BRITISH COLUMBIA Ministry of Agriculture, Food and Fisheries

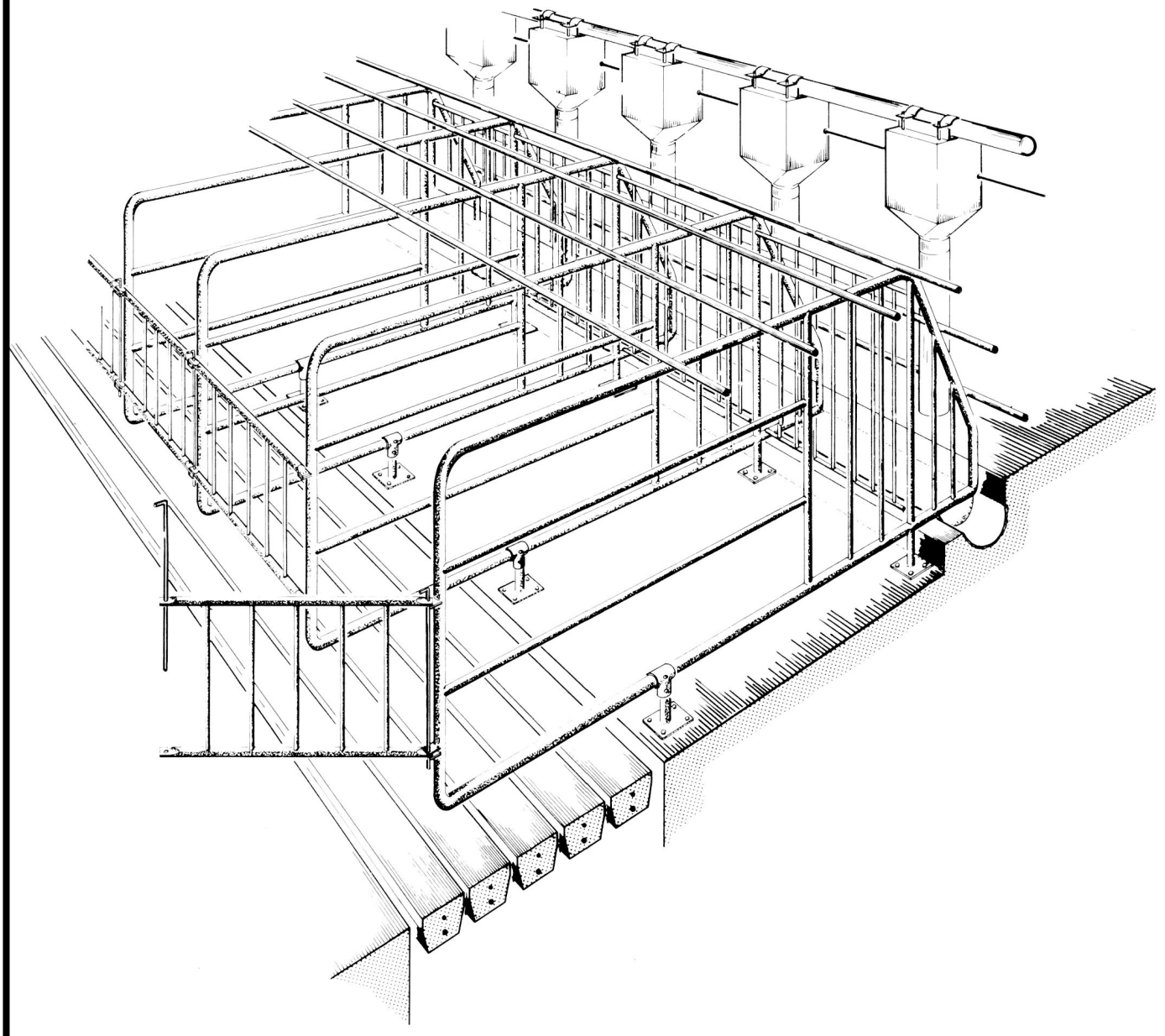
Agricultural Building Systems Handbook

PLAN

362-61

GESTATION PEN STALLS

COMPLETE INSTRUCTIONS



DEVELOPED BY CANADA PLAN SERVICE

GESTATION PEN STALLS

CPS
PLAN 3843 NEW 84:01

The gestation pen stall is very popular for confining sows, both before and after breeding. Pen stalls prevent fighting and eliminate competition for feed during the critical breeding and gestation periods. Individual pen stalls are useful for limit feeding, by preventing the 'boss' sows from getting more than their share of the limited feed supplied during gestation. Overweight sows make poor mothers!

