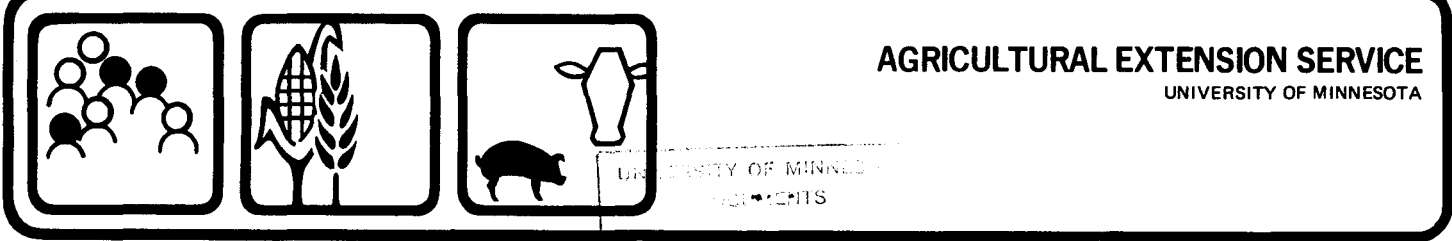


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# Pesticide Storage and Formulation Shed

**AGRICULTURAL CHEMICALS FACT SHEET**  
**No. 4—Revised 1977**  
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To use pesticides properly, an adequate facility is necessary for storage and formulation. This facility must be separate, isolated, and lockable. Other building specifications partly depend on the quantity and type of pesticide to be stored or formulated. The pesticide storage and formulation shed described here meets the requirements of large farms, pest control companies, pesticide retail dealers, commercial spray companies, University experiment stations, and similar size operations. Many of the specifications also apply to smaller storage units.

### SIZE AND CONSTRUCTION

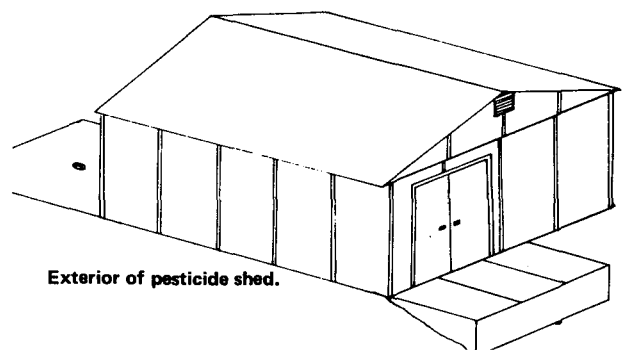
This shed, 16-feet-wide by 20-feet-long, is of frame construction with 2- by 4-inch studs and 2- by 6-inch ceiling joists. Cover the exterior of the studs and ceiling joists with 4- by 8-foot exterior grade plywood, 3/8-inch thick. For a moisture barrier, caulk the cracks and apply a water repellent to the plywood. Place 1- by 2-inch batten strips on the exterior of the shed over junctures between pieces of plywood. The concrete floor is 4-inches thick and is trowelled to eliminate all roughness.

Place the shed so that the front entrance is in the direction of prevailing winds for your area.

### WINDOWS AND DOORS

To reduce expense and the chance that unauthorized or irresponsible people could enter, the shed has no windows. A pair of 32-inch wide doors are at the front entrance and one 32-inch wide door is at the opposite end. To insure that the building is always locked when not occupied, install standard exit lock hardware on the doors. This type of hardware allows exit from the inside but automatically locks from the outside when closing.

Because there are no windows, interior lighting is required. This lighting should consist of ceiling-hung, incandescent fixtures that meet the National Electric Code (NEC) provisions for Class I Division II installations. Place the light switches just inside the doors at both ends of the shed. The switches should also be approved for Class I Division II installations.



Exterior of pesticide shed.

### VENTILATION

Adequate ventilation is necessary to prevent a buildup of toxic or flammable vapors and dusts. Fresh air is supplied constantly through a 6- by 24-inch louvered opening framed between the ceiling joists at the front end of the shed.

Forced ventilation is provided by an electric fan. The fan collects air from over the sink in the back end of the shed and exhausts it through an outlet between the ceiling joists above the sink. The fan's capacity should give about 50 air changes per hour. Because of fire hazards, the fan and motor should be approved for Class I Division II installations. The exhaust fan is activated with the light switches near the doors. The capacity of the fan will depend on the size of the shed.

### EXTERIOR DECONTAMINATION AREA

A 10- by 16-foot concrete slab, 6-inches thick, is on the back end of the building. The slab slopes 1/4 inch per foot to a center drain. Supply this area with water so you can use it for completing formulations in spray rigs and for washing the interior and exterior of pesticide application equipment and containers. A larger slab for rinsing application equipment may be necessary to contain all rinse water and prevent ground at washdown slab from becoming contaminated as a result of overspill.

