

STORING GRAIN

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WITHDRAWN

in 1942

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North Dakota farmers face the most critical storage problem they have ever faced. Terminal elevator and much of the farm storage is full. Practically all of the small grain produced this year will have to be stored on the farm.

So that all of the small grain produced may be satisfactorily protected, an additional 100 million bushels of storage space are needed. This space should be provided by: (1) Repairing or remodeling old structures now on the farm to make them satisfactory for small grain storage, (2) Building new permanent storages, (3) Providing temporary storage for all grains that cannot be accommodated in a permanent storage.

MATERIALS ARE LIMITED

Delivery of lumber from mills to lumber retailers is restricted to material for the storage and preservation of food products. The competition from war industries is causing deliveries of lumber to be slow. Plenty of time must be allowed the retail lumberyards to replenish their stocks. Labor is scarce and will become more scarce as the season progresses.

The North Dakota Agricultural College
EXTENSION SERVICE
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Commodity Credit Corporation loans are available on wheat, rye, barley and flax, providing these crops are stored in substantial and permanent structures. Seven cents per bushel will be advanced for each bushel of wheat stored on the farm.

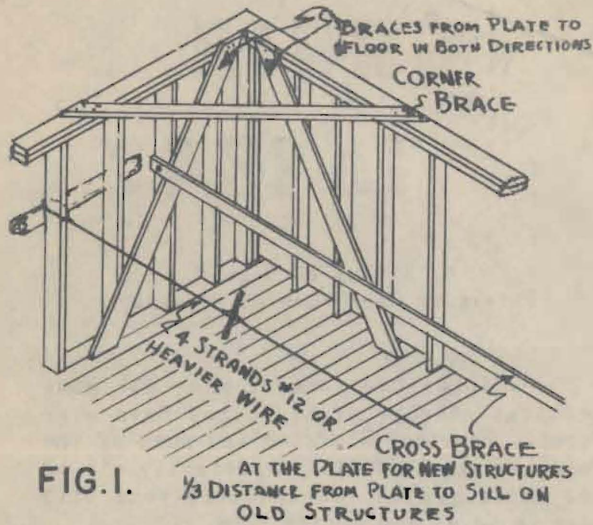


FIG. 1.

BUILDING SUGGESTIONS

All new buildings should be constructed to meet Commodity Credit Corporation loan requirements. Old buildings which do not meet these requirements often can be repaired or remodeled by:

(1) **REPAIRING THE FOOTINGS.** Raising old bins on piers or footings at least 18 inches high provides considerable protection against rats.

(2) **REPAIRING, REPLACING OR SUPPLEMENTING BROKEN, ROTTED, LOOSE OR INADEQUATE STUDS AND JOISTS.** Studs and joists can be adequately reinforced by installing duplicate members at regular intervals (see table 1 for maximum loadings) by cross-tying the walls with twisted strands of wire or by nailing crossties at frequent intervals (see fig. 1). End sections can be tied to the side walls by nailing crossties across the corners at the plate and possibly at the sill.

(3) **MAKING THE WALL WEATHER-TIGHT.** Placing strips of moisture-proof building paper between each set of studs helps to keep out the weather. Hard, waterproofed processed wall boards have proven quite satisfactory and can be used to supplement available supplies of common sheathing materials.

(4) **REPAIRING THE ROOF TO MAKE IT SNOW AND RAIN-TIGHT.** Calk all small cracks with calking compound. Steel bins bought in former years can be made more moisture-tight by calking or otherwise sealing the eaves and all other joints. Covering the wheat in a bin with moisture proofed paper during the winter months will keep the snow off the wheat until it can be removed.

GUARD AGAINST RATS

Rat proofing of all old or new storages is essential. Piers or footings 18 inches high with ends of the joists exposed to the light will eliminate much danger from rats. Old storages with wood or rock foundations can be rat proofed by using hardware cloth or fine mesh chicken wire as suggested below (see fig. 2). A continuous program of rat poisoning, using standard baits, will largely eliminate the rat problem.

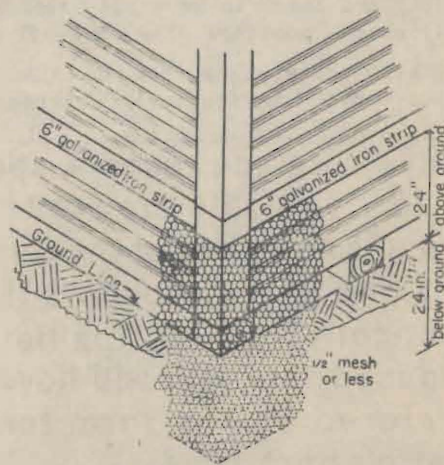


FIG. 2. A simple, inexpensive method of ratproofing old storages having wooden or rock foundations.

New storages should be rat proofed by installing strips of hardware cloth or sheet metal between the floor joists and the floor over the stringers or piers and extending 6 inches on either side.

