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THE HOME MADE CRIB SILO

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Division of Agricultural Extension

The type of silo here described is not recommended for general use in the prairie sections or the older settled parts of the state, but is offered as a suitable plan for farmers in the timbered sections who want to build silos of the materials at hand, and by their own labor.

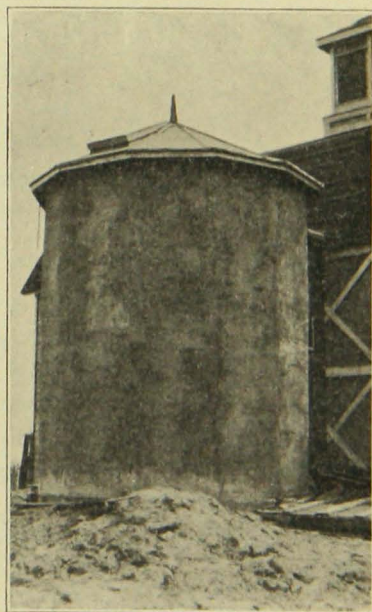
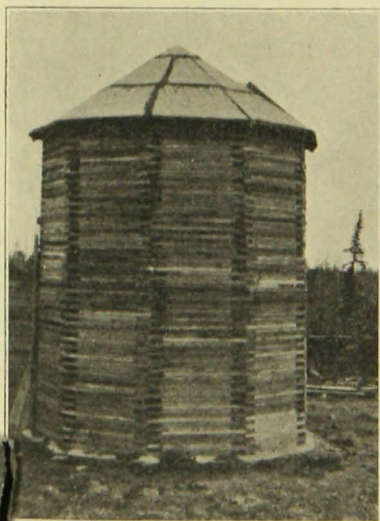


Fig. 1. Silos With and Without Outside Coat of Plaster

Most of the farmers in the cut-over sections of the state have timber which may be cut up into 2x4 stuff at the local mill or by a portable mill; and almost any pioneer farmer who is handy with

tools could build and plaster a crib silo such as is here described without having to hire any skilled labor.

The average settler in the timbered sections is hardly able, financially, to afford any of the silos on the market. Cash is a rather scarce article with him and all he can get is needed for other purposes. He keeps a few cows, and would be better off if he had more cows. He could keep more cows, and the cows he already has would yield a better profit, if he had a better way of providing winter feed for them. The silo will enable him to do this.

A crib silo such as is here described may be built of common, roughly sawed 2x4's of any native timber. Very rough lumber is even better for the purpose than smooth lumber, for it will better hold the plaster coat (mentioned later). The writer personally knows of about a dozen silos built after this plan, which are giving satisfaction.

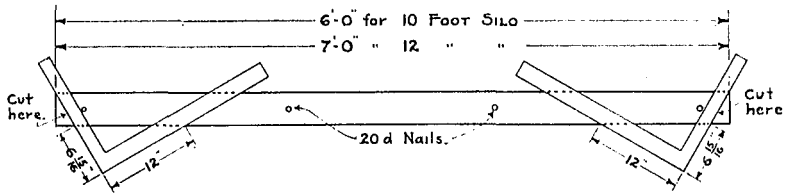


Fig. 2. Method of Making the Pattern

Laying Out the Plan

All the pieces for the cribbing are sawed exactly alike. To make a pattern for them use a piece of board 4 inches wide and 7 feet long if the silo is to be 12 feet across, or 6 feet in length for a 10-foot silo. Lay a carpenter's square on the board as shown in Figure 2, so that the measurement on the blade of the square from edge of board to corner of square is 6 15-16 inches, and the corresponding measurement on the beam of the square is exactly 12 inches, and mark for sawing off the corner as shown in the cut. The same thing is done at the other end of the board as the cut plainly shows. This method will give the proper angle so that when six of the pieces of cribbing made from this pattern are placed together as shown in Figures 3 and 4 a perfect hexagon will be formed. It is a good plan to build a frame of several thicknesses of the cribbing to be used as a form in laying out and constructing the foundation.

The Pit and the Foundation

Where the drainage and the nature of the soil will permit, it will be economical to dig a pit for the lower part of the silo. It should be kept in mind, however, that silage is heavy material to

