FARM BUILDING PLANS

J. C. Wooley and R. W. Oberlin

The cost of materials and labor for erection and maintenance of farm buildings has increased in the past quarter of a century. Buildings could be built before this period to meet periodic or seasonal needs without seriously affecting profits. The increase in cost and the tendency to build more permanently make it exceedingly important to plan carefully. A mistake in design is difficult to correct in a permanent structure and will often be tolerated for a lifetime before it is changed. The plans listed in this circular have been for the most part developed by the Department of Agricultural Engineering of the College of Agriculture to improve design and increase the efficiency of farm buildings in Missouri. A few of the plans included were selected from the plan list of the U. S. Department of Agricultural Engineering, and are so designated.

Note.—Members of other subject matter departments in the College of Agriculture have given helpful criticism. These plans represent years of work and study and it is hoped that they will be of service.
Farm Houses

Plan No. 1-710-C2.—Farm House. Bungalow with full basement 27'x38'. Living and dining room combined, two bed rooms, kitchen, sun room or office, screened porch.

Perspective

Floor Plan
Plan No. 2-710-C3.—Two Stories Frame Construction, 23 by 25 ft. Bill of Materials. Combined living room and dining room; kitchen; wash room; and laundry in first story. Three bed rooms; bath and sleeping porch in second story; cellar with furnace flue; large front porch. Designed for northern and western climates.

Plan No. 4-710-C3.—One Story Frame Construction, 26 by 50 ft. Living room with fireplace; dining room; kitchen; wash room and laundry; 3 bed rooms; bath; sleeping porch; cellar with furnace flue; front porch; rear screened porch; ell 20 by 16 ft. This design is No. 522-3-4, adapted to northern climates; attic may be finished providing two additional bed rooms.
Plan No. 5-710-C3.—One Story Frame Construction. 25 by 25 ft. Bill of Materials. Living room; combined kitchen and dining room; 1 bedroom; front porch; bath room and rear porch designed to be built with the house or as an addition. No cellar; concrete foundation.
Plan No. 3-710-C3.—One Story Frame Construction, 28 by 36 ft. Bill of Materials. Living room; dining room; kitchen; bath; 2 bed rooms; sleeping porch; small cellar for furnace; storage cellar; front porch; rear screened porch. Designed for warm climates. Ell 20 by 16 ft.

Sewage Disposal

Plan No. 1-851-Bl.—Single Chamber Septic Tank.
Plan No. 2-851-Al.—Sanitary Privy.
Plan No. 3-851-Bl.—Septic Toilet.

Farmsteads

Plan No. 1-706-Bl.—Farmstead Plan for North Front.
Plan No. 2-706-Bl.—Farmstead Plan for East Front.
Plan No. 3-706-Bl.—Farstead Plan for South Front.
Plan No. 4-706-Bl.—Farmstead Plan for West Front.
Dairy Barns and Milk Houses

Plan No. 2-723-C3.—Standard 18-Cow Dairy Barn. 34'x66' hay overhead. 18 stanchions, two maternity pens, calf pen, bull pen. Storage for 40 T loose hay, 10 T baled straw, 20 T sacked feed, 100 bu. ground feed, 300 bu. ear corn, 320 bu. grain. Self supporting gambrel roof. Balloon frame.
Plan No. 3-723-C3.—T-shape 18 Cow Dairy Barn. 34' x 80' single story plus 28' x 30' hay storage. 18 stanchions, 2 maternity pens, calf pen, bull pen, grinding room, feed and hay storage for 200 day feeding period. Plan and material list.
Plan No. 4-723-D2.—L-Shape 36-Cow Dairy Barn. 36 stanchions in single story part 34'x72'. Four maternity pens, calf pen, bull pen, feed and hay storage in two-story part 34'x71'.

Plan No. 5-723-C2.—Loafing barn with milking room and milk house attached. Room for 18 cows, 3 calves, 3 yearlings and 3 two-year-olds.

Plan No. 6-723-C2.—Loafing barn with milking room and milk house attached. Hay storage overhead. Room for 18 cows, 3 calves, 3 yearlings.
Plan No. 1-725-B1.—Barn addition to be used for dairy stable. Concrete floor, good light and ventilation.

Plan No. 6-723-Al.—Standard Stall, Manger and Gutter Dimensions for Dairy Cow Stable.

Plan No. 2-720-Al.—Wood cow stanchion.

Plan No. 7-729-C1.—Safety Bull barn and pen.

**Milk Houses**

Plan No. 5-752-C1.—One-room milk house 8'x12' attached to barn with enclosed passageway.

Plan No. 6-752-C1.—Two-room Milk House, 10'x16' attached to barn with enclosed passageway.

