

Farm Building Plans



The size of the farm and the type of farming must be considered when you plan and construct farm buildings. Buildings should be planned not only for the needs of the present occupant but also for those of operators who follow him.

Most farm buildings must be used for many years. A building which is carefully planned, well located, and carefully adapted to the use for which it is intended may be a profitable investment and a source of satisfaction. A poorly planned and improperly built structure may prove both costly and unsatisfactory. Since every farm building represents a large and long-time investment, the plans for any proposed building should be carefully selected and thoroughly studied.

A farm may easily be overbuilt; the buildings may cost more than the income will justify. The owner should have a long-time building plan in mind, and the entire group as well as each individual structure should fit into this plan. Since there is a certain amount of flexibility in the use of buildings, those that are needed most and can be used for several purposes should be built first.

Avoid excessive building costs. This refers not only to buildings erected in periods of high prices but also to the use of materials or construction methods that are more costly than necessary. A careful study of all these features may result in substantial savings.

This archival publication may not reflect current scientific knowledge or recommendations.
Current information available from University of Minnesota Extension: <http://www.extension.umn.edu>

Contents and Instructions for Ordering

Minnesota Plans

The farm building plans listed in this section were prepared by the Department of Agricultural Engineering with the cooperation of other departments of the Institute of Agriculture. Except as noted, plans may be obtained for 10 cents each by writing the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn. Ask for plans by number. The entire set of plans can be obtained for \$5.50. Remittance payable to University of Minnesota must accompany all orders. Single copies of M Plan Sheets listed on page 6, and all bulletins, pamphlets, leaflets, brochures, and circulars are free.

Midwest Plans

The MIDWEST PLAN SERVICE is a self-supporting activity of the Land Grant Colleges of 15 states and the U. S. Department of Agriculture.

Order the free Midwest Plan catalog "Farmhouse Flexi-plans" from the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn.

Order the other Midwest Plan catalogs and all Midwest plans from the Extension Engineer, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn. The prices on the catalogs are listed on page 7. All plans are 25 cents per sheet, and the catalogs indicate the number of sheets per plan. Remittance must accompany all orders. Make checks payable to the University of Minnesota. (Midwest plans can also be ordered from the catalogs at your county agent's office.)

USDA Plans

USDA plans are available as listed on pages 9, 10 and 11. They may be ordered from the Department of Agricultural Engineering, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn. Remittance payable to University of Minnesota must accompany order. You may see an illustrated catalog of house plans at your county agent's office.

Bulletins Pertaining to Farm Buildings

Free at Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn.

Minnesota Plans

(See instructions for ordering on page 2)

Animal Shelters and Equipment

General Purpose Barns

<u>Plan</u>	<u>Size</u>	
113	16x18	2 horses, 2 cows
114	16x32	3 horses, 5 cows
115	16x36	3 horses, 4 cows, 3 young stock, pen
265	28x32	2 horses, 9 cows, calf pen, pen; cows facing out
277	32x56	5 horses, 10 cows, calf pen, 3 pens; cows facing in
197	34x60	5 horses, 12 cows, 3 young stock, cow pen, calf pen, bull pen; cows facing out
174	36x76	5 horses, 15 cows, 6 young stock, cow pen, calf pen, bull pen; cows facing out

(For dairy barn and beef barn plans see Midwest Plan Catalogs on page 7)

Barn Roofs-Elevations and Cross-Sections

120	Gambrel roof, width 32 ft. ; cows facing in
116	Gambrel roof, width 34 ft. ; cows facing out
205	Gambrel roof, width 36 ft. ; cows facing out
333	Gothic roof, sawed rafters; construction details
254	Gothic roof, width 32 ft. ; cows facing in
139	Gothic roof, width 34 ft. ; cows facing in
180	Gothic roof, width 36 ft. ; cows facing in

Equipment

147	Breeding rack (for cattle)
238	Calf stanchions
341	Cattle stocks
121	Cow stall, facing either in or out, raised feed alley
188	Cow stall, facing either in or out
336	Feed bunk for cattle, 4x14 ft.
235	Feed rack for cattle, 5x16 ft.
259	Feed rack for cattle, on runners
276	Self-feeder for beef calves
187	Single horse stall showing details
320	Ventilation, gravity system

(See Midwest Plan Catalogs on page 7).

