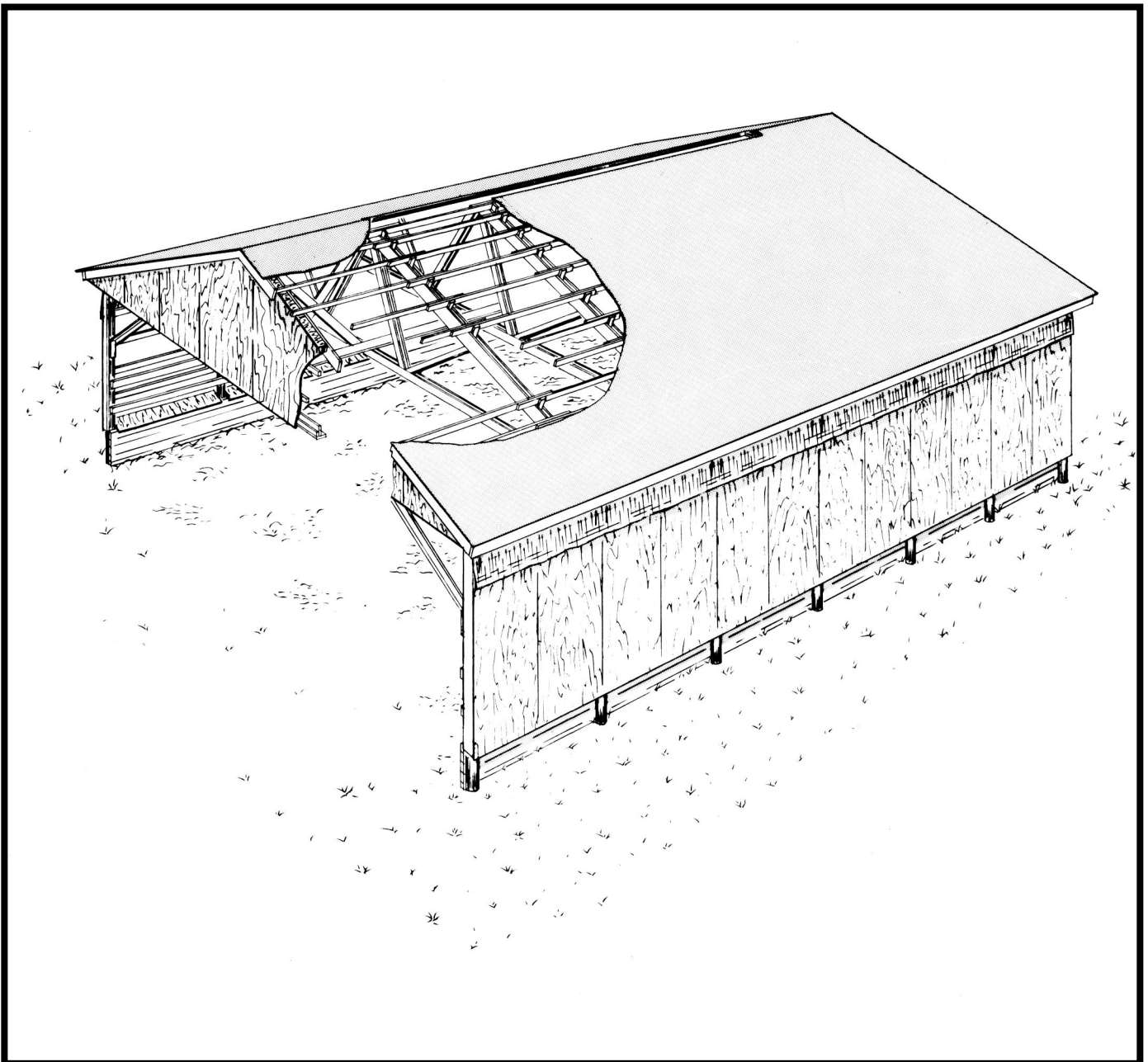


CLEAR SPAN POLE BARN – OPEN END SPANS TO 60 FT.



