

**M O D E R N**

**FARM AND  
SUBURBAN  
BUILDINGS**

**FARM HOMES AND ROADSIDE BUILDINGS**



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Plans and Material Lists Available for all Buildings Shown in this Book.

DESIGNS BY:

**NORTHWESTERN LUMBERMEN'S ASSOCIATION**

FOSHAY TOWER • MINNEAPOLIS, MINNESOTA



# MODERN FARM AND SUBURBAN BUILDINGS

## FARM HOMES AND ROADSIDE BUILDINGS

**Cheap Construction is Expensive** — Nowhere is good construction more important than on the modern farm. The farmer's buildings are to him what the factory is to the manufacturer or the store to the merchant. The labor cost with inferior materials is often greater than with materials of recognized quality and when the early replacement of the poorer material is taken into consideration, good materials are far cheaper in the long run. Your lumber and material dealer wants to sell you quality materials. It is true that they will cost a little more at the start but it can be conclusively shown that good materials will eventually save money for the owner. Competent labor is likewise important. "A good workman is worthy of his hire." His services, combined with a use of good materials insure the owner a building which will last.

**Insulation a Necessity** — Most farm buildings require some form of insulation. Warm buildings mean better production and therefore more profit. Insulation is an investment which will soon pay for itself. Each type of insulation has its place and will be satisfactory if properly in-

stalled. Any insulation should be protected against moisture if it is to be fully efficient.

Structural or board insulation is adaptable for use on many locations as a lining. It must be protected where exposed to contact with stock but this is easily accomplished by using screening in chicken houses or wood strips in barns.

Where ventilation systems are to operate satisfactorily insulation is important. A drafty, cold building cannot be properly ventilated. Excessive humidity in farm buildings during winter months is due to lack of insulation and ventilation.

**Good Concrete** — Concrete is used to some extent in almost all building construction today. If well made it is permanent and thoroughly satisfactory. If, however, concrete is of improper mix or made with dirty sand or gravel, if too much water is used in mixing or if it is allowed to freeze or dry out too quickly a poor job will result. Unfortunately poor concrete work is hard to repair. Usually a repair means a replacement with consequent expense

and loss of the use of a building while repairs are made.

One of the greatest troubles with concrete is the use of aggregate (sand and gravel) containing clay, loam, silt or organic matter. That is why it is advisable to buy washed sand and gravel when available. The Portland Cement Association, Chicago is maintained to render free educational service in the making of good concrete.

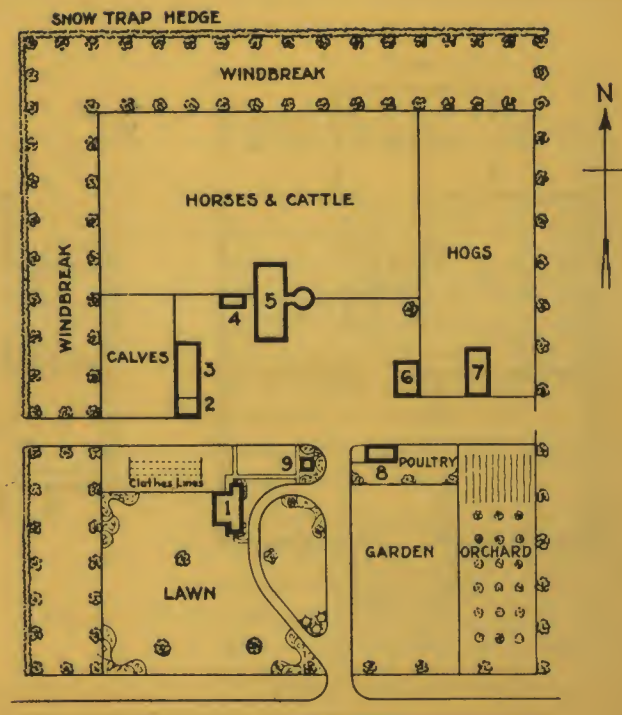
A table of mixes is given on back page.

**Building With Structural Clay Tile** — Many of the buildings shown are constructed with walls of structural clay tile. The use of hard burned, load bearing tile laid up in good mortar will produce an attractive, substantial and economical wall. Many of the frame walled buildings shown can also be constructed of clay tile with little change in plans.

Hollow tile joists are now available for reinforced tile floor construction where desired. For detailed information about hollow tile and its many varied uses consult your material dealer or the Structural Clay Products Institute, Ames, Iowa.

