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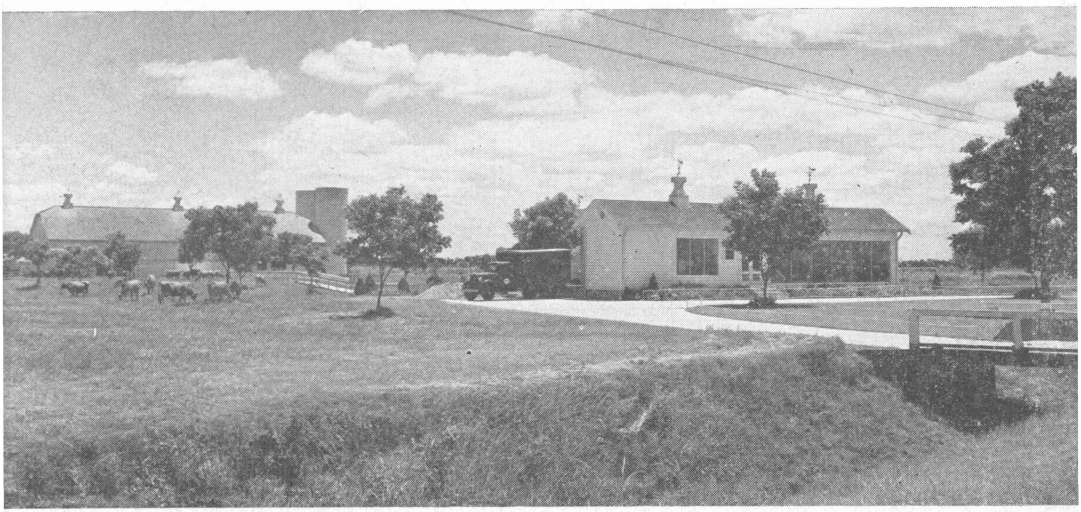
Dairy Barn Plans



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Dairy Barn Plans

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During the past five or six years a number of dairymen in Texas have tried out the small unit dairy barn and they have found it more profitable than the large barn which holds all the cows at one time.

By small unit barn is meant a milking barn that holds a small portion of the herd. The cows are milked in relays. The dairyman may have 20 milking cows and a milking barn that only holds four cows.

The small barn costs less to build, less to maintain and less labor to keep clean. The same number of milkers can do the milking and do it in the same length of time that they can in the large barn that holds the entire herd.

The size of the small unit barn depends upon whether the cows are fed all or a part of their grain mixture while they are being milked. If the cows are good ones and are fed all of their grain mixture, a good milker can milk three cows while they are eating their feed. In this case the barn should hold three cows for each milker. If only a small part of the grain mixture is fed while the cows are being milked, the barn may hold only one or two cows to each milker. One dairyman in the state milks about 100 cows and uses a four-cow size milking barn. One man operates the milking machine that milks the four cows at one time. Another man washes and cleans the cows and puts out a small amount of feed. A boy keeps four fresh cows in the chute, ready for cleaning and takes the cows that have been milked back to the shelter shed where they are given the rest of the grain mixture.

Another dairyman has his cows milked by hand and feeds them all of their grain mixture while they are being milked. This dairyman uses three milkers and his milking barn holds nine cows. This arrangement will take care of 45 to 60 cows.

Figure No. 6 shows the arrangement of the milking barn, shelter shed, milk house and lots that will handle from 30 to 40 cows, with a six-cow size milking barn. Figure No. 4 shows the plan for the six-cow size milking barn. Figure No. 5 shows plans for shelter shed where hay and silage may be fed.