Plan No. 7-752-C2.—Three-room Milk Plant suitable for large dairy selling bottled milk. Wash room, boiler and machine room and milk room.

Plan No. 8-752-C1.—Single-room Milk House, 8'x12'. Detached from barn.

**Manure Pit**

Plan No. 1-743-B1.—Concrete Manure Pit.
General Purpose Barns

Plan No. 1-721-Cl.—General Purpose Barn. 28'x40', hay overhead. For 5 horses, 8 cows, 630 bu. feed, 20 T. hay. Self supporting gambrel roof. Plan and material list.

Plan No. 2-721-Cl.—General Purpose Barn. Pole frame. 5 horses, 8 cows, 20 tons hay, 250 bu. corn, 225 bu. oats.

Floor Plan on Next Page.
Plan No. 2-731-C3.—Hay Feeding Barn.
Beef Cattle Barns

Plan No. 1-724-C4.—Beef Cattle Barn. 36' x 70' seven box stalls, seven double tie stalls, feed room, hay storage overhead 65 tons. Self-supporting gambrel root.

Plan No. 2-724-C1.—Beef Cattle Shed. Open on south side. 20' wide, length variable.

Horse Barns

Plan No. 2-722-C3.—Horse Barn. 34' x 42'. Bill of Materials. 2 stories; 3 single, 4 double, 1 box stalls; harness room; grain bin 450 bu.; corn crib 500 bu. ear corn; mow capacity 50 tons; 4 ft. central feed alley; gambrel roof; concrete foundations and wall to window sills. Alternate ground floor plan provides for: 2 single, 3 double and 1 box stalls; 2 grain bins 800 bu. each; 4 ft. central feed alley.
Plan No. 3-722-Cl.—Combination Horse Barn and Machine Storage. 6 horses, 12 tons hay, 320 bu. corn, 400 bu. oats, 1000 sq. ft. machinery storage space.

Sheep Barns

Plan No. 3-725-Cl.—Sheep Barn. One story, gable roof, width 16 ft., length variable. Feed rack in center.
Plan No. 2-725-C2.—Sheep Feeding Shed. 30' x 80'.

Barn Roof Framing

Plan No. 1-703-Bl.—Gambrel Roof Framing (wing joist) for barns from 18' to 36' in width.

Plan No. 2-703-Cl.—Gambrel Roof Framing (Iowa Truss) for barns from 30' to 40' in width.
Plan No. 3-703-C3.—Gothic Roof Framing for barns from 18' to 36' in width.

**Livestock Equipment**

Plan No. 1-772-B1.—Self-feeder for sheep.
Plan No. 8-772-C1.—Feed Bunk for Cattle. Combination feeder for hay and concentrates.
Plan No. 9-772-A1.—Creep feeder for calves.
Plan No. 5-772-B1.—Calf Self-Feeder for concentrates.
Plan No. 3-773-C1.—Dipping Vat for Cattle.
Plan No. 1-774-B1.—Bull Stocks.
Plan No. 2-774-B1.—Dehorning Chute.

**Brooder Houses**

Plan No. 8-727-C1.—Missouri Type Brooder House. Special Sectional Model to be dismantled for moving.
Plan No. 9-727-C1.—Missouri Type Brooder House. Standard.

![Diagram of a structure](image)

**Poultry Houses**

Plan No. 7-727-B1.—20'x20' Missouri Straw Loft Poultry House plan and material list.
Plan No. 3-727-C1.—26'x26' Missouri Straw Loft Poultry House plan and material list.
Plan No. 5-727-C1.—40'x40' Missouri Straw Loft Poultry House plan and material list.
Plan No. 6-727-C1.—30'x30' Missouri Straw Loft Poultry House plan and material list.
Plan No. 10-727-A1.—Sun Porch for Brooder House.
Summer Range Shelter (see Ext. Circ. No. 253).
The 20x20 Poultry House

Hog Houses and Equipment

Plan No. 6-726-A1.—Height of Windows for Hog Houses.
Plan No. 10-726-B1.—Modified A. Movable Hog House.

Plan No. 7-772-C1.—Self Feeder for Hogs. Size 6’x3’ 4”x3’ 6”.
Capacity 36 bushels. Two way. Two divisions. Mounted on skids.

Plan No. 1-773-B1.—Concrete Hog Wallow.
Plan No. 2-773-C1.—Dipping Vat for Hogs.
Plan No. 2-775-A1.—Hog Breeding Crate.
Plan No. 3-775-A1.—Hog Shipping Crate.
Plan No. 4-775-A1.—Hog Ringing Chute.
Plan No. 11-726-B1.—Twin Modified Hog House.

