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Available Agricultural Engineering Circulars and Blue Print Plans

A.E. Anderson

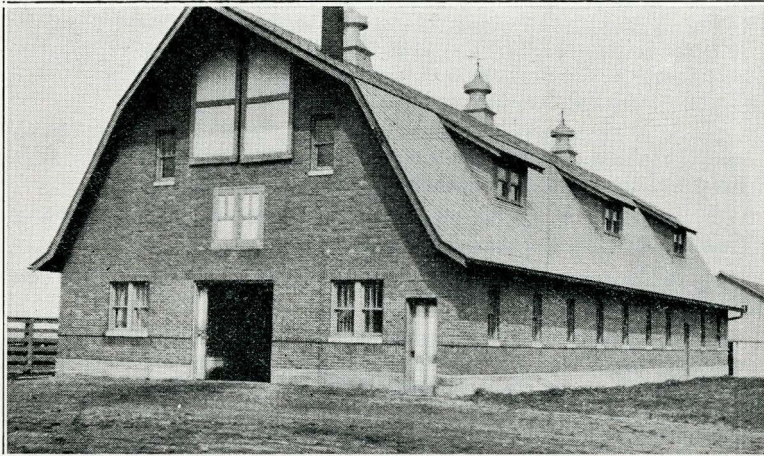
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Available Agricultural Engineering Circulars and Blue Print Plans



Horse Stable at College Farm

SOUTH DAKOTA STATE COLLEGE
EXTENSION SERVICE

C. Larsen, Director
Brookings, S. D.

Building Facts

1.—The plans listed in this circular are not for elaborate and expensive buildings. Most of them are for plain, substantial, well proportioned, serviceable buildings, designed for the owner of the farm. No particular claim for originality is made in the design of these buildings as the best ideas of construction have been freely taken from other plans from practically every state in the Union. Particular effort has been made to design these buildings so that they are uniformly strong. If a building is built stronger in one place than it is in another, lumber is wasted.

2.—The importance of constructing a building exactly according to the plan cannot be over-estimated. Usually a few changes will so re-arrange the plans as to change it entirely and often eliminate the best features. Small changes in a plan usually spoil the effectiveness of the ventilating system of that building.

3.—A modern attractive building is not fancy. It is plain, but in good proportion, with pleasing lines and well placed windows. It is substantially built, conveniently arranged and well painted.

4.—“A chain is no stronger than its weakest link.” A building frame is no stronger than its weakest point.

5.—A good job of nailing is an important item in the construction of frame buildings.

6.—A ventilating system alone will not prevent the deposit of moisture and frost; it will help by carrying out the excess moisture. Two other factors are important in the control of frost—the insulating of cold sidewalls and ceilings, and the keeping up of the temperature to a reasonable degree. The temperature is kept up by having plenty of stock in the barn and by keeping the overhead space low.

7.—In concrete work, the proportion of Portland cement to clean hard sand should vary from “1 to 2” to “1 to 3.” There should never be more than three parts of sand to one part of Portland cement in concrete work. This would be for the roughest work, such as foundations. Water-tight work should have the proportions of one part of cement to two parts of sand. Pebbles or crushed rock may be added to this mixture up to twice the amount of the sand without decreasing the strength.

8.—Recent tests have shown that wall sheathing when put on diagonally will often increase the strength of the wall against end thrust by seven times over sheathing put on horizontally.

Printed Circulars Free on Agricultural Engineering and Related Subjects

Ext. Leaflet No. 6—A Movable Hog House Plan—Patty	Free
Ext. Circular No. 7—Hog Houses for South Dakota—Patty	Free
Ext. Circular No. 9—Vegetable Storage—McCall	Free
Ext. Circular No. 29—A Suggested Farm Entrance—Patty and Starring	Free
Ext. Circular No. 31—Farm Building Ventilation—Patty	Free
Ext. Circular No. 32—A Serviceable Farm Barn—Patty and Larsen ..	Free
Ext. Circular No. 232—A Year's Progress with South Dakota's Farm Electric Test Line—Patty	Free
Ext. Circular No. 264—Pit and Trench Silos—Patty	Free
Ext. Circular No. 271—Better Team Hitches for South Dakota—Hauser	Free
Ext. Circular No. 280—Beautifying the Home Grounds—Ford	Free
Ext. Circular No. 307—A Septic Tank for Farm Sewage Disposal—Patty	Free
Ext. Circular No. 323—Available Engineering Circulars and Blue Print Plans (This Circular)	Free
Exp. Station Bulletin No. 239—Costs and Uses for Electricity on South Dakota Farms—Patty	Free
Exp. Station Bulletin No. 241—Cost of Electricity for the Home Electric Refrigerator—Patty	Free
Exp. Station Bulletin No. 251—Combining Grain in Weed-Free Fields—Wiant and Patty	Free

