



# AGRICULTURAL ENGINEERING NEWS LETTER

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## BUILDING PLANS FOR MINNESOTA

Many inquiries concerning farm buildings come to the University Department of Agriculture. As an aid to answering such inquiries the Division of Agricultural Engineering has developed a farm building plan series. Blue print copies of these plans are available at a nominal price. Several thousand of these plans were distributed last year.

The inquiries received indicate that the most evident need of the prospective builder is that he should have begun earlier a study of his local needs and conditions and of the local materials and helps available. The building plan series greatly aids such study.

### ANIMAL SHELTER

The series includes over thirty different horse, sheep, beef, and dairy barn plans. One of the most recent plans shows one good arrangement of a milking room in a dairy barn. The milking room is a portion of the barn equipped with three or four stalls where the cows are brought in at milking time only. The balance of the time they may be loose in a less expensive shelter.

The milking room may also be built as an addition to the present barn, and the size of the dairy enterprise increased without buying additional equipment for each animal as is now customary in the conventional dairy barn. The ease with which the herd may be increased or partly changed to feeders in place of dairy animals appeals to many farmers. Keeping cows loose in a stable usually requires more bedding than when they are kept in stalls. On many farms this practice aids in keeping up fertility by the additional vegetable matter added to the manure. The milking room may be well insulated but, as it is comparatively small, this factor is not as expensive as insulating the whole stable would be. It has been found that cows running loose do not require as warm a stable as when kept in stanchions. When running loose cows must be dehorned and, even then, bossy cows may make some trouble.

Much interest has been shown in hog houses, brooder houses, cots and shades. Some new plans of such structures are being prepared and tested. The plan with two rows of pens in a building standing north and south with windows in the east and west walls still is first choice. Where the building site makes it necessary to stand the building east and west, the plans show fewer windows than in similar buildings farther south. This type, known as half-monitor, has been found too cold for northern Minnesota

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unless some artificial heat is supplied at farrowing time.

A new poultry house plan showing a 24x24 foot straw loft building is the result of cooperative study on the part of the poultry specialists and engineers. On account of its size there is some gain over other plans in warmth for the space enclosed and there is more freedom for the fowls. A hen in a 2x2 foot coop has 4 square feet of floor space. In a 24x24 foot building with 576 square feet of floor, the common practice is to allow only 3 square feet per bird. In this large building each bird has a chance to enjoy the range of the entire pen. The development of a practical straw loft that may easily keep the building dry without requiring a lot of attention has been worked out. The insulation details are well developed. Roosts that may be moved out from the north wall in hot weather are carefully planned in detail. Even a poultry door is shown that permits water used in washing the floor to drain away outside.

Several plans of equipment for sheep have been added to the series. These include feeders and racks as well as a 24x32 foot sheep shed with manger and roof framing details.

### CROP STORAGE

Through government influence there has been an increased call for plans of buildings for storing crops on the farm. Single bin cribs and granaries as well as double cribs and combination driveway corncribs and granaries and, finally, the elevator type driveway corncrib and granary have all been added to the available plans. Many modifications may be made from almost any of the plans offered, but all plans in the series show good strong construction and save lots of time in case one has not had experience in deciding many details that come up when such structures must be erected quickly.

### MILK HOUSES

Plans are included showing two types of milk houses as well as a combination milk and ice house. One milk house is designed for handling whole milk where cooling is the important feature and where the cooling tank can be used both summer and winter. Another milk house is arranged for separating the milk and selling the cream only. In addition to the cooling tank there is also space for washing utensils, separating the milk, and heating water.

### MACHINE SHEDS

With complicated machines and equipment it is necessary to have a place to store and repair the car, machines, and attachments. A farmstead presents a more pleasing appearance where the machinery is not left standing in the grove or in fence corners. Plans available show various arrangements of shops, garages, and machine sheds as well as work benches and tool cabinets. A study of various plans makes it easier to select those features best suited to the needs of each individual farm. Construction details take much time to decide but in a plan many of these are worked out in advance. In most of the plans offered the structural details are shown. The size of doors and windows is left largely for the owner or builder to decide. In the plans of equipment all measurements are shown.

### MISCELLANEOUS PLANS

Over seventy working drawings of equipment such as racks, cattle stocks, dry-mash feeders, feed bunks, loading chutes, and nests are available. A study of the list of plans available gives a quick check on whether or not some items are short in the requirements for doing the work easily and properly.

### ROOFS AND STAIRS

The roofs of farm buildings are so important that several plans are included showing the correct names of the ones commonly used. The methods of framing gambrel, gothic, and hip roofs are also shown. Method of laying out of common rafters is shown on one plan, which also makes clear what is meant by the pitch of a roof.

Stairs are usually considered the most difficult part of a building to frame and build. Available plans show stairways with grade landings and also the practical method of laying out a stair stringer.

### USE PLANS

The plans herein discussed that are best suited to the needs of a given case are most readily selected by a study of the list in Circular 59, available upon request from the Bulletin Department, University Farm, St. Paul, Minnesota. In case, for example, a certain facing of the farmstead requires a special type of hog house, write a brief description of the conditions and the plan that most nearly meets these requirements will be selected. Send for the list. Learn to use plans.