Plan No. 5-726-B2.—Missouri Sunlit Hog House. 24' x 28'. 8 pens each 7' x 7'. 8' driveway. Length of building may be increased if more room is desired.

Crisbs and Granaries

Plan No. 1-732-C1.—Single Corn Crib 10' x 30' - 1650 Bu. capacity.
Plan No. 2-732-C1.—Double Corn Crib. 3000 Bu. capacity.

Plan No. 4-732-C1.—Small Farm Granary.

Plan No. 5-732-D1.—Portable Grain Bin- 10’x14’. Capacity 660 bushels. Studs on outside. Provided with skids for moving.

Plan No. 6-732-D2.—Farm Elevator 27’x36’. Total capacity of cribs 3920 bu., grain 3000 bu.

**Apple Storage Houses**

Plan No. 3-734-E1.—Apple Storage House.

Plan No. 4-734-B1.—Storage Cave and Storm Cellar.

Plan No. 5-734-B1.—Drying Plant for Fruits and Vegetables.

**Potato Storage**

Plan No. 1-734-C1.—Sweet Potato Storage House 12’x16’. Bill of Materials. 400-500 bu. in bulk or 450-500 bu. in crates; frame structure; gable roof; concrete piers; 3 slatted bins; provision for one stove; floor and roof ventilators; windows in ends.

Plan No. 2-734-C1.—Potato Storage Cellar 10’x16’. Bill of Materials. 500 bu. Two designs; one provides for use of rubble masonry with brick arch roof; other for use of reinforced concrete. The flat concrete roof slab may be substituted for the brick arch on the rubble walls. To be built under ground.

**Silos**

Plan No. 1-733-C3.—Concrete Silo. 16’ diameter.

Plan No. 2-733-C3.—Concrete Silo. 14’ diameter.

Plan No. 3-733-C3.—Concrete Silo. 12’ diameter.

Plan No. 4-733-C3.—Concrete Silo. 10’ diameter.

Plan No. 5-733-C1.—Home Made Wood Hoop Silo 16’ diameter.

Plan No. 6-733-C1.—Home Made Wood Hoop Silo 12’ diameter.
Plan No. 1-731-Cl.—Hay shed. Bill of Materials. To be built in 16 ft. sections or bays 28 ft wide, capacity 20 tons loose hay per section. Trussed framing on concrete piers. Lower half open; upper half closed with boards and battens; gable roof.

Lime Bins

Plan No. 1-746-Al.—Open bin for one car of limestone.
Plan No. 2-746-Cl.—60-Ton storage bin.

Plan No. 2-741-Cl.—Implement Shed 20'x70'. Part of building, 20'x48', enclosed, weather- and bird-proof.

Farm Shop

Plan No. 3-741-Cl.—Farm Shop and Garage. 14'x20'.

Tobacco Barns

Plan No. 1-735-Cl.—Tobacco Stripping Shed.
Plan No. 2-735-Cl.—Tobacco Barn. 3-acre size. 28'x36'.

Erosion Control

Plan No. 2-224-A1.—Concrete Soil Saving Dam. Over-shot type.
Plan No. 3-224-A1.—Concrete Soil Saving Dam. Vertical Inlet type.
Plan No. 4-224-A2.—Sewer tile Soil Saving Dam. Vertical Inlet type.
Farm Machinery

Plan No. 1-314-Bl.—Clover Seed Scarifier.
Plan No. 2-314-Al.—Smut Treating Machine for Wheat, made from barrel.
Plan No. 3-314-Al.—Home Made Sweet Clover Seed Harvester, to be made from an old binder.
Plan No. 4-314-Bl.—Three-Horse Hitch for a wagon.
Plan No. 5-314-Bl.—Home Made V-Drag for ditching and terracing.
Plan No. 6-314-Cl.—Low Down Silage Rack.
Plan No. 7-314-Cl.—Flat Bottom Hay Rack.
Plan No. 8-314-Cl.—Basket Hay Rack.
Plan No. 9-314-Bl.—Attachment for Grain Thresher to add chemicals for rotting straw.

Miscellaneous

Plan No. 1-771-Cl.—Concrete Stock Tank: Round, 6' diameter, 2' depth.
Plan No. 2-771-Bl.—Forms for Rectangular Concrete Stock Tank. 6'x10' for 12 bbl. capacity. 8'x12' for 22 bbl. capacity.
Plan No. 1-776-Bl.—Gang Mold for Concrete Posts.
Plan No. 2-776-Al.—Flood Gate.
Plan No. 1-778-Bl.—Cattle Guard or Auto Pass.
Plan No. 1-790-Bl.—Community Roadside Market.
Plan No. 2-790-Bl.—Individual Roadside Market.
Plan No. 1-791-Bl.—Missouri Standard Bee Hive.