Blue Print Plans

The nominal charge made for blue print plans merely covers the cost of the blue print paper used in printing them.

Barns

- No. 121—General Barn Plan.....4 sheets 40c
 36 ft.x60 ft. Sets north and south, with feedway in center. Capacity 8 horses, 13 cows. Calf pen and 2 box stalls. Side walls of clay block up to loft, although may be built of lumber.
- No. 122—General Barn Plan.....5 sheets 50c
 36 ft.x60 ft., with "L" on northeast corner for loose and young stock. Provides sheltered lot. Capacity 10 horses, 12 dairy cows, bull, 12 calves, and carload of loose stock. Feed room and silo. Stock faces out, with driveway through center. This barn is built in sections as funds permit. Bill of material in Extension Circular No. 32.
- No. 123—General Barn Plan.....4 sheets 40c
 34 ft.x46 ft. Sets north and south. Stock faces out, with driveway through center. Capacity 8 horses, 10 cows and good calf pen.

- No. 111—Dairy Barn Plan.....5 sheets 50c
36 ft.x72 ft. Sets north and south with "L" on the north and east providing sheltered lot. Complete ventilating system. Capacity for 25 cows, 17 calves, one bull pen, 100 tons of hay and bedding. Cattle face out, with driveway through the center.
- No. 112—Safety Bull Pen.....1 sheet 10c
Size of pen—16 ft.x64 ft. Size of shed—12 ft.x16 ft. Size of breeding stall—4 ft.x12 ft. 8 in. Pen is built of heavy cedar posts and plank. Details given. Bill of material attached.
- No. 131—Beef Cattle Shed.....2 sheets 20c
20 ft.x96 ft. This shed sets east and west, with a feed rack for hay along the north side. Designed for beef cattle and range conditions. Fully ventilated.
- No. 132—Beef Cattle Shed.....2 sheets 20c
92 ft.x20 ft. Capacity for 50 fat steers. This shed is designed to fit into the northwest corner of the feeding lot. It is closed on the north and west sides and the ends are open on the east and south. Built of lumber on a good concrete foundation.

Farm Houses

- No. 411—Farm House Plan.....3 sheets 30c
A full two-story square frame construction with 9 rooms and bath. Contains wash room and office on first floor; and laundry in basement. Over-all dimensions 40 ft.x28 ft. Bill of material attached.
- No. 413—Farm Tenant House.....3 sheets 30c
Story and a half, 5-room house. Estimated cost \$2000 without basement.

Ice Houses

- No. 441—Ice House Plan.....2 sheets 20c
Semi-basement plan, with capacity for 20 to 25 tons. 12 ft.x12 ft. inside measurement. Concrete walls. May be tile or frame. Hip roof.
- No. 442—Ice House Plan.....1 sheet 10c
14 ft.x18 ft. Built of cement blocks.
- No. 445—A Farm Ice Well.....1 sheet 10c
This is a plan of an ice well that was drawn and built for experimental purposes. The building is not strongly recommended for South Dakota, necessarily.

Poultry Houses

- No. 311—Poultry House Plan.....2 sheets 20c
16 ft.x32 ft. as shown in plan. The plan calls for 16 ft. units, each unit the same. The house may be built in lengths of 16 ft., 32 ft., 48 ft., or 64 ft. Frame house, faces south, combination roof, straw loft, capacity of 65 to 75 birds for each 16 ft. unit. Bill of material attached.