Hog Houses and Equipment

285	6x7	Gambrel roof movable hog house
101	24x48	12-pen, each 8x9ft. ; straw storage; gable roof
198		Breeding crate
250		Loading chute, take-down
175		Self-feeder, 2x10 ft.
246		Shade, 10x12 ft.
356		Shipping crate
364		Feed trough, concrete
366		Feeding floor, concrete

(See M Plan Sheets on page 6, and Midwest Plan Catalogs on page 7)

Poultry Houses and Equipment

<u>Plan</u>	<u>Size</u>	
337	12x14	Brooder house
200	24x24	1-pen; straw loft, droppings board
361	28x36	2-story; feed and work room, gable roof
371	24x24	1-pen; straw loft, droppings pit
307		Alfalfa rack
290		Nests, 2 high, 5 wide
340		Range shelter
338		Shade
339		Sun porch
296		Water stand
363		Droppings pit
365		Sorting crate
368		Removable nests
370		Range feeder
372		Roost and droppings board
373		Community nests

(See M Plan Sheets on page 6, and Midwest Plan Catalogs on page 7)

Sheep Barns and Equipment

192	24x32	Gable roof; 50 ewes
346		Feeders, with reversible troughs
347		Feed racks
206		Wool box for tying fleeces
280		Wool sack holder

Corn Cribbs and Granaries

199	24x32	Driveway; corn on one side and grain on the other
193	26x32	Driveway; elevator, grain bins over driveway
194		Side and end elevation of plan 193
345	7x32	Single bin; capacity 750 bushels
189	24x32	Driveway; capacity 1,500 bushels
354	10x16	Movable, capacity 1,000 bushels
168	16x24	Studding 12 ft.; 4 bins, capacity 2,000 bushels
353	16x26	Studding 12 ft.; 2 or 4 bins, driveway crosswise, concrete or wood floor, capacity 2,500 bushels

Farmsteads

251		Development for first, tenth, and twentieth yrs.
145		East facing--rectangular arrangement with two drive-ways
319		Measurements
144		North facing--rectangular arrangement with two drive-ways
221		South facing--rectangular arrangement with one drive-way
146		West facing--rectangular arrangement with two drive-ways
318		Wiring

Ice Houses

171	12x14	Studding 12 ft.; capacity 16 tons
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Farm Machinery Housing

(See Midwest Plan Catalogs on page 7. Plans are available for open front, closed front, and central drive-through machinery housing buildings.)

Milk Houses and Milking Plants

(See M Plan Sheets on page 6 and Midwest Plan Catalogs on page 7)

Roadside Markets

<u>Plan</u>	<u>Size</u>	
316	5x6	Portable
255	12x12	Stationary

Privies

190	4x4 $\frac{1}{2}$	Earth vault
191	4x4 $\frac{1}{2}$	Dry earth

Septic Tanks

323	One chamber
(See M Plan Sheets on page 6)	

Shops and Garages

(See Midwest Plan Catalog on page 7. Plans are available for one, two, and three car garages and a 24x24 ft. farm workshop.)

Shop Equipment

334	Kit box	268	Tool box, 9x34 in.
267	Miter box	249	Tool cabinet, one door
315	Nail box	312	Tool cabinet, two doors
308	Sawhorse	170	Workbench, 12 ft. long

Silos

125	Roof framing 12, 14, and 16 ft.
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Smokehouses

317	5 $\frac{1}{2}$ x6	Brick and concrete
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Potato Storage Cellars and Warehouses

<u>Plan</u>	<u>Size</u>	
243	12x20	Capacity 910 bushels, pole frame
342	12x24	Capacity 900 bushels, pole frame
201	12x25	Capacity 900 bushels, concrete
156	40x50	First floor; total capacity 14,000 bushels
155		Basement of plan 156
163		Section and wall construction