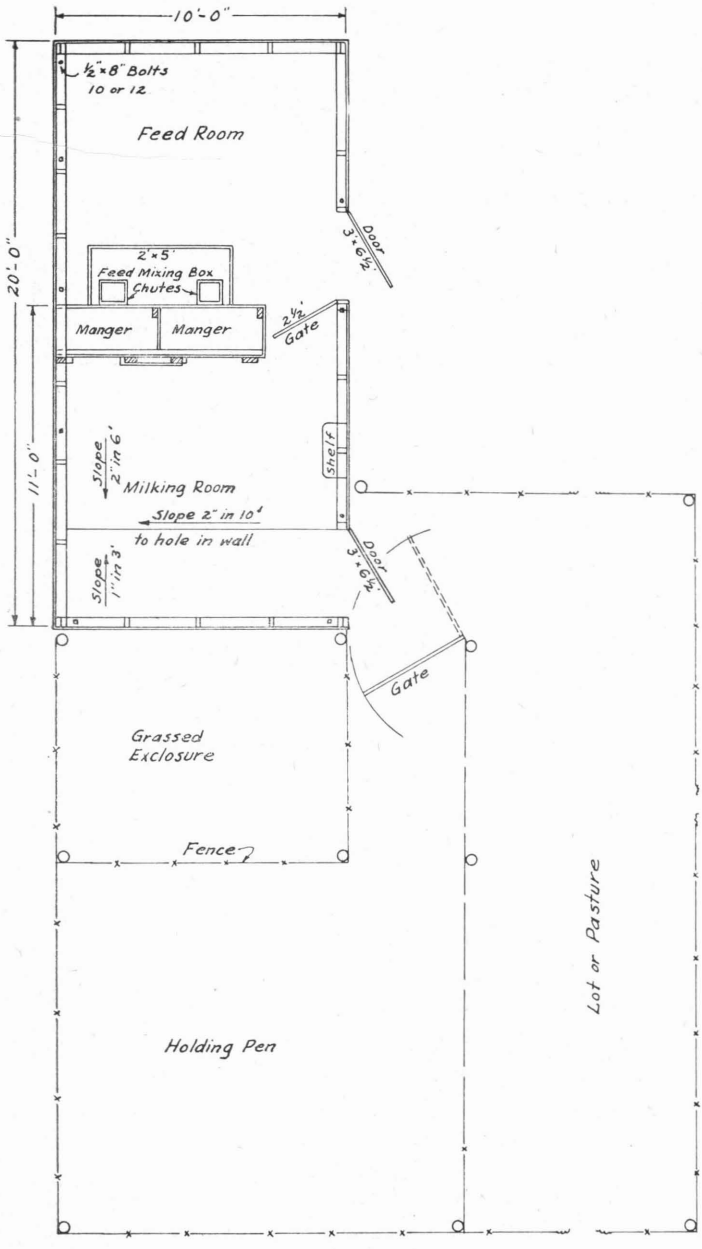

Fig. 1. Home dairy milking barn. Plan No. 254.