Stall width is usually 24 in. (from center to center of stall dividers). Width may be adjusted from 22 to 26 in. where necessary for a few unusual sows or to fit available barn-space.

Gilts may not adjust readily to the tight confinement of pen stalls until after they have gone through one farrowing. Therefore many operators provide group pens for most of the gilts, in addition to pen stalls for the sows.

STALL HARDWARE Four styles of pen stall are illustrated here. All four use roughly similar stall dividers which can be factory-made, or built in the farm shop. Manufactured stall hardware is usually supplied with hot-dip galvanizing or epoxy coating, to prevent rust. Farm-built stall hardware is often made from heavier steel, recognizing that the home-painted steel is going to rust sooner and suffer some loss of strength at foot-plates, welds, etc. Either round rod, round pipe or square tubing may be used; the square tubing is easier to fit together than round pipe, for welding at the connections.

FEEDING AND WATERING The feed trough may be continuous cast-in-place or precast concrete (Figures 1, 2, 3 and 5), or galvanized steel hoppers (Figure 4) at each stall. With the cast-in-place concrete, an acid-resistant trough liner (12) is highly recommended; ordinary concrete can be quickly softened by continuous contact with wet feed.

Four styles of feed trough are shown. The concrete trough with high front (Figures 1 and 2) is used where sows are never moved through the feed alley. With stall fronts hinged as gates (Figure 3), it is better to raise the feed passage so that sows can step easily forward when they are let out of the stalls. The galvanized feed hopper (16) (Figure 4) is usually available with factory-made stalls; it may be bolted to the stall dividers as shown, or it may be bolted to a hinged front gate.

For watering, the simplest arrangement is a water tap supplying water to one end (or better, the center point) of each continuous trough row. If a trough row is made dead level and runs not over 20 or 25 ft from each tap, the trough can be supplied occasionally by running the tap until there is enough water in front of each sow. Some operators prefer to control the water with a valve to a distribution pipe drilled to trickle into each feed space; this voids the problem of washing feed residue along the trough.

With the galvanized steel feed hopper (Figure 4), the typical water system is a nozzle drinker over the hopper, in front of each sow. Be sure that drip from the nozzle will collect in the hopper, not on the floor. Use a drinker that does not squirt much excess water onto the sow or around the pen. One of the front stall-pipes usually doubles as the water pipeline; this is clamped (rather than welded) to the stall dividers.

In small operations, feed is usually measured to each sow by scooping from a rubber-tired feed cart. Water remaining in the trough at feeding time soaks into the dry feed, helping to reduce dust and feed wastage. Manual feeding is functional in that the operator gets to see each sow every day, but the noise from dozens of squealing, hungry sows can be deafening. Therefore many operators are considering **surprise feeding**. This consists of a system of feed accumulators, one over each sow's trough (see Figure 1). These can be dumped simultaneously so that all sows are fed at the same moment. The feeders may be filled just after feeding, either manually or by a small overhead conveyor; they may be dumped by hand using a release cable connected to trap doors, or automatically by time-clock. The fully-automated systems are of course more expensive and suitable only for very large operations.

MANURE SYSTEMS Figure 2 shows a two-slope stall floor draining to a small rear gutter, sized for **shovel or mechanical gutter cleaner**. Do not over-slope the floor, or some sows may have problems with prolapsed uterus.

Sows penned on the **slotted floors** shown in Figures 1, 3 or 5 will stay cleaner with less labor. The slotted floor is usually made from reinforced concrete. Individual concrete slats may be supported on pressure-treated wood or precast concrete cross-beams, with suitable spacers to fix the slats firmly in position at the correct slat width. Or a special grid may be used; with this, all the slats are cast together as a unit with cross-links to maintain the correct slot openings.