Equipment and Construction Details

357	Bag holder	284	Garden seat
291	Berry box carrier	137	Hay rack
332	Bird house	321	Hip rafters
136	Bundle and hay rack	322	Hotbed
359	Bushel crate	344	Incinerator and fireplace
169	Concrete tank, 5x12 ft.	329	Lawn seat
178	Farm name post	216	Laying out rafters
327	Fence post bracing	286	Mailbox post
348	Fly trap	305	Milk cooling tank
		297	Squaring a foundation

(See also M Plan Sheets listed below)

M Plan Sheets

Single copies of plan sheets listed below may be obtained free by writing to the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn.

M - 101	Hog self-feeder, 32 bu.
M - 102	Poultry mash feeders
M - 103	Movable plank hog floor
M - 104	Hog self-feeder, 28 bu.
M - 105	Two-pen movable hog house, 7'x14'
M - 106	Movable hog house, four 6'x8' pens
M - 107	Minnesota 12'x14' brooder house
M - 108	Six-pen movable hog house
M - 110	Home food drier
M - 111	Basement vegetable storage room
M - 112	Pea sheller
M - 113	Minnesota milk house, 12'x14'
M - 114	Re-usable forms for concrete septic tank
M - 115	Stationary farm loading chute
M - 116	Insulated pump house
M - 117	Walk-in cooler
M - 119	Slot type fresh air inlets for dairy stables
M - 120	Column beam foundation
M - 121	Chart for determining joist and beam sizes
M - 122	Frost-free masonry wall construction
M - 123	Moisture resistant concrete floor construction
M - 125	Sawed gothic rafters
M - 126	Horizontal above ground silo (Cantilever post type)

Midwest Plans

(See instructions for ordering on page 2)

Midwest Plans and Catalogs may be seen at your county agent's office.

Illustrated Catalogs of Midwest Plans

Each catalog contains descriptions, illustrations, and prices of the Midwest Plans. The free catalog listed below may be obtained from the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn. The other catalogs and the plans themselves must be ordered from the Extension Engineer, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn.

- FARMHOUSE FLEXI-PLANS (free)
Catalog illustrates and describes three basic farmhouse plans which have been developed to permit many variations of each basic plan. This is Regional Bulletin No. 32.
- SWINE BUILDINGS AND EQUIPMENT PLANS .05 each
Catalog illustrates and describes 13 movable houses, 8 central houses, and 12 plans of hog equipment, including self feeders, farrowing stalls, loading chutes, a hog crate, a wallow, a sun shade, a waterer and pig brooders.
- FARM MACHINERY HOUSING .05 each
Catalog illustrates and describes 10 farm machinery storage buildings, 4 garages, 1 workshop, and 4 truss and rafter plans.
- DAIRY BARN-STALL AND LOOSE HOUSING .05 each
Catalog illustrates and describes plans for a 1-story gable roof, 1½-story gambrel roof, and a 2-story Gothic roof dairy barn. Six variations for a pole cattle shed, a frame cattle shed, a calf barn, a calf creep feeder, calf stalls, a safety bull pen and shed, and 3 floor plans for loose housing are illustrated in this catalog.
- POULTRY HOUSES AND EQUIPMENT .05 each
Catalog illustrates and describes 3 movable brooder houses, a concrete foundation brooder house, 2 range shelters, 7 laying houses, a broiler house, a summer laying house, a poultry range feeder, and a roll-down community nest.
- HAY AND SILAGE STORAGE AND FEEDING STRUCTURES .05 each
Catalog illustrates and describes a self-feeding hay-keeper, 4 pole hay storage sheds, 4 fence line bunks, a silage and grain bunk, 2 hay feeding racks, a hay and silage manger, and portable bunker silo sections.
- POLE FARM BUILDINGS .05 each
Catalog illustrates and describes 5 hay storage sheds, a corn crib, 3 cattle sheds, 2 machinery storage buildings, a hog house, a broiler house, 2 laying houses, a calf barn, a self-feeding hay keeper, and a cattle sun shade.

