

# PAVED BARN YARDS

By C. H. JEFFERSON, A. C. BALTZER and G. A. BRANAMAN



*The concrete surface of a paved barn yard is easily cleaned with a tractor and scraper.*

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## Paved Barn Yards

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A NUMBER of improvements can be made around most farms with materials which are readily available. One such improvement that should receive considerable attention is that of hard surfacing at least part of the barn yard to provide more agreeable surroundings for the herd and herdsman.

Many barn yards remain muddy from the time the surface begins to thaw in the spring until the ground is completely dried out from the top. Sub-surface drainage is of little help because the top layer of soil is so thoroughly trampled and puddled that it is practically impervious.

Those who have tried to surface a muddy barn yard with gravel or to fill mud holes with stones have found that this is usually wasted time and effort. The stones or gravel soon become imbedded in the



*Fig. 1. For reasons that appear obvious, this yard is going to be paved.*

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*Fig. 2. Sanitation, comfort, and safety are provided by a concrete-surfaced barn yard.*

top soil, and the yard is as muddy as before. A more practical method of obtaining a dry barn yard is to surface with concrete as large an area as desirable.

#### ADVANTAGES OF PAVED BARN YARDS

A paved barn yard has the following advantages:

1. Provides a clean, firm surface for travel;
2. Saves time and labor;
3. Makes it possible to haul manure when fields are in condition;
4. Keeps cows clean;
5. Saves bedding;
6. Reduces possibility of injuries, foot rot, and mastitis;
7. Saves manure and reduces leaching;
8. Encourages more frequent exercise for livestock;
9. Enables hogs following steers to salvage more grain; and
10. Promotes more rapid gains on beef cattle.

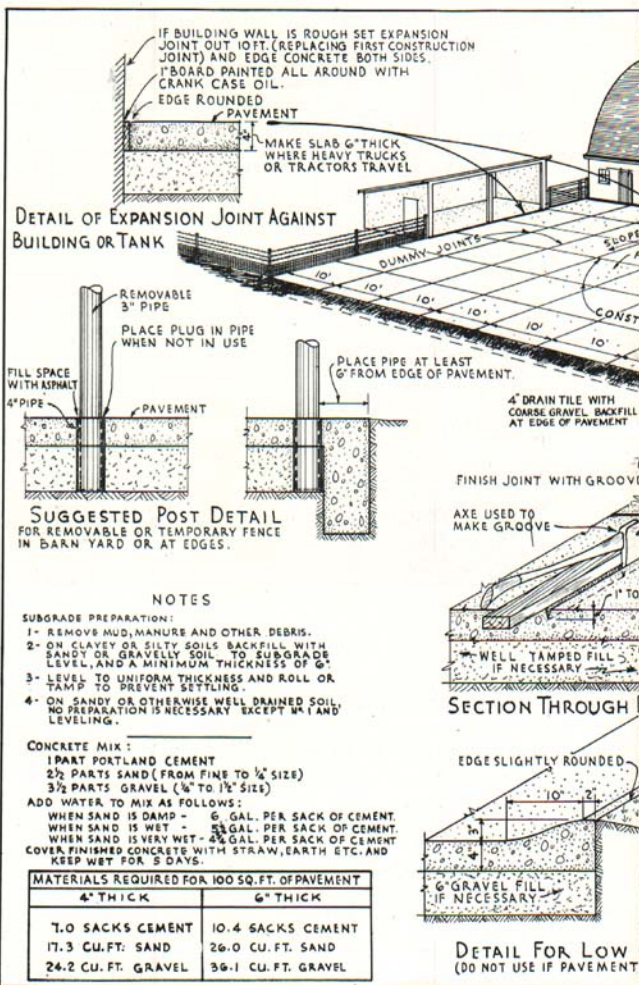
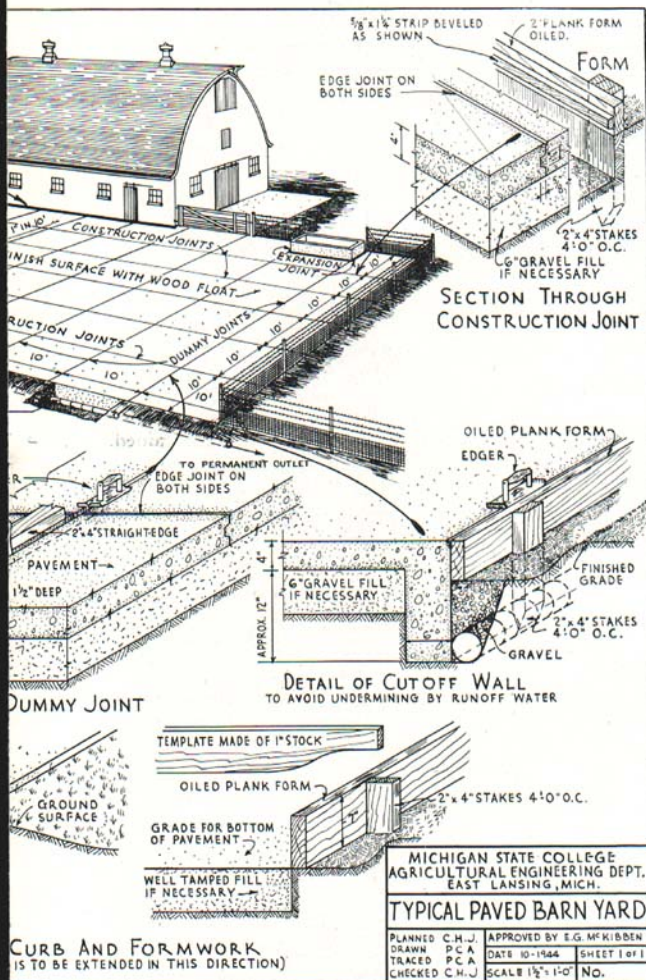