Several methods are available for draining the liquid manure from the gutter beneath the slotted floor; see Agriculture Canada publication 1451, *Confinement Swine Housing.*

The **cantilever slotted floor** shown in Figure 4 combines the advantages of the slotted floor with rapid daily manure removal. The shallow gutter is cleaned by pushing a special scraper blade which is made to fit the gutter and attached at one end to an offset handle made from pipe. The floor slats and their supports must be designed to minimize total depth since you must maintain clearance for scraping manure under the cantilever beams (19).

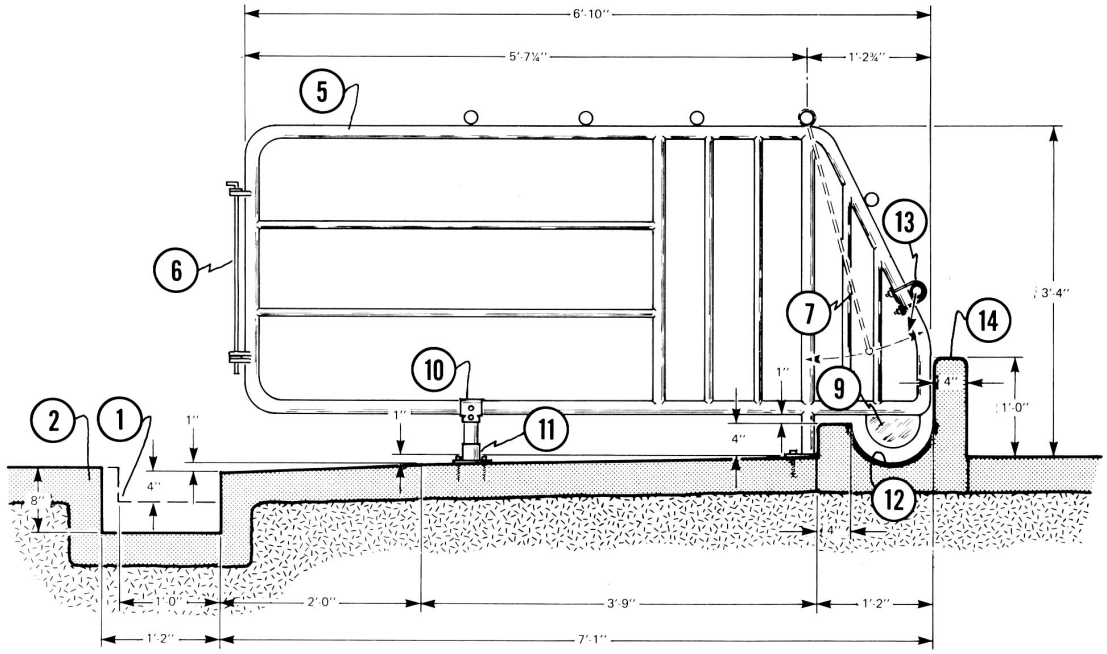


Figure 2

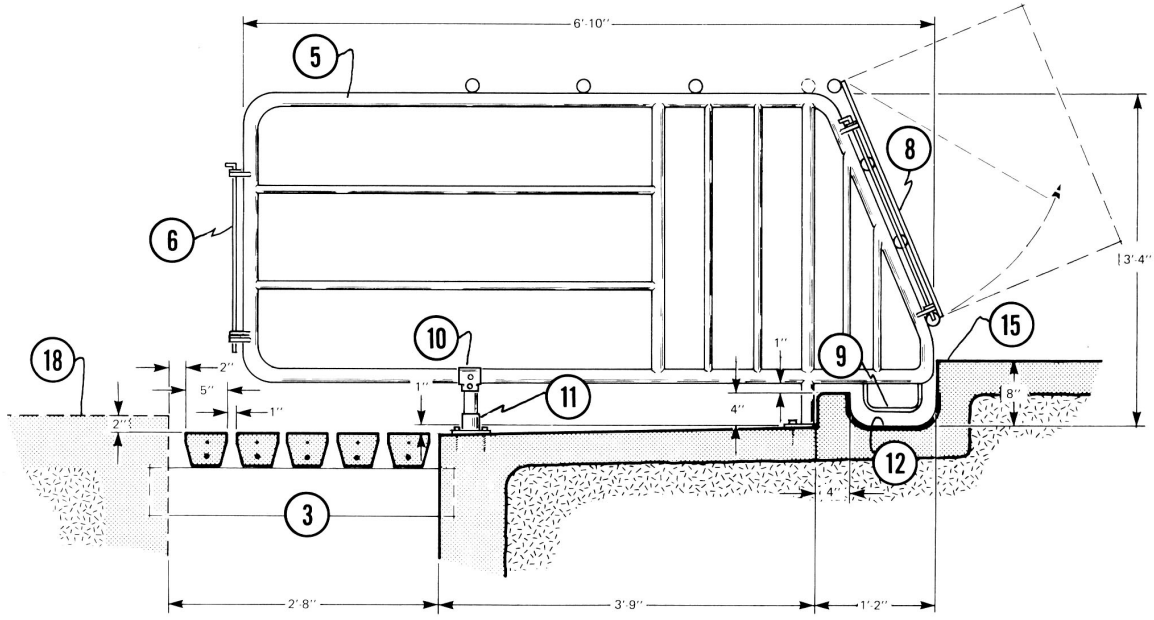


Figure 3

1. 12" x 4" manure gutter, for shovel cleaning
2. 14" x 8" manure gutter, for mechanical cleaner
3. slotted floor and liquid manure gutter, depth depends on method of manure removal
4. cantilever slotted floor
5. stall dividers spaced @ 1'-10" to 2'-2" oc, main parts from 1" pipe or 1¼" x 1¼" x ⅛" square structural tubing, see manufacturer for dimensions if factory made
6. double-hinged rear gate, or use 2 chains on 4 hooks
7. optional training gate, free swinging
8. front gate optional, may swing up or sideways
9. divider for feed trough, ½" rod or ¼ " sheet steel
10. Kee-clamp at rear leg (optional; provides for rear leg adjustment)
11. floor flange for bolts and lead anchors to concrete floor