FARM MILKING PLANTS .05 each
 Catalog illustrates and describes 11 different floor plans, and several cross-section and elevation plans of farm milking plants, and a plan of a dairy waste disposal system. The plans include the milking room, a cooling room, toilet, utility room, and vestibule.

LIVESTOCK EQUIPMENT .05 each
 Catalog illustrates and describes 9 hay and silage feeding devices, a calf-creep feeder, a cattle squeeze, calf stalls, 3 hog feeders, a storage feeder, 2 loading chutes, a portable hog sun shade, a farrowing stall, a hog waterer, pig brooders, a vaccinating and castrating rack, a poultry range feeder, and a roll-down community laying nest.

Bound Sets of Midwest Plans

Each bound set contains complete working drawings of the plans illustrated and described in the Midwest Catalogs. The bound sets as well as individual plans selected from the catalogs must be ordered from the Extension Engineer, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn.

FARMHOUSE FLEXI-PLANS	\$ 5.50 each
SWINE BUILDINGS AND EQUIPMENT PLANS	6.75 each
MACHINERY HOUSING PLANS	4.50 each
DAIRY BARNS-STALL AND LOOSE HOUSING PLANS	4.00 each
POULTRY HOUSES AND EQUIPMENT PLANS	5.10 each
HAY AND SILAGE STORAGE AND FEEDING STRUCTURES PLANS	3.00 each
POLE FARM BUILDINGS PLANS	6.00 each
FARM MILKING PLANT PLANS	4.00 each
LIVESTOCK EQUIPMENT PLANS	5.00 each

Free Bulletins

Any of the Bulletins listed below may be obtained free by writing the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minn.

Bulletin 121	Poultry housing
Bulletin 124	Talking turkey
Bulletin 226	Home vegetable storage
Bulletin 247	Sewage disposal and water systems on the farm
Bulletin 249	Kitchen cupboards
Bulletin 251	Bathrooms for the farm home
Bulletin 253	Insulation and ventilation of animal shelter buildings
Bulletin 272	Building better farm fences
Bulletin 283	Landscaping the home
Folder 104	Better lumber through good piling
Folder 118	The Minnesota seed grain treater
Folder 134	What is a good farm house?
Folder 135	Farmstead planning
Folder 138	What can I pay for a dairy barn?
Folder 142	Centralized hog plan
Folder 150	Community nests
Folder 153	Longer lasting fence posts with Penta
Folder 173	It pays to protect stored grain
Folder 178	The house your family lives in
Folder 193	Range shelters for pullets
Pamphlet 142	Saving a soft corn crop
Pamphlet 40	Round top brooder houses with sun porch
Brochure	Making good concrete
Brochure	Building with concrete masonry
Brochure	Pave your barnyard with concrete
Regional Bulletin No. 20	Farm family housing needs and preferences

USDA House Plans

(See instructions for ordering on page 2)

See the illustrated catalog at your county agent's office or write to the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minnesota and ask for USDA leaflets 287, 301, 311, 356, 357, 376, and M. P. 658. These free publications serve as illustrated catalogs for the USDA House Plans.

<u>Plan</u>	<u>Size</u>		<u>Price</u>
7010	24x27	One story: kitchen, living room, 2 bedrooms, and bath; no basement. (2 sheets)	\$.50
7011	27x43	One story: three alternate floor plans including one with basement, kitchen, living room, bath, 3 bedrooms, and utility room. (7 sheets)	1.75
7012	25x36	One story: kitchen, utility room, living room, 2 bedrooms, frame construction; no basement. (4 sheets)	1.00
7013	32x34	One story: log construction with stone foundation and chimney; no basement; kitchen, workroom, living room, 2 bedrooms, and bath. (3 sheets)	.75
7014	26x48	One story: kitchen, dining room, living room, 2 bedrooms, basement, and bath. Provisions for later addition of 2 bedrooms and lavatory. (4 sheets)	1.00
7015	36x38	One story: basement, kitchen, dining room, living room, 3 bedrooms, and bath. (5 sheets). (See 7027 for concrete masonry construction.)	1.25
7016	31x37	One and one-half story with basement: kitchen, workroom, living room, dining room, 1 bedroom, and bath downstairs; 2 bedrooms and lavatory upstairs. (5 sheets)	1.25
7017	28x35	One and one-half story with basement: kitchen, workroom, living room, dining room, 1 bedroom, and lavatory downstairs; 2 bedrooms and bath upstairs. (5 sheets)	1.25
7018	29x31	One and one-half story with basement: kitchen, dining-living room, one bedroom, washroom, and full bath downstairs; two bedrooms and lavatory upstairs. (7 sheets)	1.75
7019	24x36	One and one-half story with basement: kitchen, dining room, living room, and lavatory downstairs; two bedrooms and full bath upstairs. (6 sheets)	1.50