- No. 321—Turkey Shed -----1 sheet 10c
 An inexpensive shed for turkeys. Building 24 ft.x24 ft. with flat gabled roof. May be converted into machinery shed. Partial open front protected with heavy woven wire fence. Capacity for 175 turkeys.
- No. 351—Brooder and Colony House Plan-----1 sheet 10c
 .10 ft.x12 ft., with combination roof. Matches poultry house plan No. 311. Movable. Bill of material on blue print. Estimated cost of material \$87.

Hog Houses—Centralized

- No. 211—Iowa Sunlit Type-----2 sheets 20c
 Clay tile construction, 25 ft.x60 ft., 20 pens. Sets north and south. Estimated cost, completely equipped, \$900. Bill of material given in Extension Circular No. 7.
- No. 212—Dakota Hog House Plan-----2 sheets 20c
 Clay tile walls. 25 ft.x60 ft., 20 pens. Sets east and west. Driveway and feeding floor through center.
- No. 213—Frame Hog House Plan-----2 sheets 20c
 24 ft.x48 ft. 16 pens. Sets north and south. No loft. Estimated cost, completely equipped, \$800.
- No. 214—Semi Monitor Hog House Plan-----2 sheets 20c
 24 ft.x48 ft., 16 pens. Frame construction. Sets east and west. Estimated cost, fully equipped, \$800.
- No. 215—Hog House with Loft Overhead-----2 sheets 20c
 24 ft.x48 ft., with loft for alfalfa and bedding. Gable roof, ventilating system. Sets north and south. Bill of material attached.
- No. 216—Small Hog House (not movable)-----1 sheet 10c
 12 ft.x18 ft., 3 pens in a row. Sets east and west. Combination roof. Bill of material on blue print. This house may be built longer.
- No. 217—Economy Hog House Plan-----1 sheet 10c
 8 ft.x36 ft., 6 pens. Sets east and west. Combination roof, rough lumber. No floor. Estimated cost of material, \$60. An excellent 2-pen movable house may be built from this plan if built only 2 pens long. Bill of material on blue print.
- No. 218—Small Shed Hog House Plan-----1 sheet 10c
 12 ft.x30 ft. Shed house. Faces south, with feed alley along north. 5 pens.

Hog Houses—Colony

- No. 251—Movable and Colony Hog House Plan-----1 sheet 10c
 "A" type with sun doors in roof. 7 ft.x8 ft. on the ground. Roomy, substantial, ventilated, easy to build, lumber cuts right. May also be built 6 ft.x8 ft. Shown in Extension Leaflet No. 6. Estimated cost of material, \$20. Bill of material on blue print.
- No. 253—Movable Hog House Plan-----2 sheets 20c
 Rectangular house with shed roof. 6 ft.x8 ft. Estimated cost of material, \$33.75. Bill of material on blue print.

- No. 255—Two-pen Movable Hog House Plan.....1 sheet 10c
8 ft.x12 ft. with combination roof. A very economical low type movable hog house. Can be built from native lumber or from used lumber. Bill of material on blue print.

Miscellaneous Buildings

- No. 711—Machine Shed Plan.....2 sheets 20c
Frame building. 24 ft.x60 ft. Gable roof. Continuous doors on side. Should face south or east.
- No. 886—Substantial Foot Bridge Plan.....1 sheet (small) 5c
This plan is for a substantial foot bridge 4 feet wide, built upon driven piling. Suitable for good sized creek.
- No. 911—Community Building Plan.....3 sheets 30c
Building for Farmers' Club or other organization. Full basement, first story 32 ft.x60 ft. with stage extension 12 ft.x30 ft. Good basketball court. Cloak room, check room, motion picture space, with auditorium on first floor and dining room in basement. Estimated cost of material, \$3,000.
- No. 921—Livestock Sales Pavilion Plan.....2 sheets 20c
Square building, seats 800 people. Capacity 50 stalls for cattle, 25 hog pens.
- No. 931—Exhibit Booth Plan.....1 sheet (small) 5c
An exhibit booth for fair or other exhibit.
- No. 932—Sharpening Plow Shares.....1 sheet (small) 5c
This plan shows the manner of sharpening plow shares.
- No. 933—Wire Splicer.....1 sheet (small) 5c
A plan for a very handy and simple tool for splicing wire, to be made at the forge of the farm shop.
- No. 941—Large Nine Section Farm Plant.....1 sheet (small) 5c
This plan shows a general arrangement of buildings on a nine section farm plant in which both stock barns and houses are assembled in the center of the tract.

