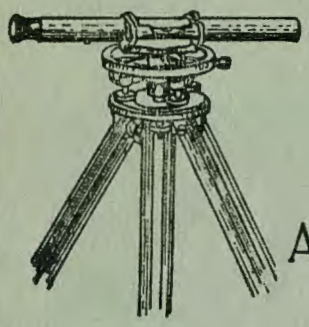

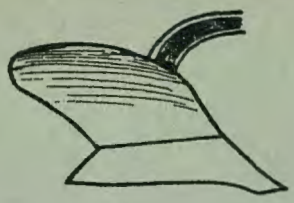

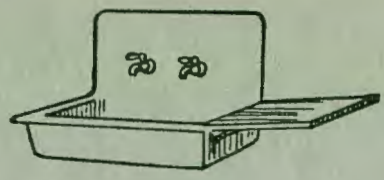

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FLOORS FOR FARM BUILDINGS

C. H. CHRISTOPHERSON

Decisions must frequently be made in selecting the best floor for a particular farm building. These decisions are not always easy to make because of conflicting reports on the merits of the numerous materials now available. New flooring materials are being introduced, and old materials are being used in new ways. In the absence of reliable data on new materials, particularly concerning their durability, the builder should be cautious about using them. There is no such thing as a universal flooring. Flooring materials should be selected because of desirable qualities for a particular type of building, or for a specific use to which the floor will be subjected. A floor that excels in durability may be too cold for some purposes, and a floor that insulates well may not be fire-resistant. The following are the important factors to keep in mind when deciding on the kind of floor to use: first cost, maintenance costs, durability, appearance, sanitation, resilience, fire resistance, and insulating qualities.

Wood Floors

For the farmhouse wood flooring has been used more than any other type. The quality of wood flooring has been greatly improved since the days of the pioneer when floors were made by hewing logs smooth and laying them side by side. Modern wood floors are made from woods selected for their durability and beauty. The hardwoods, such as sugar maple, white and red oak, beech and yellow birch, make more durable floors than the softwoods, such as Douglas fir, southern pine, western hemlock, and western larch. Only vertical grain softwoods should be used, as face grain will not wear as well. Because wood shrinks considerably on drying, narrow, rather than wide boards, should be used. The finish floor should be laid over a subfloor as this construction insulates and strengthens. The subfloor should be laid diagonally, using narrow boards, securely nailed to the floor joists. A moisture-proof felt should be used between the finish and subfloor. The finish floor, if 13/16 inch thick, should be blind-nailed with 8-penny flooring brads, spaced about 10 inches on centers.

Concrete Floors

Concrete floors are exceptionally durable and are used for practically all types of farm buildings. Unless the building site has exceptionally good drainage, it is necessary to place concrete on a fill of well compacted cinders, gravel, crushed rock, or a mixture of these materials. In all cases the floor should be several inches above the surrounding ground level. A one-course floor is less difficult to construct than a two-course floor and will be more satisfactory if properly made. A 1-2¼-3 mix with 6 gallons of water for each sack of cement makes a good trial mix. If the aggregates are wet, use only 5 gallons of water; if damp, use 5½ gallons. It may be necessary to vary the proportions of aggregates in order to get a dense workable mixture. If a non-slip surface is wanted for a barn floor or feeding floor, the concrete should be finished off with a wood float. For a smooth surface use a steel trowel. For light traffic a 4-inch floor will have sufficient strength. A 5-inch floor is necessary for barns, feeding floors, and others subjected to heavy loads.

Asphalt and Gravel Floors

Mixtures of liquid asphalt and gravel have been used both experimentally and in practice for feeding floors, poultry house floors, and barn floors. From 12 to 15 gallons of asphalt will be required for each cubic yard of a medium size gravel. Sand will require more asphalt. The ground is leveled and tamped or rolled. The surface is next sprinkled with asphalt, after which the asphalt-gravel mixture is spread, leveled, and tamped or rolled. This makes an inexpensive moisture-proof flooring, not as hard as concrete, but which has given good service in several cases.

Cement-Sawdust Floors

A mixture of cement, sawdust, and water has been used as a flooring material in barns and poultry houses in a few scattered areas. In some instances a small amount of sand was used in the mixture. Experiments were conducted at the University of New Hampshire with a mixture consisting of 1 part cement, 3½ parts of sawdust, and enough water to make a consistency similar to whipped cream. Screened sawdust from softwood trees was used. The mixing, by power mixer, was continued for 4 minutes. This mix made a product weighing 45 pounds per cubic foot, with a compressive strength of 300 to 400 pounds per square inch. The low cost and the insulating properties of this material are its chief advantages.

Wire Floors

Wire floors have been used for some time in the breeding of poultry, and more recently, experiments have been made with wire mesh as flooring material for calf pens. The wire mesh, which is attached to a wood frame, keeps the calves and the bedding several inches above the regular floor, thus permitting all liquids to drain through the bedding. The mesh most frequently used is ½ to ¾ inch. Where bedding is scarce or costly a considerable saving can be made by using wire floors, as it will not be necessary to change the bedding as frequently as in the conventional calf pens. Dry bedding is more comfortable and warmer than wet bedding.

Insulating the Floor

Although concrete makes an excellent floor for a large percentage of farm buildings, it conducts animal heat away so rapidly that a better insulating material is often placed over the concrete on the standing platforms in dairy barns. Hollow tile is sometimes laid below a thin concrete floor with the belief that a warmer floor will result. However, it has been shown that, although the tile insures a dry floor, it does not necessarily make a warm floor. Insulating materials that have been used over concrete floors include cork brick, mastic flooring, and asphalt impregnated insulating board. In temperature studies of dairy barn floors at Kansas State College it was found that the minimum and maximum temperatures of various types of flooring materials were practically the same, but that those materials known to have high insulating values were the quickest to warm from the animal heat, while those lacking this property warmed up very slowly.

Miscellaneous Flooring

There are other types of flooring such as terrazzo, magnesite, marble, slate, stone, and ceramic tile. These materials are not in general use on the farm. Floor coverings such as linoleum, rubber tile, asphalt tile, and cork are sometimes used in the farmhouse kitchen and bathroom. They are made in decorative patterns and because of their resiliency are comfortable for the feet.

Local Conditions

The choice of a floor is often decided by the availability of local materials such as sand, gravel, crushed rock, lumber, and tile. The temperature and moisture conditions of the locality should be considered. The location of the building site in relation to drainage facilities, construction difficulties, available skilled labor, and the personal preference of the owner are also factors that should be considered in the selection of a floor.

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