<u>Plan</u>	<u>Size</u>		<u>Price</u>
7020	28x39	One and one-half stories: 2 bedrooms and bath on first floor; full basement with workroom and shower; dining space in kitchen; space for 2 bedrooms on second floor. (5 sheets)	\$ 1.25
7021	31x31	Two story with basement: kitchen with dining space, living room, workroom, bedroom, and lavatory downstairs; 3 bedrooms and full bath upstairs. (5 sheets)	1.25
7022	36x51	Two story with one story wing including garage: kitchen, workroom, dining room, bedroom, and lavatory downstairs; three bedrooms and bath upstairs. (See 7043 for concrete masonry construction). (6 sheets)	1.50
7023N	27x43	One story: kitchen, living room, 3 bedrooms, and bath (concrete masonry construction.) (6 sheets)	1.50
7023S	27x43	Same as 7011 except that it has concrete masonry construction and lacks basement. (5 sheets)	1.25
7024	32x55	Two story: designed for hillside location; recreation room, workshop, laundry, lavatory with shower, vegetable cellar in basement; two-car garage with 2 bedrooms and bath over; living room, dining room, and kitchen downstairs; provision for bedrooms upstairs. (5 sheets)	1.25
7025	43x74	Two story: basement and one-story wing; kitchen, dining room, living room, workroom, office, lavatory, and garage first floor; four bedrooms, full bath, and separate lavatory second floor. (6 sheets)	1.50
7026	26x34	Same as 7013 except for concrete masonry construction including a poured slab floor; no basement. (4 sheets)	1.00
7027		Plan 7015 in concrete masonry construction. (6 sheets)	1.50
7028	31x37	Same as 7016 except for concrete masonry construction with concrete floors and precast concrete joists. (6 sheets)	1.50
7029	28x35	Same as 7017 except for concrete masonry with concrete floors and precast joists. (7 sheets)	1.75
7043		Plan 7022 in concrete masonry construction. (5 sheets)	1.25
7048	19x28 to 28x43	One story with kitchen, living room, bath, and bed alcove. Expansible for adding two bedrooms. (12 sheets)	3.00
7049	16x30 to 30x40	One story with kitchen, living room, bath, and bed alcove. Expansible for adding two bedrooms and a porch. (11 sheets)	2.75
7061	20x30 to 38x30	One story expansible. Combination living and sleeping room, kitchen, dining room, and bath. Expansible to include 2 bedrooms. (5 sheets)	1.25
7062		Similar to 7061 except for masonry construction. (5 sheets)	1.25