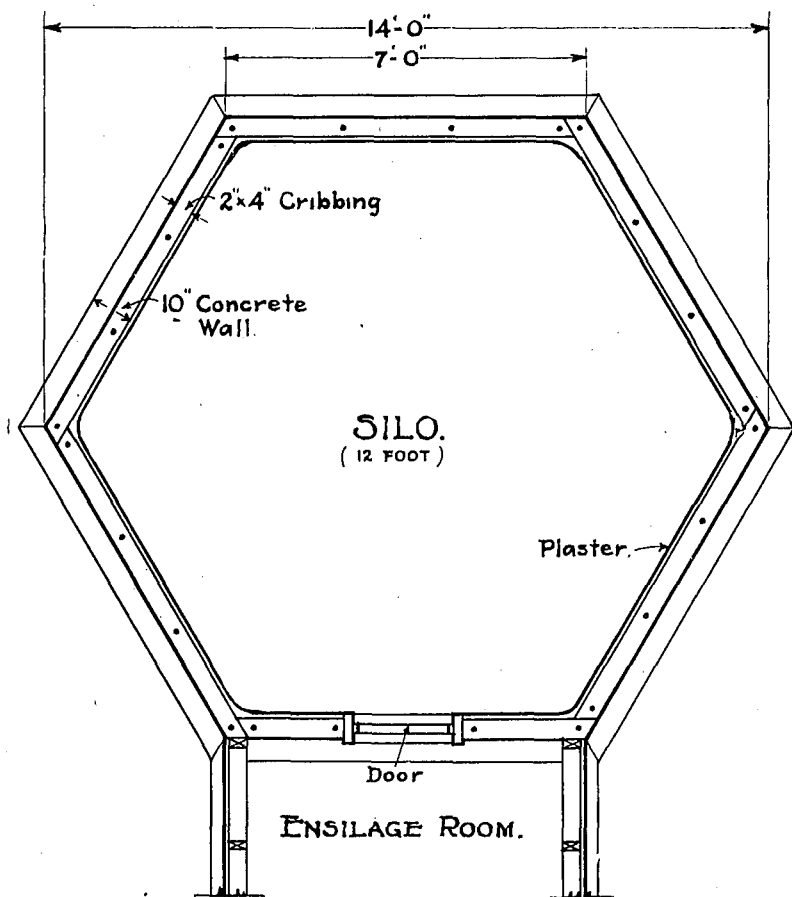


Fig. 3. Plan of Silo

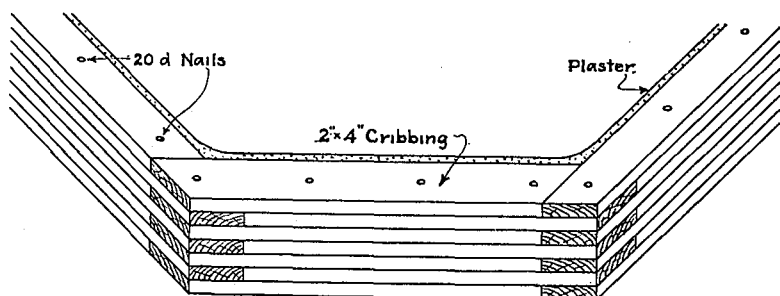


Fig. 4. Method of Laying Cribbing and Rounding Inside Corners in Plastering

lift and it will not be economical of labor, as a rule, to have the pit deeper than 6 feet. It will usually be found best to build a regular concrete wall from the bottom of the pit to some distance above the surface of the ground or the floor line of the stable. It will be noticed that the wall shown in the diagram extends up on the outside of the first layers of woodwork. This method serves to anchor the upper structure firmly to the base.

Building the Silo

Figure 4 shows how the 2x4's are placed on the foundation. Each alternate layer is laid so that joints are broken as shown and each piece is fastened with four 20d nails; the nail at each corner passing down through the next lower piece on the adjacent side of the silo. By this method of nailing the whole is securely and rigidly held together.

It must not be supposed that full length pieces only may be used. On the contrary, short pieces may be worked in to advantage, as all joints will be covered by the plaster coat which is finally applied.

How Doors Are Made

The doors in the side of the silo are $2 \times 2\frac{1}{2}$ feet in size and placed $2\frac{1}{2}$ feet apart. The door frames should be made of $2 \times 5\frac{1}{2}$ inch lumber as shown in the diagram. The frame should be set in place as the silo is being built and should project $\frac{3}{4}$ of an inch both inside and outside of the 2x4's. This projection will allow for the thickness of the plaster and make the frames flush with the finished surface. The doors are 2x10 inch planks sawed 2 feet long. Three pieces just fill the door frame. A cleat is nailed on the door frame the right distance from the inner edge so as to hold the inside of the door planks flush with the inside of the frame. The silage will hold the doors from falling in and the cleat keeps them from being crowded out.

Constructing the Roof

When the frame work is complete, place the main rafters, one at each of the six corners pointing toward the center, where a fence post 8 inches in diameter and sharpened at the top is used for a center piece. Use one common rafter between each two main rafters.