Horse Eveners

- No. 5141—4-Horse Evener.....1 sheet (small) 5c
For 14-inch gang plow.
- No. 5151—5-Horse Eveners.....1 sheet 10c
This plan shows three different 5-horse hitches for gang plows with horses strung out.
- No. 5152—5-Horse Evener.....1 sheet (small) 5c
For spike tooth harrow or drag.
- No. 5161—6-Horse Eveners.....1sheet(small) 5c
For 12-inch gang plow.

Self Feeders

- No. 5211—Self Feeders for Hogs.....1 sheet 10c
Shows plans for two feeders. One 2-way feeder for shelled corn, grain, and ground feed. Capacity 30 shoats. One feeder for ear corn and tankage. Capacity 60 shoats. Bill of material on blue print.
- No. 5212—Self Feeder for Hogs.....1 sheet 10c
One-way feeder for shelled corn, grain, and ground feed;

- also tankage compartment. Capacity, 12 to 15 shoats. Easy to build, easy to move. Good inside feeder. Designed by A.H.K. Bill of material on blue print.
- No. 5213—Portable Self Feeder.....1 sheet 10c
A plan for a self feeder for cattle for feeding ground feed. Sets on a steel wheeled wagon truck.
- No. 5219—Alfalfa Feeding Rack for Hogs.....1 sheet 10c
Rack 8 feet long. Capacity up to 30 hogs.
- No. 5231—Sheep Feeding Rack for Hay.....1 sheet (small) 5c

Stalls and Mangers

- No. 533—An Adjustable Cow Stall.....1 sheet 10c
An adjustable double stall for beef cattle. Could be used for dairy stall. Length of stall is adjusted by a moving manger.
- No. 534—Horse Stall.....1 sheet (small) 5c
Detail of horse stall, showing height of manger and partition. Steel stall guards and creosote wood block floor with concrete curb.

Hay Stackers

- No. 541—Hay Stacker.....1 sheet 10c
Simple home-made outdoor stacker with swinging boom on a vertical pole mounted on skids.

Fences

- No. 551—Fence Plan.....1 sheet 10c
A plan for an attractive, substantial plank fence for barn lot. Also plan for high tight board fence for sheltered lot.
- No. 552—Concrete Corner Post.....1 sheet 10c
Plan showing ornamental concrete corner and gate post. Also a suggested ornamental entrance.

Dipping Vats

- No. 561—Cattle Dipping Vat.....1 sheet 10c
After the Portland Cement Association plan. Concrete vat, 26 ft. 6 ins. long by 3 ft. wide, with steel reinforcement. Also plank chute for dripping pen. Bill of material on blue print.
- No. 562—Hog Dipping Vat.....1 sheet 10c
After Portland Cement Association plan. A concrete vat 18 feet long by 2 feet wide, with reinforced concrete. Also chute and dripping pen. Bill of material on blue print.

Plans for Carpenter Shop Exercises

- No. 54—Picture Frame.....1 sheet (small) 5c
Plan for small picture frame with glass 5x7 inches. Made of hardwood.
- No. 55—Hammer Handle.....1 sheet (small) 5c
This plan shows the dimensions for making a hammer handle out of hickory or walnut.
- No. 56—Field Board.....1 sheet (small) 5c
A simple exercise in gluing and smoothing. Plan for a field board such as is used for clerking sales, or laboratory field