<u>Plan</u>	<u>Size</u>		<u>Price</u>
7076	33x35	One story with living room, dining room, kitchen, bath, and two bedrooms. Partial basement. (6 sheets)	\$ 1.50
7077	26x38	One story with living room, kitchen, dining room, bath, and two bedrooms. Full basement. (6 sheets)	1.50
7078	24x31	One and one-half story with full basement: kitchen, living room, bath, work porch, and one bedroom downstairs; two bedrooms upstairs. (7 sheets)	1.75
7078R	24x31	Same as 7078 with floor plan reversed. (7 sheets)	1.75
7079	18x40 to 40x46	One story expansible. The basic plan provides a living room, kitchen, bath, dining room, bed alcove, and work porch. Expansible to include one, two, or three bedrooms. (7 sheets)	1.75
7083	25x36 to 36x44	One story expansible. The basic plan includes a living room, kitchen, dining area, bath, and one bedroom. Expansible to include a workroom and one, two, or three additional bedrooms. (9 sheets)	2.25
7084	26x44	One story with full basement. Living room, kitchen, workroom, dining area, bath, and three bedrooms. (3 sheets)	.75
7085	26x44	Same as 7084 except no basement. (3 sheets)	.75
7128	28x32 and 16x16 add.	One story, split-level. Living-dining area, kitchen, utility room, bath, and 2 bedrooms. Expansible to include one additional bedroom. (9 sheets)	2.25

Details and Equipment

<u>Plan</u>		<u>Price</u>
7031	Structural details (masonry)	.25
7032	Structural details (frame)	.25
7034	Kitchen arrangements using home-built kitchen cabinets.	.25
7035	Food preparation and clearing cabinets (6 sheets)	1.50
7036	Wood box	.25
7037	Serving cabinet	.25
7038	Wall cabinet	.25
7039	Storage cabinet (2 sheets)	.50
7040	Utility and food storage cabinet	.25
7041	Utility cabinet	.25
7042	Chore clothes cabinet	.25
7100	Functional "U" kitchen (7 sheets)	1.75
7103	Energy saving kitchen and workroom (11 sheets)	2.75

Other USDA Plans

5801	Self-feeding fences (1 sheet)	.25
5830	Type "A" pole construction (1 sheet)	.25
5835	Beef cattle shelter (3 sheets)	.75
5837	Mangers and feeding floors (1 sheet)	.25
5838	Riding horse barn (2 sheets)	.50
5841	Machinery shed with living quarters (2 sheets)	.50
7102	Two-temperature walk-in refrigerator for the farm. (4 sheets)	1.00

USDA Publications

The following United States Department of Agriculture publications can be obtained free, as long as the supply lasts, from the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minnesota. For a more complete list of USDA publications on farm buildings, write to the Department of Agriculture, Washington, D. C., or see your county agent.

F. B.	1512	Protection of buildings and farm property from lightning
F. B.	1572	Making cellars dry
F. B.	1751	Roof coverings for farm buildings and their repair
F. B.	1820	Silos: types and construction
F. B.	1869	Foundations for farm buildings
F. B.	1889	Fireplaces and chimneys
F. B.	1976	Handling and storing soft corn on the farm
F. B.	1986	Potato storage
F. B.	2009	Storage of small grains and shelled corn
F. B.	2049	Preservative treatment of fence posts and farm timbers
F. B.	2070	Fire-resistant construction on the farm
F. B.	2076	Storage of ear corn on the farm in the North Central States

Home and Garden Bulletin No. 12	Your farmhouse-planning the kitchen and workroom
Home and Garden Bulletin No. 18	Easy-to-build kitchen cabinets
Home and Garden Bulletin No. 19	Your farmhouse - planning the bathroom

M. P. No. 597	Planning your farmstead wiring and lighting
M. P. No. 619	Your farmhouse - how to plan remodeling
M. P. No. 633	Your farmhouse - insulating and weatherproofing
M. P. No. 658	Farmhouse plans for Northeastern States
M. P. No. 689	Your farmhouse - heating

Circular 722 Functional requirements in designing dairy barns

A. I. Bulletin No. 98	Loose housing for dairy cattle
A. I. Bulletin No. 123	Stall barns for dairy cattle
A. I. Bulletin No. 144	Preventing storm wind damage to farm buildings

Leaflet	314	Inclined-column grain drier
Leaflet	320	Two temperature walk-in refrigerator for the farm
Leaflet	331	Drying shelled corn and small grain with heated air
Leaflet	332	Drying shelled corn and small grain with unheated air
Leaflet	333	Drying ear corn with heated air
Leaflet	334	Drying ear corn with unheated air
Leaflet	418	Energy saving kitchen

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