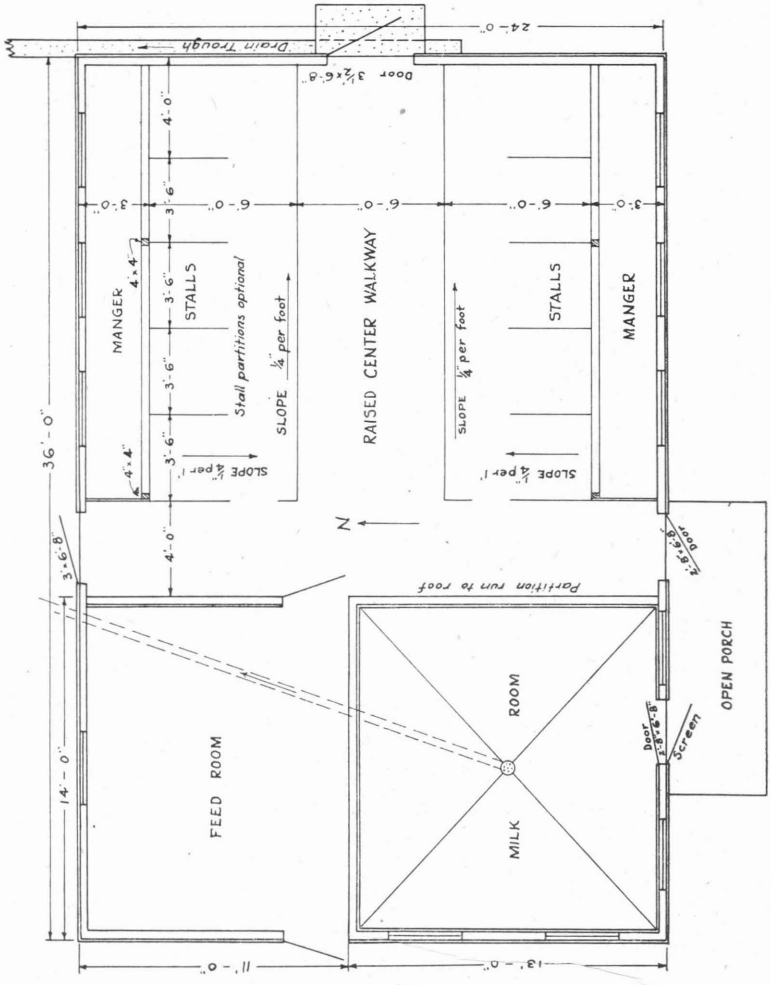

Fig. 2. Ten cow milking barn combined with a milk room and feed room. Plan No. 272.

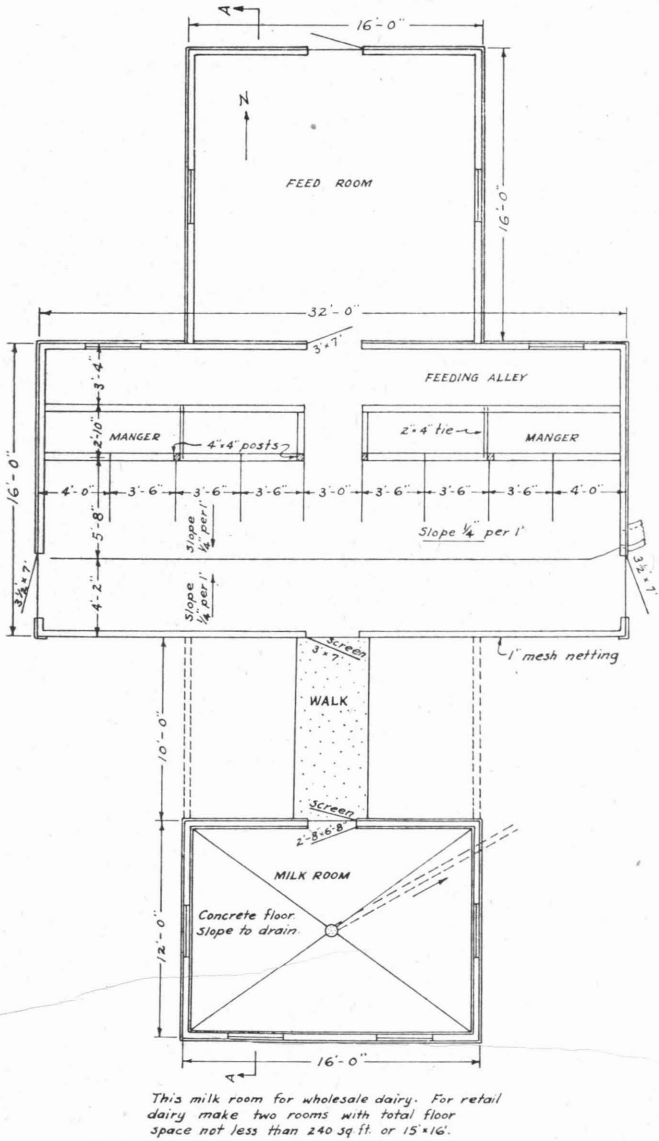

Fig. 3. Eight cow milking barn with feed room and milk house. Plan No. 274.

