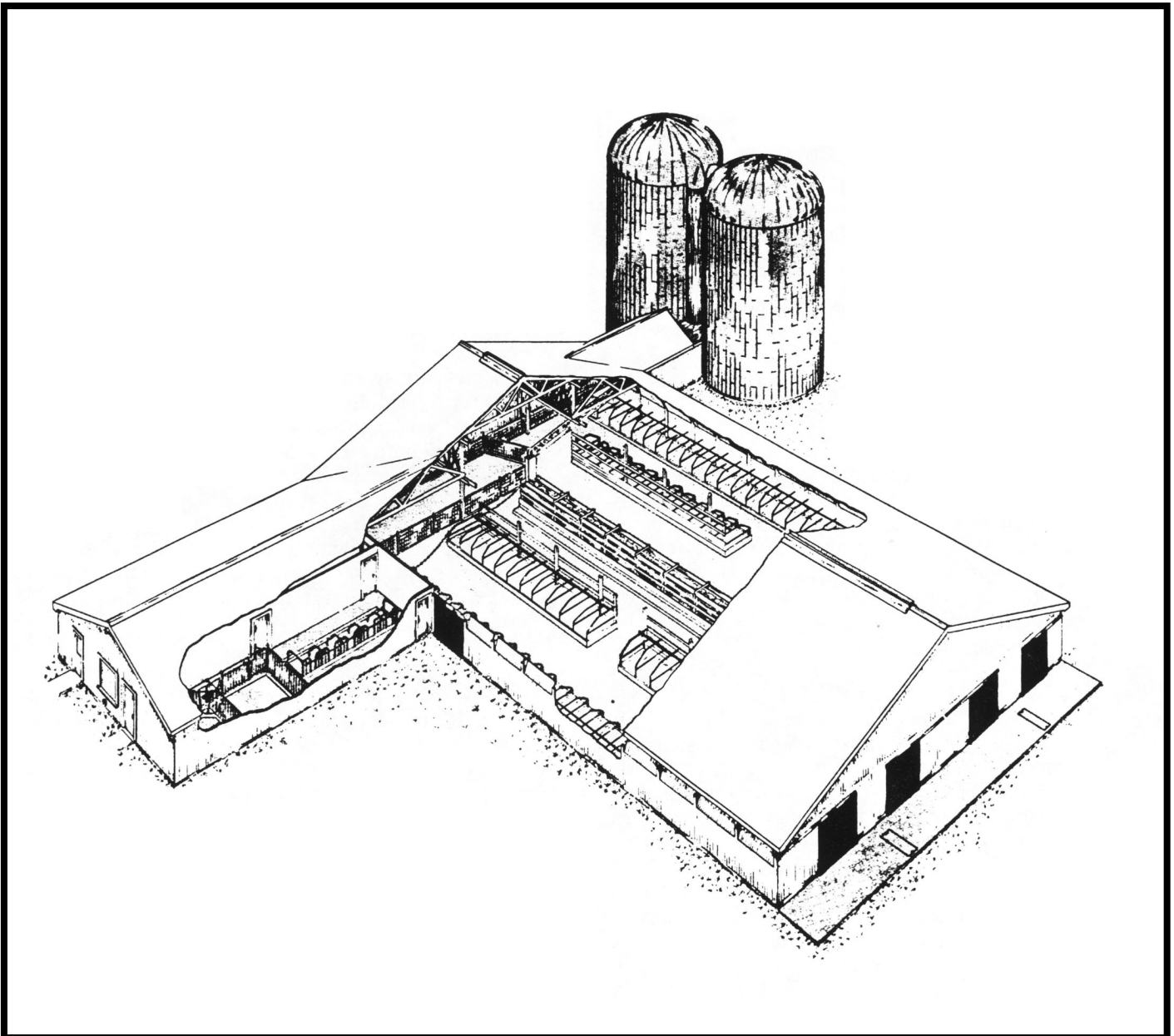


FREE STALL DAIRY SYSTEM - 100 TO 200 COWS



DEVELOPED BY CANADA PLAN SERVICE

FREE STALL DAIRY SYSTEM – 100 TO 200 COWS

CPS
PLAN 2104

This is a detailed plan set for an expandable free stall dairy barn of two 100-cow units with 16' wide holding area between, and with milking center in L or T arrangements for 100 or 200 cows respectively. The 3'-9" x 7'-6" free stalls are arranged in four rows with feed bunk down the center of a building 80 ft. wide. Floor space including feeding, resting and holding areas ranges from 89 to 98 sq. ft. per cow depending on choice of layouts.

MILKING SYSTEM

The milking center contains either a double-4 or double-8 herringbone milking parlour. The milking center also includes milk room, mechanical room, office, washroom and cow treatment area. The arrangement of the holding area, return alleys and gates permits the herd to be handled in groups of 50 cows.

FEEDING SYSTEM

The layouts show silos, grain storage and feed room at the side of the barn opposite the milking center. Mechanized feed bunks are designed for grain and silage. Hay storage with self feeding fence is shown as an option at one or both ends of the barn, in combination with solid manure systems only.

VENTILATION SYSTEMS

This plan shows the 'modified environment' ventilation principle. With this, the inside temperature will only be 10° to 20° warmer than the outside temperature during the winter months. It is essential therefore to use frost-proof watering units.

This plan is not recommended in colder regions (where winter temperatures often drop to -25° or lower). The wet manure in the cow passages will freeze preventing scraping until warmer weather returns.

Features of the modified environment barn include a 1-inch layer of extruded polystyrene rigid insulation board

under the roofing material, to reduce condensation, freezing and dripping in winter. Continuous eave and ridge openings are provided to allow a natural movement of air through the building. Two continuous eave openings are located just behind the face boards; these openings can be regulated by cable and winch from 2-inch minimum to 8-inch maximum. The 8-inch ridge opening is flanked on both sides by vertical baffles to help exclude snow and rain. The open eave and open ridge ventilation system can be supplemented in spring and fall by tip-in panels which extend continuously along each side wall of the building, and in summer by large sliding doors near the corners of the building.

MANURE SYSTEM

This plan provides three alternative tractor-scraper manure handling systems. In freezing weather sprinkle urea fertilizer on the passage just after cleaning; this helps cleaning by preventing manure from freezing to the floor.

The tractor scrapes manure to: 1) mechanical cross conveyor and manure stacker to storage slab outside the barn. This storage slab should have concrete side walls to confine the manure and a drain to a holding pond or tank to trap the liquid runoff; 2) a liquid manure storage tank located under the barn. This tank holds only 1 1/2 to 2 months manure production and requires periodic pumping to another cheaper storage unit outside; 3) a storage slab outside with walls 3 ft. below ground and 4 ft. above. This slab stores up to 6 months solid manure and includes an entrance ramp, stop logs and a drain to liquid runoff storage.

To control water pollution, manure storages should be constructed and located to prevent seepage into ground and surface water supplies. Plan for sufficient storage to eliminate spreading of manure on snow, frozen ground or sensitive crops. **Obtain approval for your plans from proper local authorities before construction is started.**