Anchoring

When the pit wall is being constructed it will add strength to the structure if one end of a piece of fence wire about 30 feet long is cemented securely into the pit wall at each corner. This can be done by fastening any old casting to the end of the fence wire and

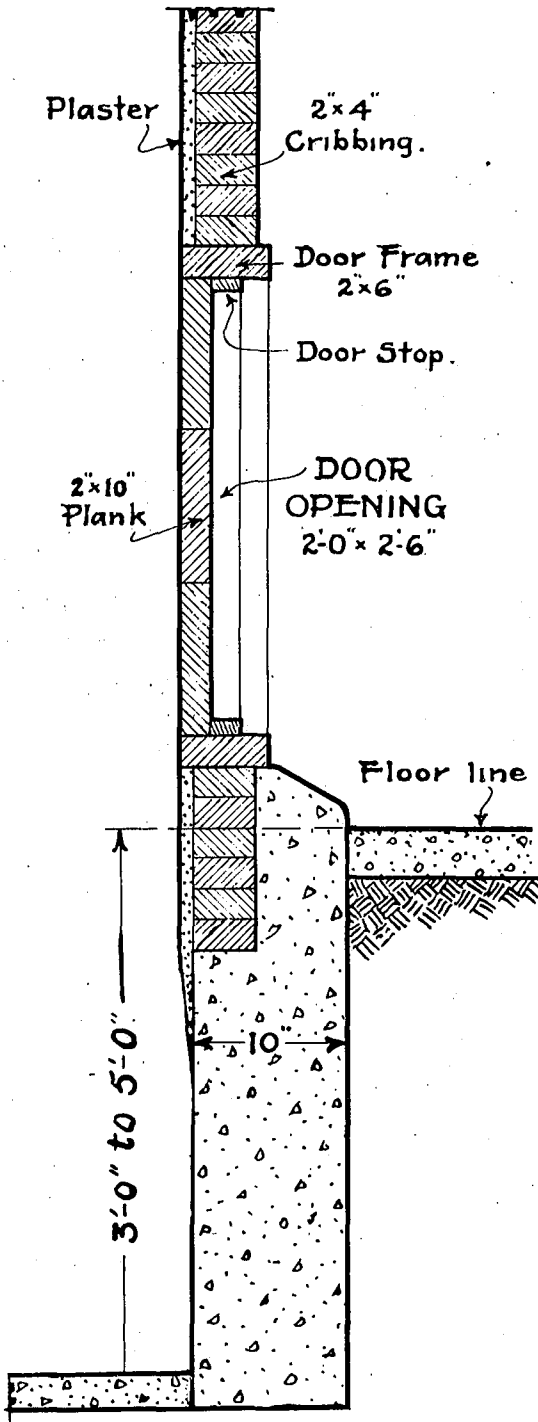


Fig. 5. Section of Wall, Foundation, and Door

cementing casting into the wall. These wires should be left in the pit until the rafters are on, then should be brought up in the corners over the rafters at the plate and drawn down for at least four to six feet and stapled securely to the woodwork. This arrangement will securely anchor the roof to the main structure. A four-light window frame should be placed where the blower from the silage cutter is to enter the roof, and the rest of the roof is to be covered with prepared roofing.

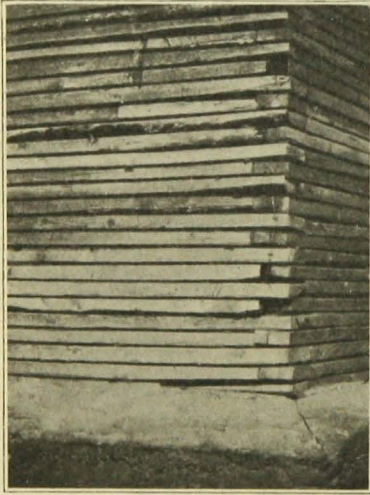


Fig. 6. Corner of Crib Silo Showing Rough Lumber Used

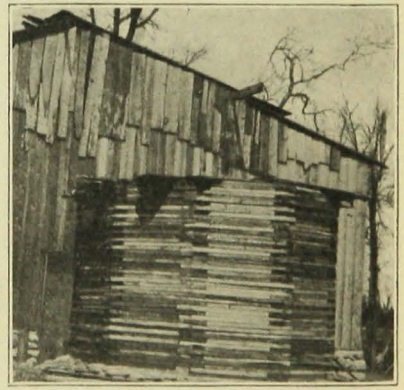


Fig 7. Silo 8 Feet in the Ground and 8 Feet Above

This silo cost \$16.60. It will be built higher as demands and circumstances permit.