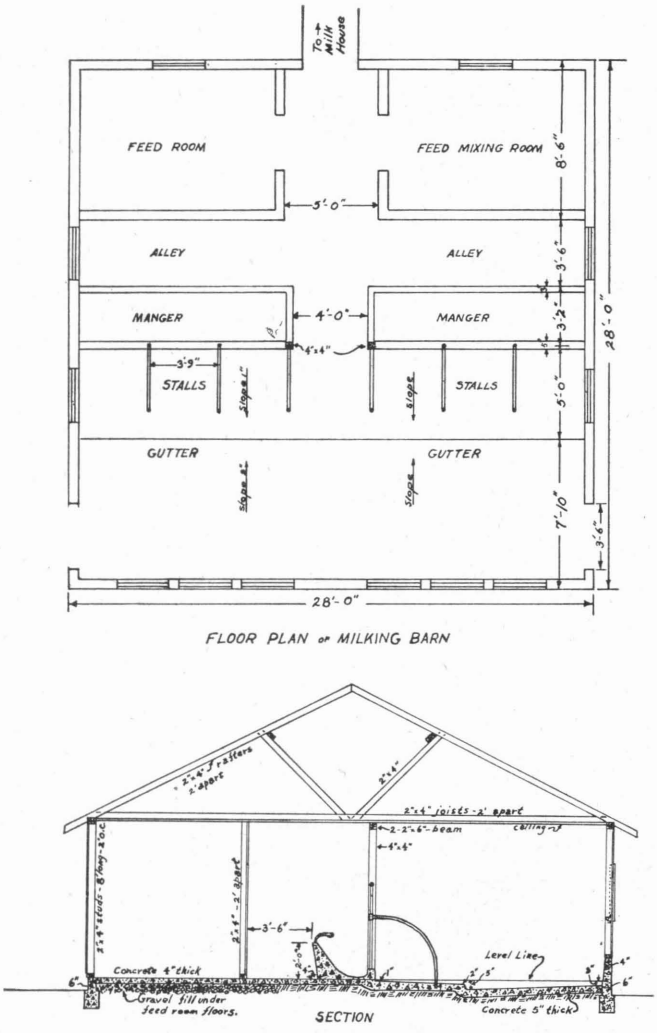

Fig. 4. The floor plan and a cross section of a six cow milking barn are shown above. Plan No. 218.