	work.		
No. 57—	Broom Rack.....	1 sheet (small)	5c
	Plan for making a very useful rack for the broom out of pine.		
No. 58—	Clock Case.....	1 sheet (small)	5c
	A plan for making a small clock by mounting an inexpensive watch in a wooden frame. Any kind of wood.		
No. 59—	Drawing Board	1 sheet (small)	5c
	Plan for making a drawing board for drafting work. Basswood lumber preferred.		
No. 61—	Bushel Crate.....	1 sheet (small)	5c
	A plan for making a one bushel crate out of hardwood.		
No. 62—	Cutting Rafters.....	1 sheet (small)	5c
	A plan briefly showing how a rafter is cut for a one-half pitch roof.		
No. 64—	Saw Filing.....	1 sheet (small)	5c
	Plan showing the difference in filing of cross cut and rip saw.		
No. 65—	Saw Horse.....	1 sheet (small)	5c
	This is a plan for making a simple substantial saw horse, using pine or fir lumber.		
No. 67—	Mitre Box.....	1 sheet (small)	5c
	Plan for making simple mitre box.		
No. 68—	Bird House.....	1 sheet (small)	5c
	Plan for bird house designed for woodpeckers. Built of pine or cypress.		
No. 69—	Nest Shelter.....	1 sheet (small)	5c
	A plan for a semi-open bird house. Designed especially for robins. Made out of pine.		
No. 70—	Bird House	1 sheet (small)	5c
	Plan for bird house to be made out of hollow tree.		
No. 75—	Window Screen.....	1 sheet (small)	5c
	Plan for making frame for common window screen.		
No. 77—	End Table.....	1 sheet (small)	5c
	Plan for a simple exercise in cabinet work. Small 3-legged end table, fits at chair arm. Made of hardwood.		
No. 571—	Exhibit Tray for Corn.....	1 sheet (small)	5c
	Plan for a 10-ear sample of corn for exhibits or corn shows.		
No. 572—	Nail and Hammer Box.....	1 sheet (small)	5c
	Plan for nail and hammer box, handy for shop and a good carpenter exercise.		

Barn Framing

No. 151—	Barn Framing Plan.....	2 sheets	20c
	Shows standard plans for braced rafter, shawver, and Gothic roof construction. Designed from results of all testing work to date.		
No. 152—	Shed Roof.....	1 sheet	10c
	A plan showing that a shed roof for farm buildings is both expensive and wasteful. The shed roof is compared with the gable and combination roof for efficiency in building. A good plan for Smith-Hughes teachers.		

Home Improvements

- No. 612—Septic Tank Plan.....1 sheet 10c
 A simple two-compartment tank. Family size. Highly efficient for farm service. Plan also shown in Extension Circular No. 35, which also contains the bill of material.
- No. 621—Sanitary Concrete Well Curb.....1 sheet 10c
- No. 631—Cistern Plan.....1 sheet 10c
 A plan for inexpensive cistern where clay soils are available. Jug shaped. Plastered on soil.
- No. 632—Concrete Cistern Plan.....1 sheet 10c
 Cistern of re-enforced concrete. Rectangular with filter on top. After Portland Cement Association plan.
- No. 641—Coolers.....1 sheet 10c
 Iceless cooler, home-made. Principle of evaporation. Also cold window-box plan on same sheet.
- No. 642—California Air Cooler.....1 sheet 10c
 This is a cabinet cooler built in the kitchen and may be combined with the built-in kitchen cupboards. The idea of this cooler is to circulate the cool air from the basement through this cabinet and on up into the attic or into the chimney. It is used for cooling foods. Size of cabinet shown on plan, 28 in.x18 in., outside dimensions.
- No. 651—Tea Cart.....1 sheet 10c
 Wheeled Tray, designed for Home Economics clubs. Estimated cost, \$10.
- No. 661—Fire Place Plan.....1 sheet 10c
 Fireplace showing arrangement for check damper and smoke shelf which prevents back draft.

Farmstead Plans

- No. 851—Farmstead Plans.....1 sheet 10c
 This plan shows four small farmsteads, each with a different front. It is suggested that this plan might be studied in connection with any front desired, together with special plans for the same.

The following plans are best adapted to a south front (facing road along the south).

- No. 811.....1 sheet 10c
 No. 812.....1 sheet 10c
 No. 813.....1 sheet 10c
 No. 814.....1 sheet 10c
 No. 815.....1 sheet 10c
 No. 816.....1 sheet 10c
 No. 817.....1 sheet 10c

The following plans are best adapted to an east front.