Plastering the Inside

In putting on the inside coat of plaster, begin at the top and work down. The first coat should be made of one quarter lime and sand and three quarters cement and sand. To prepare this, first mix the lime and sand into a good, rich plaster in the usual way. (This plaster should contain some plaster hair. About one bushel of hair should be enough for an ordinary silo. Next mix dry one part cement with four parts of good sharp plaster sand, then wet it enough for plaster. Use about one part of the lime plaster with three parts of the cement plaster, mix thoroly and apply to the wall. The lime helps to make the plaster spread better as well as stick better and it will have a greater tendency to give and take with the swell and shrink of the wood than would the cement alone. The first coat should be $\frac{1}{2}$ inch thick. The second coat should be applied at once and should consist of one part cement and two parts

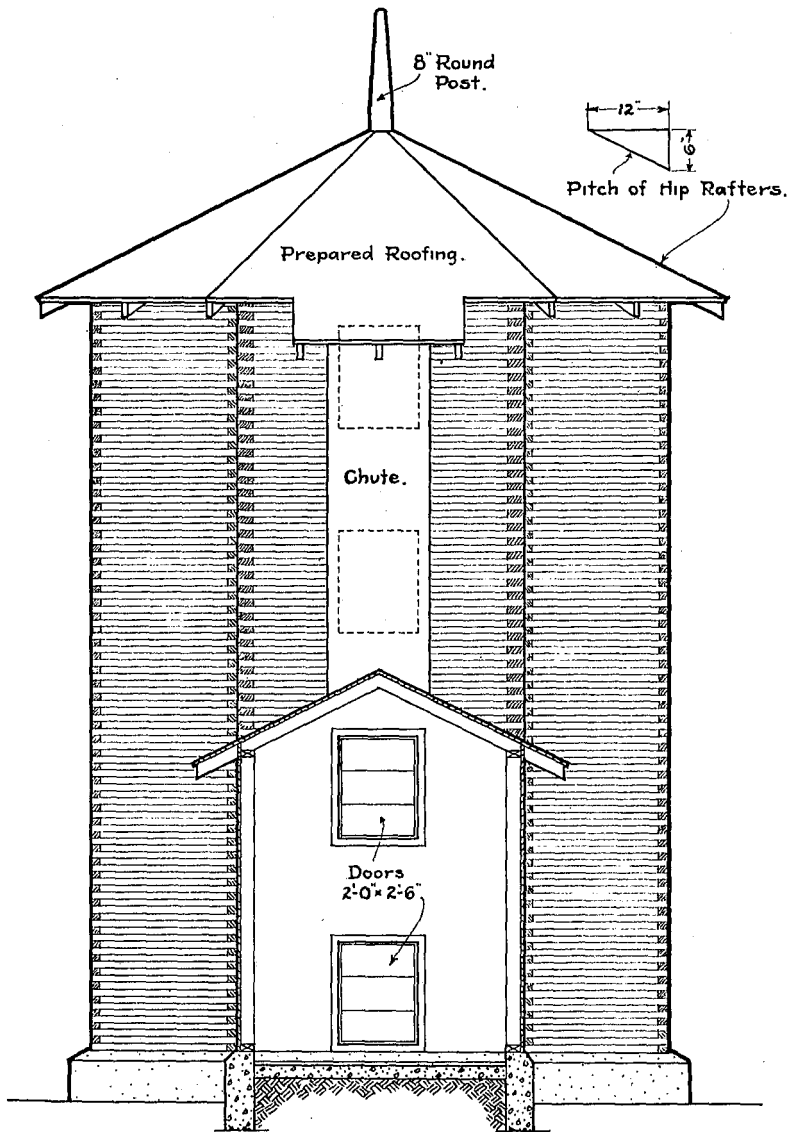


Fig. 8. Architect's Drawing of Front Elevation of Crib Silo

sand. This should be put on $\frac{1}{4}$ inch thick and should be finished with brush and trowel. The surface should now be perfectly smooth and when it has dried will be as solid as a stone.

In putting on the first coat the corners may be filled rather heavily, thus rounding them somewhat. This is shown in Fig. 1.

After the plaster has dried, it may be washed with clear cement and water to fill up any fine season cracks that may have formed.

Finishing the Outside

To finish the outside, one of several coverings may be used. Flooring put on perpendicularly, or boards 12 inches wide with battens over the cracks are sometimes used. A very cheap, but not durable, covering would be one thickness of prepared roofing fastened with lath. The most durable covering is stucco or plaster the same as that put on the inside. The writer has known some of these crib silos to be used for five years before any outside covering was put on.

Suggestions

It is not advisable to build this type of silo less than 10 or more than 12 feet in diameter or more than 24 feet high.

If the herd, as well as the clearing on which the silage is to be grown, is small, a farmer may build on the installment plan, that is, build as high as his needs require the first year, but not putting on a permanent roof. He can then add a few feet the following year and, if need be, not finish for three or four years.

Remember that the plaster is to be applied directly to the cribbing—no lath being used. Therefore the builder will realize that waney edge pieces, knot holes, and lumber of slightly uneven widths will serve better than perfect material.