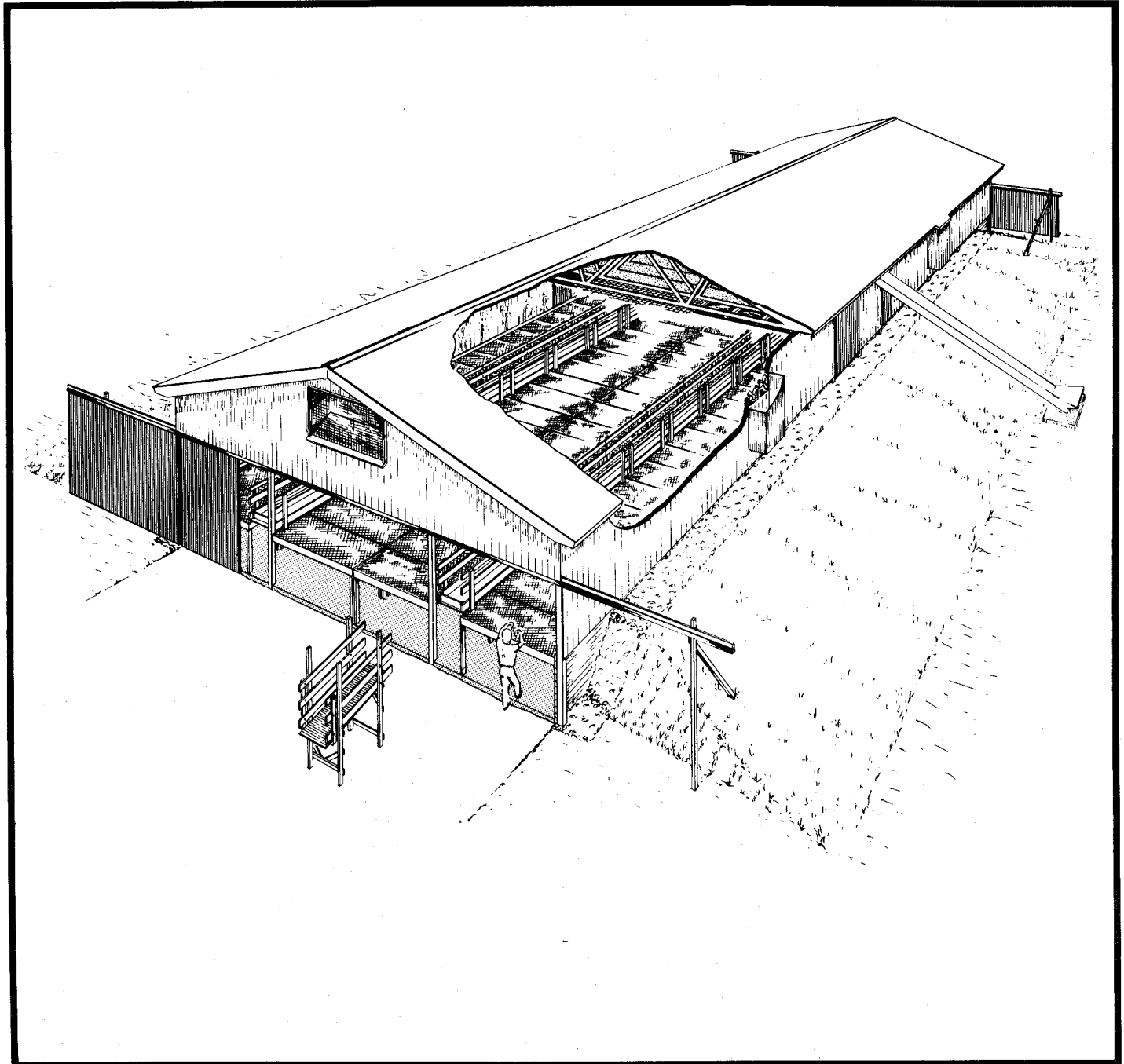


## SLOTTED FLOOR SHEEP BARN



The Canada Plan Service prepares detailed plans showing how to construct modern farm buildings, livestock housing systems, storages and equipment for Canadian Agriculture.

This leaflet gives management information and describes one of these detailed plans. To obtain a copy of the Canada Plan Service detailed plan, contact your local provincial agricultural engineer or extension advisor.

## SLOTTED FLOOR SHEEP BARN

PLAN 4154 NEW 4:76

This plan is for a multipurpose total-confinement sheep barn about 40 x 137 ft, housing approximately 400 ewes or 800 feeder lambs. The length can be increased or decreased in 8-ft units.