DEVELOPED BY CANADA PLAN SERVICE

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CPS
PLAN 8161 NEW 1:76

This plan consists of 4 sheets giving details for a general-purpose livestock loose-housing barn. This barn is open at one end (for ventilation and livestock traffic) instead of along one side. This makes it especially suitable for sheltering a bedded area for beef or dairy cattle; with over 11-ft clearance from floor to roof trusses, the manure pack can accumulate all winter and be removed easily with tractor and manure loader when fields are ready for manure spreading.

LOCATION

This barn should face with the open end to the south so that the bedded area gets plenty of sunlight, yet is sheltered from NW and NE winds. To keep roof runoff out of the feedlot, locate only the open end and about 16 ft of the long walls within the feedlot fence. This creates a “wind pocket” outside each corner at the open front, helping to reduce wind and snow problems inside.

Build on a high, well drained site. This plan shows an earth floor, which should be filled to about one foot above the original outside grade to prevent water from draining into the bedded area. If only soft clay is available for fill, tractors and hooves will cut into the soil; in this case a paved floor such as concrete or asphalt is recommended. To collect roof drainage, spread a strip of gravel over a tile drain along the side walls, in preference to eaves-troughing.

CONSTRUCTION FEATURES

For versatility and ease of cleaning, this building has a post-free interior using roof trusses spanning 40, 50 or 60 ft, depending on requirements. Roof trusses should be selected for local design snow loads, using either the CPS nailed truss designs or a commercial prefabricated truss. Trusses are bolted to wall poles at 8 ft on center, and the roofing is nailed to purlins placed on edge over the trusses to span the 8-ft truss spacing.

Where a heavy-duty truss spaced at 8-ft centers will support the design snow load, a single truss can be used at each pole line. For heavier snow loads, notch each pole both sides and use two trusses spaced apart with blocking at the roof purlins. For roof purlins use 10-ft lengths on edge and make a strong 2-ft lap joint over each truss or truss pair. This doubles the purlin material where the greatest bending strength is

required, and is considerably cheaper than using bigger purlins with the ends meeting at each truss. With purlins lapped, there is no careful cutting and fitting required, but remember to offset the nailing of the roofing.

The side walls are framed on pressure-treated wood poles, with either treated planking or concrete infill panels to close the base of the walls. Planking is spiked to the inside of the poles so that the wall is smooth for easier removal of manure.

To start the walls, dig or auger the holes about 5 ft deep for the poles, then pour a concrete footing at the bottom of each hole. Pour and tamp the concrete footings to an exact level line 4 ft below the floor datum elevation. This step is very important, since the truss-notches can be measured and cut into the wall poles before erecting; this is much quicker and more accurate than notching the poles in place while working from a scaffold or ladder.

Bolt the trusses securely to the poles and immediately cross-brace the end pairs of trusses to prevent accidental overturning of the trusses if a wind should come up during construction.

VENTILATION AND LIGHTING

The open-end barn gives better wind and snow protection than the open-front types, but is more likely to “sweat” with moisture from the livestock and manure pack inside. An open ridge ventilation slot is essential to control this sweating, especially during cold nights without much wind. Stop the ridge vent about 8 ft from each end wall to keep out downdrafts and snow where the ends of the roof ridge deflect wind and cause strong air turbulence. Two-inch slots at the eaves are also required to improve air circulation under the roof. To reduce snow infiltration, it is important to open these eave slots just behind the face boards not adjacent to the wall.

For summer, large sliding doors in the back end wall can be opened wide for good wind circulation. These doors are also convenient for adding bedding and hauling out manure without going through the feedlot.

This style of barn tends to be dark at the end farthest from the front opening. An optional strip of translucent plastic siding at the top of the long walls minimizes this problem.