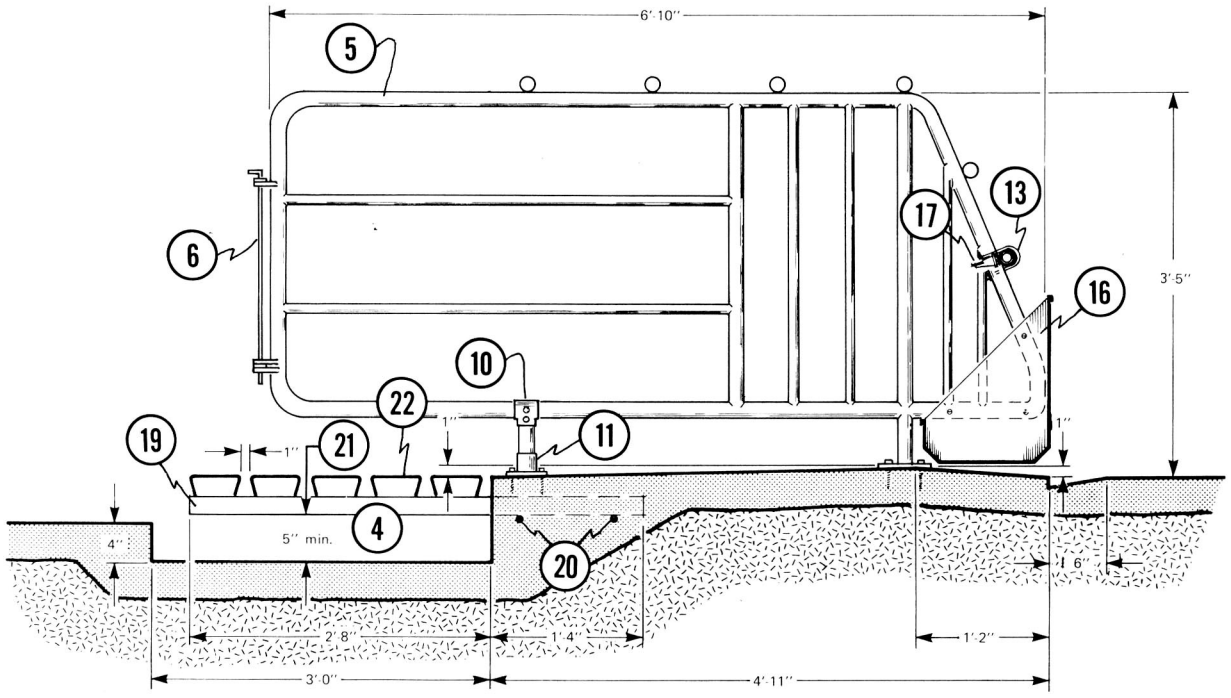


Figure 4

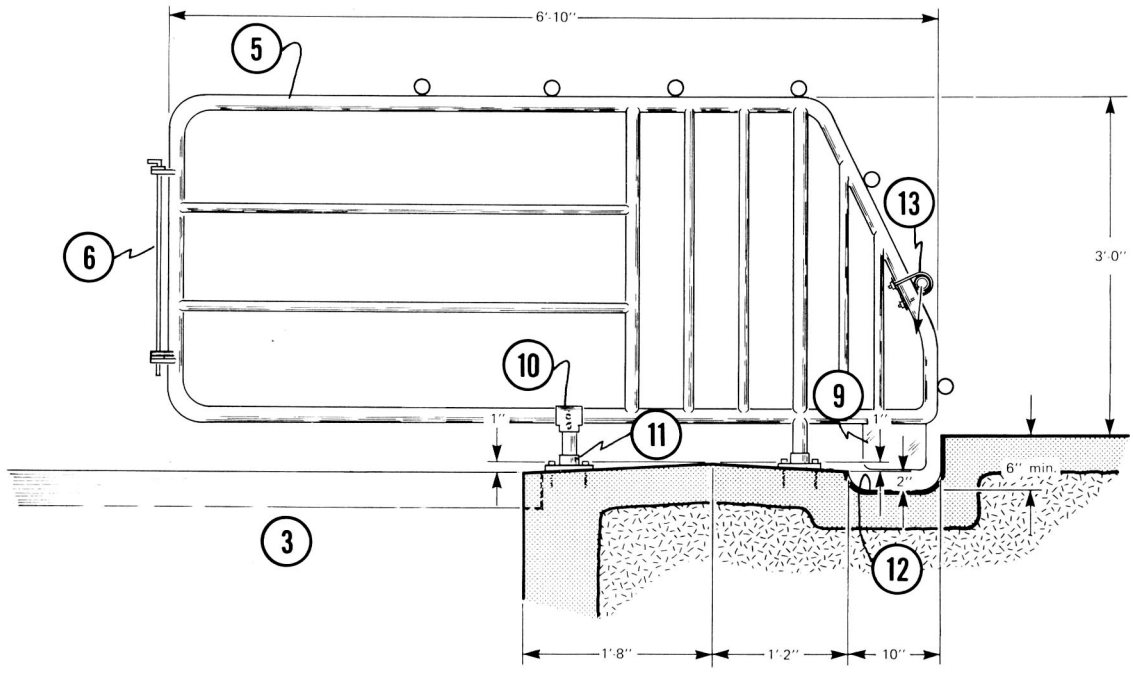


Figure 5

12 feed trough lining; 10” round or square vitrified clay tile spilt-sawn by manufacturer, or precast concrete trough unit, or 10” pvc pipe, or stainless steel

13 ½ ” galv. steel pipe clamped to stalls, drill a dripper hole at each stall location

14 optional high trough front

15 optional raised feed passage

16 feed hopper, galv. steel

17 nozzle drinker located directly over (16) , see manufacturer for size and height above floor

18 optional alley, raised 1” to 2”, if single row of stalls

19 cantilever beam spaced under each stall divider; 2” galv. pipe 4’-0” long, or ¾” x 2” x 48” steel bar; check also spacing requirements of (22)

20 2-No.5 bars continuous, shop weld to (19)

21 adjust dimensions to make top surface of slotted floor flush with stall floor

22 removable slotted floor sections; may be perforated metal channels, reinforced concrete or other materials proven suitable