Respirators equipped with pesticide filter cartridges and clean protective clothing should always be worn when working with these types of chemicals. Respirators and personal protective equipment must be regularly inspected and replaced, as needed.

Any Material Safety Data Sheets (MSDS) that have been provided by the pesticide manufacturer should be clearly posted and readily available to users of the pesticide storage.

### Emergency telephone numbers and emergency preparation

Proper pesticide storage management, combined with good initial building design, will ensure a safe storage system. Proper pesticide storage management includes health, safety and emergency planning, and maintaining and updating inventory records, as required. Emergency telephone numbers should be posted in a permanent, visible and accessible location. In addition, a pole-mounted emergency response tube could be used to house this information, where permitted.

### Spill control and cleanup

All pesticide spills, liquid or dry, must be contained and cleaned immediately. Spills considered *substantial* must be reported to the relevant provincial authorities listed in your emergency plan.

Absorbent and neutralizing materials used to clean spills must be available and in sufficient quantity. To ensure the proper and effective clean up of any spills or leaks from containers, please use the following containment and cleaning procedures:

- (1) Barricade or dike spilled material;
- (2) Absorb spill with suitable materials; and
- (3) Neutralize any remaining residue with an agent recommended for that particular pesticide.

Smaller pesticide packages, bottles or jugs may be stored on plastic or rubber trays to reduce the occurrence of spills or leaks.

### Fire safety precautions

In some municipalities, the local fire department requires notification that a pesticide storage facility has been established on the farm. Departmental staff must be provided with the location of the pesticide storage facility, and the estimated maximum quantity and types of pesticides stored on the farm at any one time. The owner must also ensure emergency vehicles and personnel have unobstructed access to the facility.

Storage facilities should be equipped with two ABC-type fire extinguishers (4A20BC). One should be located in the anteroom and the other in close proximity to, but not inside, the pesticide storage building. The extinguisher should only be used to control fires near the stored materials and is not intended to control a fire inside the structure.

Pesticides must be stored separately from other flammable materials (e.g. farm chemicals such as paints, lubricants, solvents, etc). Activities such as welding, burning, cutting or those which require an open flame should not be performed in or near the pesticide storage facility.

## RECOMMENDED PESTICIDE USE AND STORAGE

By purchasing a sufficient amount of pesticide to meet the demands of one growing season, producers can ensure that only a minimum amount needs to be stored for use the following season.

## REGULATORY ENVIRONMENT

**The owner/operator of a pesticide storage area must ensure that it meets all federal, provincial, municipal and rural legislation, regulations, orders and bylaws. These include:**

### Federal

**Pest Control Products Act** - and Regulations, Government of Canada  
[www.hc-sc.gc.ca/pmra-arla/](http://www.hc-sc.gc.ca/pmra-arla/)

**Canadian Environmental Protection Act**  
<http://laws.justice.gc.ca/en/C-15.31/>

**Fisheries Act**  
<http://laws.justice.gc.ca/en/F-14/>

**National Farm Building Code of Canada, 1995**  
<http://www.fedpubs.com/subject/housing/natfarm.htm>

**National Fire Code of Canada, 2005**  
[http://irc.nrc-cnrc.gc.ca/pubs/codes/nrcc47667\\_e.html](http://irc.nrc-cnrc.gc.ca/pubs/codes/nrcc47667_e.html)

**NFPA 434 Code for the Storage of Pesticides**  
[www.nfpa.org/freecodes/free\\_access\\_agreement.asp?id=43402](http://www.nfpa.org/freecodes/free_access_agreement.asp?id=43402)

### Provincial

**New Brunswick Pesticides Control Act** (R.S.N.B. 1973, c. p.8)  
<http://www.gnb.ca/acts/acts/p-08.htm>

**New Brunswick Regulation 96-126**  
<http://www.gnb.ca/0062/regs/96-126.htm>

**Newfoundland and Labrador Environmental Protection Act** SNL 2002 CE-14.2 Pesticide Control Regulations 2003, Section 13  
<http://www.hoa.gov.nl.ca/hoa/regulations/rc030057.htm>

**Environment Act**, Statutes of Nova Scotia, 1994-95, Pesticide Regulations, Part IV, Section 22, User Pesticide Storage Facilities  
<http://www.gov.ns.ca/just/regulations/regs/env6195.htm>

**Prince Edward Island Pesticides Control Act** (R.S.P.E.I. 1988, c.P-4)  
[www.gov.pe.ca/law/statutes/pdf/p-04.pdf](http://www.gov.pe.ca/law/statutes/pdf/p-04.pdf)

**Prince Edward Island Pesticides Control Act** (R.S.P.E.I. 1988, c.P-4), Regulations.  
<http://www.gov.pe.ca/law/regulations/pdf/P&04G.pdf>

## ADDITIONAL INFORMATION

1. Atlantic Provinces Agricultural Services Coordinating Committee (APASCC) 2000. **On-Farm Pesticide Storage**. Published by the Atlantic Committee on Land and Engineering. Agdex No. 670/790. Last modified May 19, 2000. p.4  
[www.nsac.ns.ca/lib/apascc/](http://www.nsac.ns.ca/lib/apascc/)
2. Prince Edward Island Agriculture, Fisheries and Aquaculture (PEIAFA) 2005. **Pesticide Storage - 2005. Pesticide Storage Funding Levels and Eligibility Criteria. Pesticide Storage on Farms**. p.3  
<http://www.gov.pe.ca/af/agweb/index.php3?number=1006553>
3. Nova Scotia Environment and Labour. 2005. **Pesticide User Storage**. p.3  
<http://www.gov.ns.ca/enla/pests/userstorageguide.asp>
4. New Brunswick Department of Agriculture, Fisheries and Aquaculture. **Environmental Protection, Pesticide Storage**.  
<http://www.gnb.ca/0029/00290046-e.asp>

### Acknowledgements

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