### INTERIOR WASHING AREA

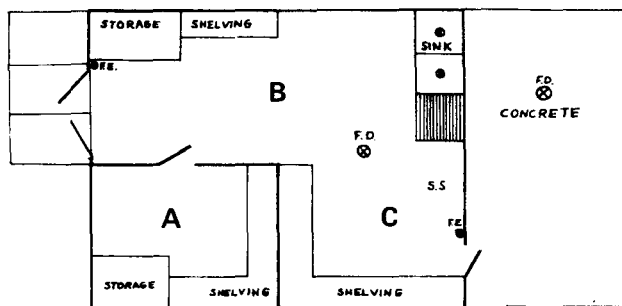
Next to the back wall of the shed, place a double stainless steel sink with drainboard. The floor of the shed can be washed with water that will drain through an outlet in the floor at a point equidistant from the side walls and 5 feet from the back wall. Starting from the floor drain, the concrete floor slopes 1/4 inch per foot toward the drain.

A safety shower and eye wash fountain near the back door should be used for emergency measures following excessive exposure to pesticides. The eye wash fountain and deluge shower should be checked regularly to assure they are operational if needed.

### FIRE HAZARDS

Place a fire extinguisher at each end of the shed near the doors. The extinguishers should be 10-pound ABC type fire extinguishers. The shed also should be equipped with automatic fire extinguishing equipment. For information on the fire potential of pesticides, see Agricultural Chemicals Fact Sheet No. 1, Fire Hazards of Stored Pesticides.

Be sure you provide proper protection of the wiring system against high voltage surges, per NEC requirements. This is especially important in areas where the wiring is supplied by overhead lines if lightning is common.



Basic floor plan of pesticide shed.

### SPECIAL STORAGE AREA

Pesticides with an LD 50 of 50 milligrams/kilogram or less are highly toxic; store them with special precaution.

Frame area A must be completely enclosed with 2- by 4-inch studs with a ceiling level of 7 $\frac{3}{4}$  feet. Line the interior and exterior of the walls and ceiling with 3/8-inch exterior grade plywood. Using blanket or batt insulation, pack the walls, ceiling space, and the 32-inch door of this room. A thermostatically controlled wall furnace on one wall of this room prevents the air temperature from decreasing below 40°F during winter storage, since liquid formulations must not be allowed to freeze. Be sure the thermostatic controls on heating units are not the spark-producing type. The door to this area must be kept locked. Shelving can be supplied to fit your needs.

### GENERAL STORAGE AREA

You can place shelving, pallets, or drum racks of the desired size and type in areas B and C. The area through the center of the shed must be kept free of storage at all time to allow two exit routes in case of emergency.

### WASTE SYSTEM

The sink drain, the interior floor drain, and the exterior slab drain are the only connections to the liquid waste disposal system. This disposal system consists of a distribution box with either a tile drainfield or a leaching pit, depending on soil conditions. A tile drainfield is desirable so the waste material can leach into the soil near the surface where aerobic bacteria can help degrade the pesticides.

Whether you select a drainfield or a leaching pit, the system must not discharge waste pesticides directly into underground limestone or rock formations. Have the drainage system at least 200 feet away and downstream from any well.

For additional information on constructing leaching pits or drainfields, consult Public Health Service Publication No. 526, Manual of Septic Tank Practice (write Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402) or Extension Folder 337, Get to Know Your Septic Tank.

This disposal system can adequately remove dilute pesticide solutions resulting from washing application, formulation, or safety equipment or from rinsing the concrete slab in or adjacent to the shed. Do not use the disposal system for removing excess pesticides in applicators or storage containers. Instead, bury such pesticides at least 18 inches deep where they will not contaminate water supplies.

For information on disposal of empty pesticide containers, see Extension Folder 281, Surplus Pesticide and Container Disposal.

### WATER SUPPLY

You can install the water system on a temporary or permanent basis. If you insulate and heat the entire shed, bring the waterline in below the frost level to eliminate draining the line in winter. If only the "special storage area" is heated, you could bring the line in through this room to prevent freezing. Without heat, the system must be drained before winter.

Vacuum breakers are located on sink faucets and on the line providing water to the concrete slab adjacent to the building. These vacuum breakers prevent siphoning of pesticides into the water supply system in case of a loss of water pressure when the hose is partially submerged in the pesticide formulation. To function properly, the vacuum breakers must be installed on the downstream side of any shutoff valve and above the level to which an outside water hose may be elevated.

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