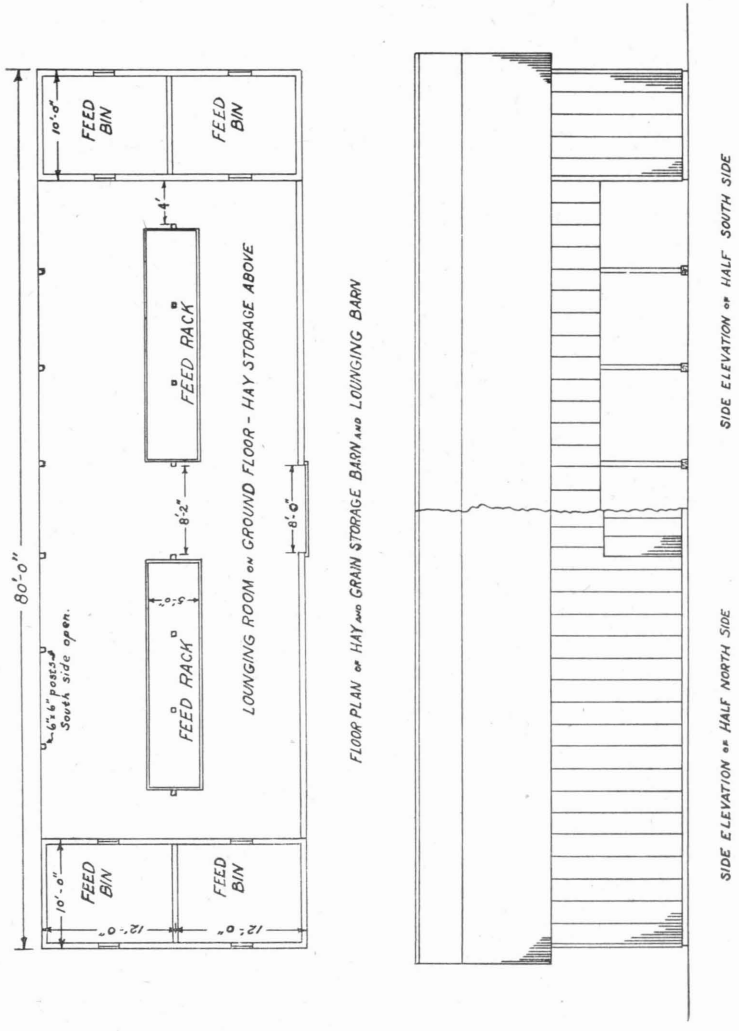

Fig. 5. The floor plan and side view of a feeding barn are shown above. Plan No. 219, or Plan No. 288. See list.

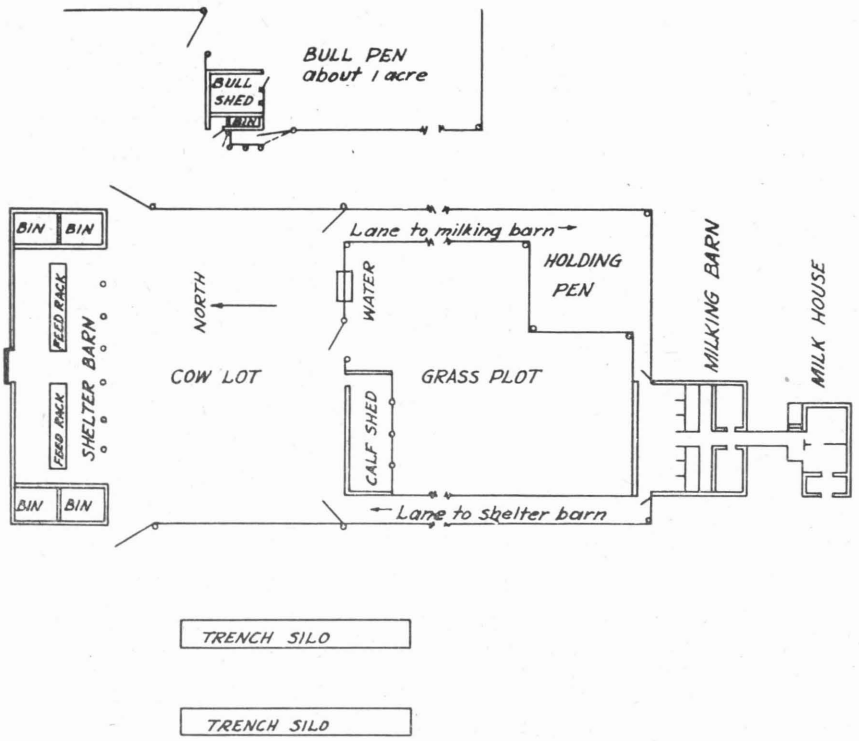

Fig. 6. The ground plan shown above is of a dairy layout which can be adapted to any size herd.