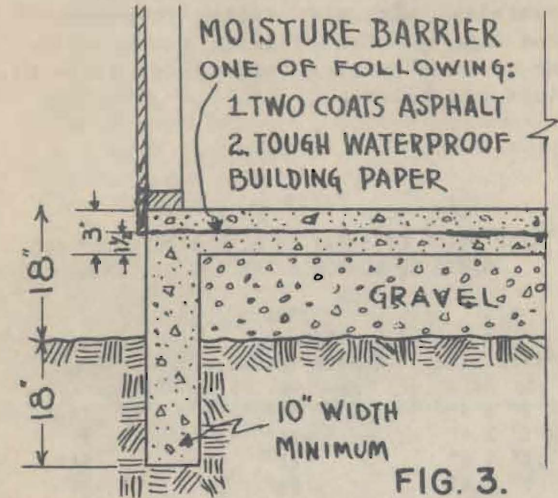


FIG. 3.

NEW STRUCTURES

WELL-MADE CONCRETE FOUNDATIONS OR SKIDS SUPPORTED ON CONCRETE BLOCKS OR OTHER PIERS. Allow 18 square feet of footing surface for each 1000 bushels of storage capacity. Field rocks are not recommended as footings. If they are used, rocks of uniform size should be selected and laid carefully to provide a level base for the stringers.

FLOORS SHOULD BE TIGHT. Concrete floors are satisfactory but must be moisture proof. The construction shown below has proven very satisfactory. Allow the concrete floor to dry 30 to 40 days before filling the bin. Covering the concrete floor with moisture proof paper the first year may be desirable (see fig. 3).

GOVERNMENT LOANS ON FARM STORED GRAIN AVAILABLE ONLY ON GRAIN STORED IN BINS ADEQUATELY PROTECTED AGAINST DAMAGE AND LOSS

NAIL ALL STUDDING SECURELY TO THE FLOOR JOIST. A lap joint is recommended. If this joint cannot be used, the studding should be butt-nailed to a sill and the sill nailed to the floor and joists. Avoid toe nailing studs to the sill wherever possible. Adequate bracing is essential (see fig. 1). The following schedule shows the maximum spacing for various sizes of studs and joists.

TABLE 1.

SAFE DEPTH OF WHEAT IN BINS WITH STUDS AND JOISTS OF COMMON SIZES AND SPACINGS

Stud Size	STUDS	Depth of Wheat
	Spacing Center to Center	
2" x 4"	12"	7'
2" x 6"	24"	7'
2" x 6"	18"	8'
2" x 6"	12"	9'

FLOOR JOISTS

12-Inch Spacing

Depth of Wheat for

Joist Size	Depth of Wheat for		
	6-foot span	7-foot span	8-foot span
2" x 6"	9'	4'	--
2" x 8"	9'	8'	6'
2" x 10"	12'	10'	8½'
2" x 12"	16'	13'	11'

16-Inch Spacing

2" x 6"	4½'	--	--
2" x 8"	8½'	6'	4½'
2" x 10"	9½'	8'	7'
2" x 12"	12'	10'	8'

24-Inch Spacing

2" x 8"	4½'	4'	3'
2" x 10"	6'	5'	4'
2" x 12"	8'	6½'	5'

GUARD AGAINST MOISTURE

THE ROOF MUST BE MADE BOTH RAIN AND SNOW-TIGHT FOR SATISFACTORY STORAGE. All small cracks should be calked with calking compound. This can be secured from lumber dealers.

OBTAIN PLANS

You will be ahead to secure approved plans for a grain storage and to build new granaries from those recommendations. Plans are available from the NDAC Extension Service, or from most lumber dealers.

GRAIN STORAGE PLANS

(The following plans may be inspected at your County Agent's Office.)

Plan No.	Description	Price
Ex. 5580	10' x 10' - Portable	500 Bu. 15¢
Ex. 5581	12' x 14' - "	1,000 " 15¢
M. W. 78211	10' x 10' - "	500 " 15¢
M. W. 78212	12' x 14' - "	1,000 " 15¢
Ex. 5528	14' x 24' - Permanent	1,800 " 15¢
Ex. 5529	31' x 32' - "	6,400 " 15¢
M. W. 73218	12' x 24' - "	2,000 " 15¢
M. W. 78214	31' x 32' - "	5,000 " 15¢
N. D. 782-2-1	20' x 34' - "	5,000 " 15¢
M. W. 78231	30' x 30' - Elevator	10,000 " 45¢
Ex. 5093	16' x 31' - "	11,000 " 30¢
Ex. 5582	30' x 30' - "	10,000 " 45¢

Plans for corn cribs and combination granaries also are available. Plans for poultry houses, hog houses and machine sheds of a design suitable to be reinforced sufficiently to store grain during this emergency and later to be easily remodeled into livestock shelters also are available.

Obtain these plans from the NDAC Extension Service Agricultural Engineer.

Make sure you reserve space for your valuable crop of flax. Space is so limited at the terminals and at the crushers that practically all the flax being produced this year will have to be stored on the farm for at least a short time.

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