Fig. 3. Construction plan





Plans for paved barn yard.

## SIZE OF PAVED YARD

The size of yard and the amount of pavement required will depend upon the type of livestock and management of the herd. A larger lot and a greater area of paved surface may be desirable for feeder cattle than for dairy cattle. Some livestock men prefer to have a part of the lot unpaved, so as to permit the animals to lie down on bare ground at least during dry weather. However, most livestock men agree that a strip of concrete adjacent to the barn, around the water tank and perhaps from the manure pit to the field lane would be very desirable. Since the pavement is laid in strips, additional strips can be added as desirable. Each layout will obviously be different, depending upon individual requirements.

## CONSTRUCTION PROCEDURE

### *Preparation of Ground*

Before laying the concrete, certain precautions should be observed. In the first place, the area to be paved must be dry and well drained. If the concrete is placed on a yard that has been thoroughly trampled and puddled, the ground will heave as it again freezes and the concrete will be cracked. The puddled top soil should therefore be removed over the entire area to be surfaced to a depth that will uncover undisturbed soil. Then the area is back filled with 6 or 8 inches of gravel or cinders and thoroughly tamped to provide a firm base for the concrete surface.

### *Placing Concrete*

The concrete slab should be made 4 inches thick except where it will be subjected to heavy loads. There it should be 6 inches thick. All concrete should be sloped at least 1 inch in each 10 feet away from the building.

The concrete materials should be proportioned as shown in Fig. 3 and mixed preferably by mixer for one full minute. Suggestions for amount of water to be used, directions for proper curing, and the material required for each 100 square feet of 4-inch slab are shown on this plan. It should be emphasized that too much water in the mix, followed by too rapid drying, is the most frequent cause for poor quality concrete.

After the concrete has dried sufficiently to permit finishing, it should be smoothed with a wood float to leave a rough surface that will prevent the livestock from slipping even in wet weather. Additional protection against slipping during freezing weather may be obtained by leaving a very thin layer of litter on the paved surface. However, this



Fig. 4. The various steps in constructing a concrete barn yard are shown.

- A—Removal of top soil  
 B—Leveling and tamping gravel back-fill in 10-foot section  
 C—Finishing the surface of a 10-foot section with a wood float.

precaution should not be used as an excuse for allowing an excessive accumulation of manure.

Details for building forms and making joints, both construction joints between each individual slab and dummy joints at 10-foot intervals along this slab to control cracking, are shown on the plan in Fig. 3.

Two types of construction are shown for the edges of the slab. One is with a curb and one is without. The curb may be used on those edges where no extension is anticipated and the alternate construction is used at the edges where additions are to be made or to provide drainage. The 2-foot apron prevents undermining the slab by run-off water, and discourages rats from burrowing under it.

### **Drainage of Yard**

Rapid removal of run-off water is particularly desirable for narrow strips of concrete close to the barn to avoid a muddy yard at the edge of the pavement and to keep the yard dry as far from the barn as possible. Details for laying drain tile at the run-off edge of the concrete and back filling with gravel are shown on the plan in Fig. 3.

### **Cost of Concrete Barn Yard**

Clean sand and gravel for building one of these highly desirable concrete barn yards is available to most Michigan farmers for the cost of hauling, and the cost of cement has increased only slightly over pre-war prices. One cubic yard of coarse gravel,  $\frac{3}{4}$  yard of sand, and  $7\frac{1}{2}$  sacks of cement will make enough concrete to surface 100 square feet, 4 inches thick. Those who live within trucking distance from a ready-mix concrete plant can get concrete delivered for about \$8 a cubic yard. Many trucks carry at least 3 cubic yards. Three cubic yards of ready-mixed concrete delivered to the farm for approximately \$25 and some farm labor would provide a 10- by 30-foot strip of concrete which might save a valuable animal and certainly would add greatly to the convenience of doing chores.