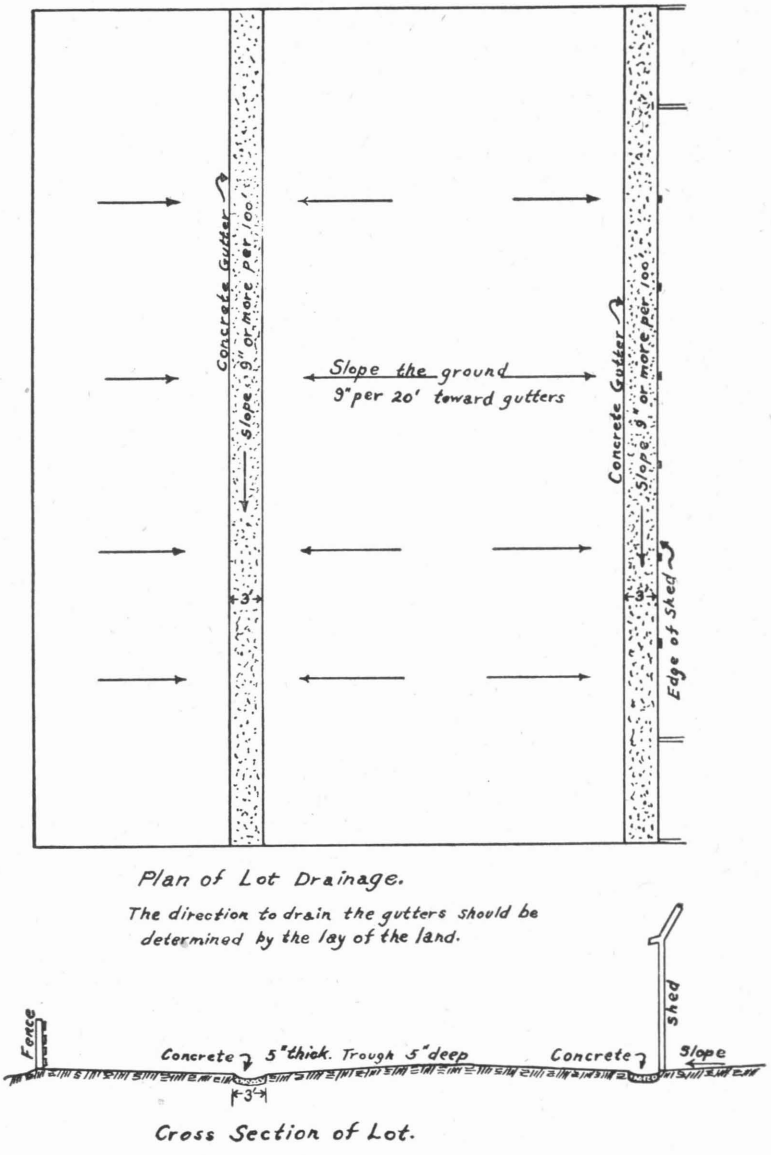

Fig. 7. The above plan for draining barnyards in level sections is recommended.

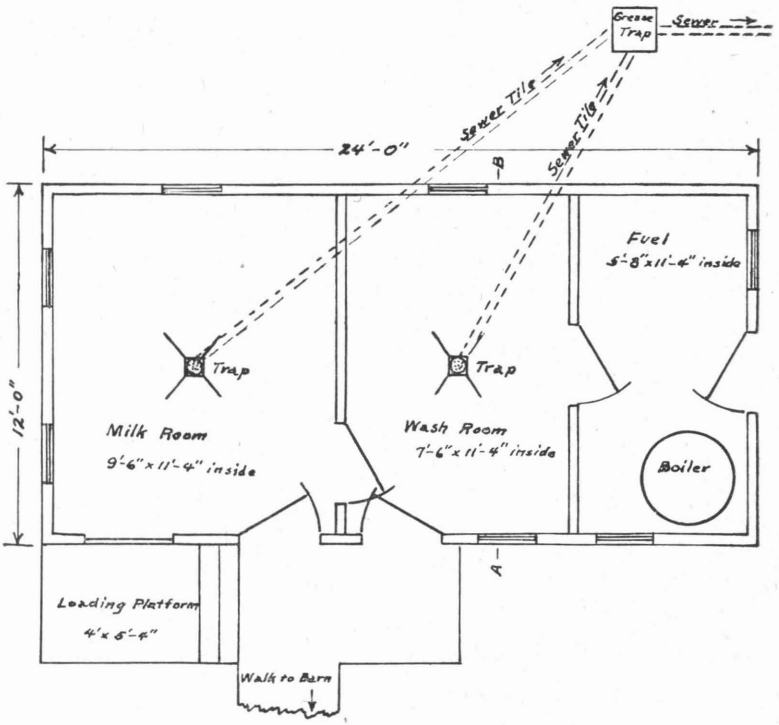

Fig. 8. Floor plan of a milk house. Plan No. 55.

Select Location With Care

Regardless of the kind of milking barn used, its location should be selected with care. The barn should be placed on a slight elevation of ground if possible, to insure proper drainage of the yards. Dry lots are necessary for the production of clean milk. If good natural drainage is impossible to secure, it will be necessary to grade the lots and provide drainage ditches to keep them dry. Figure No. 7 shows the best method of grading cow lots.