### Floor and Manure

The most unique feature of this barn is a floor of expanded steel mesh or spaced boards. No bedding is required; manure drops through the slotted floor into a 4-ft dry storage underneath. Expanded steel mesh flooring keeps sheep cleaner than the wood flooring, especially with silage or highly-processed lamb finishing diets. As plain or painted steel flooring can rust out in 4 to 8 years, galvanizing is probably worth the extra cost. Wood slat flooring may be considerably cheaper if a local sawmill can supply good-quality full-dimension lumber, preferably hardwood such as oak. If the lumber must be planed one side for uniform thickness, turn the rough-sawn side upwards for better footing, and trim the top edges to reduce chipping and wear.

A "dry" manure system minimizes odors and handling problems; therefore, watch out for leaky waterers, and avoid adding any extra water to the manure pit.

For periodic manure cleaning (spring and/or fall), the floor system and feed alleys hinge up in 8-ft sections and hook to eyebolts in the ceiling. Insulated slide doors in one or both endwalls are rolled back to let in a tractor and manure loader. After cleaning, brush the hinges liberally with new motor oil to prevent rusting and sticking.

### Management

Two feeding alleys in a 40-ft width give about the correct relationship between pen area and feeding space, with 1-ft of feed bunk for 8 ft<sup>2</sup> of slotted floor area. Big pregnant ewes need about 1 1/3 ft of feed bunk, thus giving each ewe over 10 ft<sup>2</sup> of pen floor area. On this basis the barn will easily hold over 400 ewes or 800 feeder lambs. More can be crowded in if extra feeders are installed at pen partitions across the barn. Feed alleys divide the barn into 3 long pens; these can be divided with portable gates or feed hoppers to make pens of any size desired, but water bowls must be provided for each pen. The plan shows a 6-pen arrangement.

For sorting sheep, the two feeding alleys are connected across each end, and access to any pen is by hinged panels in the feeding fence. As the sheep floor is 4 ft above the driveway at one or both ends, a portable loading chute is suggested for trucking sheep in or out at the end of each alley.

### Feeding and Watering

For feeding chopped ration (silage or chopped hay) an overhead mechanical feeder is excellent for spreading the feed smoothly in front of the sheep, and allows feeding a variety of ration formulations to the various pens. Mechanical feeders other than those suspended overhead would interfere with the use of the alleys for occasionally sorting sheep.

For feeding long material (baled hay, etc.), omit the mechanical feeders and replace with feed carts. Another possibility

is to put portable self-feeders for milled or pelleted rations across the pens, in place of pen partitions.

Water bowls are mounted within the feed alleys so that the alleys can be hinged up for manure cleaning without removing the bowls. A flap of heavy rubber belting over each water bowl keeps feed out of the bowl and gives easy access for cleaning and maintenance. As it will be necessary to disconnect the water supply when cleaning the barn, lightweight plastic fittings designed originally for suspended poultry waterers are suggested. Use galvanized steel piping where the sheep can reach the fittings.

### Construction and Grading

For a dry barn, set it high; the manure storage under the floor can become a "sink hole" for ground and surface water unless good drainage is planned and provided. Frame the long walls with pressure-treated square poles spaced 8 ft 1/2 in. o.c.; the extra 1/2 in. provides clearance for hinging the floor units without binding.

After levelling the bottom of the manure pit with a bulldozer, auger the wall postholes to below frost level. Then pour a round concrete footing in each hole, tamping the concrete to a level line exactly 2 ft 6 in. below the concrete floor datum line. This way the wall poles can be accurately cut and notched at the top for plate beams and trusses, before erecting. This speeds construction and starts the building level. Pressure-treated tongue and groove splash planking spiked to the inside of the poles makes the manure pit walls smooth for easier cleaning. Bank earth up to slotted floor level outside the long walls, to conserve heat and to drain off surface water.

The plan shows access at both ends to the 4-ft deep manure pit; if the site slopes from one end, it may be better to provide pit access at one end only, and to grade up to slotted floor level at the other end. This way, sheep can be let outside through end doors, to paddock or pasture.

### Insulation and Ventilation

This plan uses the porous ceiling ventilation principle. The barn is fully insulated to conserve as much animal heat as possible, but part of the ceiling insulation is left exposed and supported on stretched galvanized chicken wire. Ventilation rate is controlled by two thermostats step-controlling a system of 4 small exhaust fans.

Fresh air slowly filters from the well-ventilated attic through the porous ceiling insulation. In very cold weather (when conventional ventilation systems with vapor-tight construction frequently fail), the porous ceiling allows some of the animal moisture to escape due to higher vapor pressure in the warm pen area than in the cold attic above. It is essential to use *no vapor barrier* in the ceiling, and to *ventilate the attic* as well as natural wind and weather will allow; close the gable attic doors *only* if a snowstorm threatens to blow snowdrifts over the ceiling insulation.

On hot days, do not draw ventilation air from the overheated attic. For natural wind ventilation open sliding doors in all 4 walls. This will require some expert management during variable warm spring and fall weather.