- No. 821.....1 sheet 10c
 No. 822.....1 sheet 10c
 No. 823.....1 sheet 10c
 No. 824.....1 sheet 10c

The following plans are best adapted to a north front.

- No. 831.....1 sheet 10c
 No. 832.....1 sheet 10c

No. 833	-----	1 sheet	10c
No. 834	-----	1 sheet	10c
No. 835	-----	1 sheet	10c
The following plans are best adapted to a west front.			
No. 841	-----	1 sheet	10c
No. 842	-----	1 sheet	10c
No. 852—Yard Plan Only	-----	1 sheet (small)	5c
This plan is for the north or west front.			
No. 853—Yard Plan	-----	1 sheet (small)	5c
East front.			
No. 854—Yard Plan	-----	1 sheet (small)	5c
South or west front.			

Plans for School Ground Planting
(by A. L. Ford, Landscape Architect)

For Rural Schools

No. 861—For Southeast Corner Location	-----	1 sheet	10c
No. 862—For Any Location (not corner)	-----	1 sheet	10c
Any front.			
No. 863—Corner Location (any corner)	-----	1 sheet	10c
No. 864—Any Location. Plenty of trees	-----	1 sheet	10c
No. 865—Corner Location	-----	1 sheet	10c
Drive from each way.			
No. 867—For Large Ground	-----	1 sheet	10c
With barn or garage location.			

For Town Schools

No. 871—Planting for Town School	-----	1 sheet	10c
Grounds cover one city block, 300 ft.x400 ft.			
No. 872—Planting for Town School	-----	1 sheet	10c
Planting for larger ground than above. Should cover at least two city blocks. Playground for small children; and ground for baseball and outdoor basketball court.			

Miscellaneous

No. 881—Shelter belts	-----	1 sheet (large)	15c
Seven different plans for shelter belts are shown to suit the space and local conditions. Planting varieties included.			
No. 885—Farmstead Entrance Arch	-----	1 sheet	10c
Frame construction. Includes sales-bulletin boards. Also shown in Extension Circular No. 29. Bill of material in circular.			

**PLANS OF BUREAU OF AGRICULTURAL ENGINEERING, U. S.
DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.**

(These plans are printed from Van Dykes, furnished by the U.S.D.A. We can furnish them at the cost of the blue print paper as listed).

689-J	1454	Hurdles, for handling hogs, frame construction	-----	1 sheet	10c
698-B	1453	Hog Wallow, 12x9, concrete construction, bill of material	-----	1 sheet	10c

698-F	1472	Shipping Crates, various sizes, bill of material included -----	1 sheet	10c
689-C	1449	Scale Fence, hinged pen for scales, suitable for hogs -----	1 sheet	10c
670-P-4	B-1283	Septic Tank, capacity 20 persons, concrete construction, settling chamber 6'x3'6"x5'6" in depth. Automatic syphon -----	1 sheet	20c
686-C	B 500	Hay shed, 28' wide by any length. 16' bents, enclosed second story -----	1 sheet	20c
687-A	570	Implement Shed, with shop included, "L" shape, shop 16'x18' in center, frame construction. -----	1 sheet	20c
685-D	1284	Colony Poultry House (moveable), 14'x15', frame construction, shed roof -----	1 sheet	20c
685-D	1278	Brooder House, 10'x14', frame construction, gable roof -----	1 sheet	20c
686-E	883-C	Storage Cellar, pole and plank construction, 16'x20' -----	1 sheet	10c
686-D	889-B	Granary, 60'x36', corn crib on one side, grain bins on other, 10' driveway, gable roof, 9' posts -----	2 sheets	40c
687-F	1341	Milk House, 12'x14', one room, frame construction -----	1 sheet	20c
687-F	1336	Milk House, 20'x10', milkroom, washroom, boiler room, fuel bins and cooling tank, frame construction -----	1 sheet	20c
685-A	A 1175	Cattle Barn for Beef Cattle, 72'x36', twin silos, feed room, frame construction, dormer windows, 16' posts, gambrel roof, Wing frame ---	3 sheets	90c
689-H	1451	Breeding Crate for Hogs -----	1 sheet	10c

Extension Service

South Dakota State College of Agriculture and Mechanic Arts
Brookings, South Dakota

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