The milking barn should be located in the open and should not be closely surrounded by trees. Trees are desired on the farm for shade for livestock but if too near the milking barn, sunshine will be kept out, thereby making it more difficult to keep the barn dry and sanitary. The

milking barn should not be surrounded by cow lots, as so often is the case. The lot, or lots, should be at one end of the barn and the other three sides surrounded by a good grass lawn. In this way, dust and dirt that enter the barn through the air can be kept at a minimum.

Provide Light and Ventilation

There should be plenty of light and ventilation in the milking barn. If a shed type barn is used, face the barn south. Cover the south side with one-inch mesh poultry wire to keep out birds and poultry. The north side and the ends should be solid walls to keep out the cold. However, the north wall should be provided with windows to help the circulation of air in summer. Where a closed barn is used, there should be a window, at least 6 square feet in size, in both the south and north walls for every two cows. The east and west ends may be closed. For the best circulation of air, the base of the windows should not be more than three feet above the floor.

Two Types of Floors Are Used

Two types of floors are most commonly used in Texas barns. The first is one that has a slope of about two inches from the stanchion line to the passageway behind the cows. (See Figure No. 4.) The second is the common gutter type floor. The first type is more easily cleaned than is the gutter floor.

Floors should be given a slight slope from manger to gutter to insure good drainage. Slope should also be given from the wall to gutter, or from the center of the passageway in double-row barns to gutter as the case may be.

A slope of about one inch for each 10 feet of the whole barn floor-length is desirable if there is no gutter in the barn. If gutter is used, it is satisfactory to make the floor level from end to end and to provide drainage by sloping the bottom of the gutter.

Concrete floors should not be made very smooth because too often cows slip and fall on smooth floors, especially if the floors are wet. A surface layer should be made of good rich concrete which will not soon wear into holes, and the surface should be floated rather than troweled down smooth.

Concrete Mangers Are Preferred

Mangers may be made of either concrete or wood but the former are preferable since dirty corners and crevices can be eliminated. Mangers may be made with divisions between cows but a single long manger is recommended because of ease in cleaning. If at least three and one-half feet of space is allowed each cow there is very little trouble in one cow getting another's feed. Manger floors ought to be

built only one to six inches above the cow's front feet, and not 18 or 20 inches as is so often the case where wooden mangers are used. The back of the manger should be about three feet high to prevent the cows from throwing their feed over it.

Shed Barns Are Easily Constructed

The simplest and most easily constructed type of barn and one that will serve very satisfactorily on most dairy farms in South and East Texas, is the shed type. By making the shed 14 feet wide, there is ample room for a manger, platform for cows, gutter and passageway.

The Texas Extension Service has plans for several types and sizes of dairy barns. If plans for a milking barn are wanted these can be secured through county agricultural agents.

Serial Number MILKING BARNS

254— 2 cows, 10′ x 20′ home dairy milking barn, feed room.
218—6 cows, one row, milking barn, and feed rooms, 28′ x 28′.
274—8 cows, one row, 16′ x 32′, with feed room, 16′ x 16′, milk room 12′ x 16′.
181—10 cows, one row, feed room, milk room, 32′ x 51′.
272—10 cows, two row, 24′ x 36′, including feed room and milk room.
51—20 cows, two row, feed room, milk room, 32′ x 50′, one story.
130—31 cows, two row, feed room, milk room, 32′ x 80′, one story.
55—Milk house, 12′ x 24′, 3 rooms, concrete floor.

CATTLE FEEDING BARNS

288—Cattle feeding barn, 40 cattle, 24′ x 72′, 2 story, 2 bins, hay storage.
219—Cattle feeding barn, 40 cattle, 24′ x 76′, 2 story, 4 bins, hay storage.
226—Cattle feeding barn, 80 cattle, 34′ x 100′, 4 grain bins, 1 story.
57—Calf shed, 15 calves, 12′ x 30′, south side open.

SPECIFICATIONS FOR BUILDINGS FOR GRADE "A" MILK PRODUCTION

Although the following statements about structures for Grade "A" milk production are quoted in the main from publications of the Texas State Department of Health, they should **not** be construed as authoritative. We recommend that before starting any such construction work, you consult your dairy inspector or the State Department of Health, Austin, Texas.

Dairy Barns

The minimum width of the dairy barn should be 24 feet for two rows of stanchions and 14 feet for one row of stanchions. If feed alleys are used, a minimum width of 32 feet for two rows of stanchions,

and 16 feet for one row of stanchions, is recommended. Allow a minimum of 500 cu. ft. of air space per cow. In narrow one story barns, the omission of a ceiling may increase the air space to the required amount. The minimum wall height should be 8 feet from floor to plate. The roof should have a minimum pitch of 1 to 4. In loft type barns, the height of walls should not be less than 10 feet from the floor to the tight ceiling where feed stuff is stored above. Stanchion divisions should be on not less than 3′ 6″ centers. The divisions should be 4′ apart for Holstein cows.

Wooden mangers are permissible, if painted. If wooden mangers are used, avoid such construction as will furnish rat harbors.

The entire structure should be set on and bolted to a concrete curb of a height of not less than 6 inches and preferably 12 inches, to make sidewall lumber cut in even feet. The floor should be of concrete and the gutter type or the uniform slope to raised center walk type. The floor should be graded to drain 2 inches per 7 feet to gutter behind the cows. The longitudinal slope of the barn should be one inch per 10 feet. Gutters should drain into a substantial shallow open concrete drain of sufficient length to conduct water away at least 100 feet from the immediate end of the barn to a point where natural drainage will prevent standing water, and preferably, where it will be easiest to keep weeds and grass down, along the earth ditch.

Cows should be fenced away, 100 feet or more, from the milk room and barn. No other animals should be housed or penned within 100 feet of the milk room and milking barn.

Window space of three square feet of unobstructed light space per stanchion should be provided. Windows should be covered with poultry wire and provided with moveable glass sashes. The walls and ceiling of the dairy barn should be either painted with white oil paint or cold water paint.

Milk Houses

The requirements for a milk house for a **raw-to-plant-dairy** is a minimum floor space of not less than 150 sq. ft. for handling 50 gallons or less daily. Only **one room** is required.

For a **retail dairy** handling as much as 50 gallons daily, the two rooms should have a total floor area of at least 207 square feet. The house should be divided into **two rooms** with a fly-proof partition between them.

For information on other capacities consult the dairy inspector or the State Department of Health.

The milk room should rest on and be bolted to a concrete curb of

a height of not less than 12 inches and should have a floor of concrete which should be smooth and graded to drain (¼ to ½ inch per foot). The trap drain should have a grate over the drain-opening with a four-inch minimum size for the drain line. The height of the wall should be not less than 8 feet from floor to ceiling. The walls should be of double type construction, the inside finish of which should be smooth and cleanable. If single wall construction is allowed on outside walls, the building should be adequately stripped on the outside and the interior of the milk room ceiled with tight fitted material. The milk room should be painted on the inside with oil paint, preferably white. The milk room should not open directly into the milk barn or any other room such as a feed room, storage room or any room used for living quarters.

The milk room should have glass window space of not less than 10% of the floor area, exclusive of solid openings that can be closed, and all openings should be effectively screened against flies. Doors should be equipped with strong springs or weights so as to make them self-closing and should open to the outside. It is recommended that screen doors be covered with galvanized iron to a height of about three feet, in order to make them stronger and to minimize breakage and tearing of the screen.

Running water should be provided in the milk room and preferably in the barn with handwashing facilities near the passage way from the barn to the milk room.

The drainage from the milk house floor should be carried at least 20 feet from the milk house in a water-tight clay or concrete tile line, and should be carried at least 100 feet from the milk house and milking barn either in a tile line or a substantially built shallow open concrete drain. If the floor drain is to be connected with a sewer, septic tank or cesspool, the drain or drains should be of the trapped or water seal type to prevent sewage or odors from access to the milk house and the line should be vented.

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