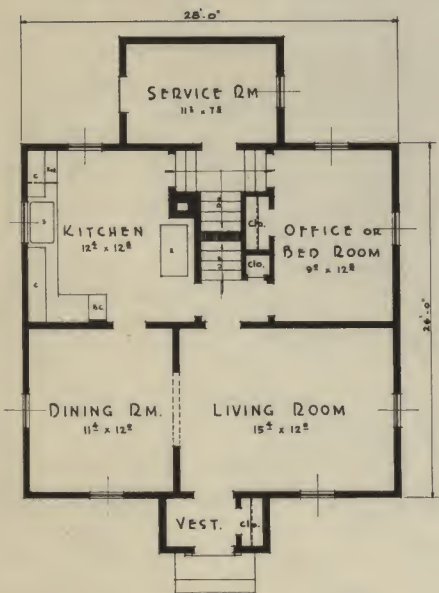
## PLANNING A GOOD FARMSTEAD

● This layout of buildings is re-printed through the courtesy of the University of Minnesota Agricultural Extension Division. The farm shown faces South. A good farmstead should have the buildings so arranged as to make work as easy as possible for the farmer and his help. It is important that barns, hog houses and similar buildings be located away from the house in such a direction that the prevailing winds do not carry odors from these buildings toward the house. An attractive lawn with shrubbery and flower beds is an important asset to the well planned farm. Your nearest agricultural college will be glad to assist you in securing the best possible layout for your own farm. Conditions vary in different localities and no one plan can be taken as a standard.

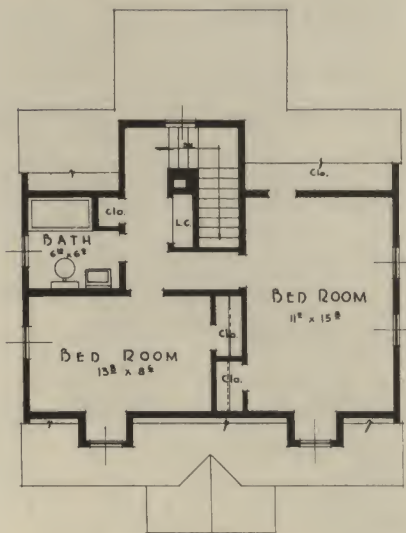


### LEGEND

- |                    |                          |                  |
|--------------------|--------------------------|------------------|
| 1. House           | 4. Ice and Milk House    | 7. Hog House     |
| 2. Shop and Garage | 5. Barn                  | 8. Poultry House |
| 3. Machine Shed    | 6. Corn Crib and Granary | 9. Well House    |



FIRST FLOOR PLAN

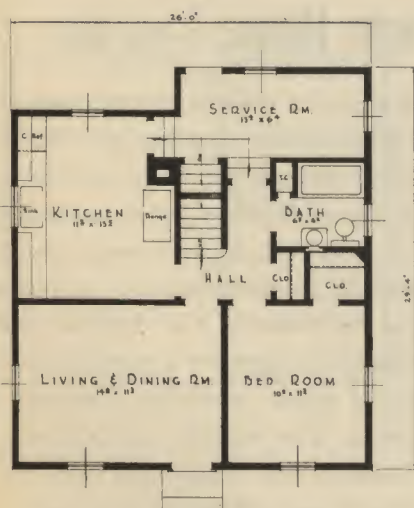


SECOND FLOOR PLAN

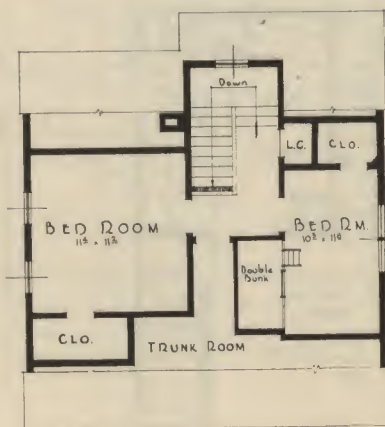
## Farm House — No. 411

● A three bedroom farm house with service room at grade; a living room, dining room and commodious kitchen. First story bedroom can serve as office if desired, being accessible to grade landing. Dormers provide cross ventilation for both upstairs bedrooms. A good stair arrangement conserves space.

The exterior is planned with 8" x 3 1/4" siding and cedar shingles. Optional materials are shingles for walls and composition roof shingles. Hollow tile or brick could readily be used for walls with but little change in plans. Cubage 18,500. This is a modification of a design created in 1938 for Farmer's Wife Magazine.



FIRST FLOOR PLAN

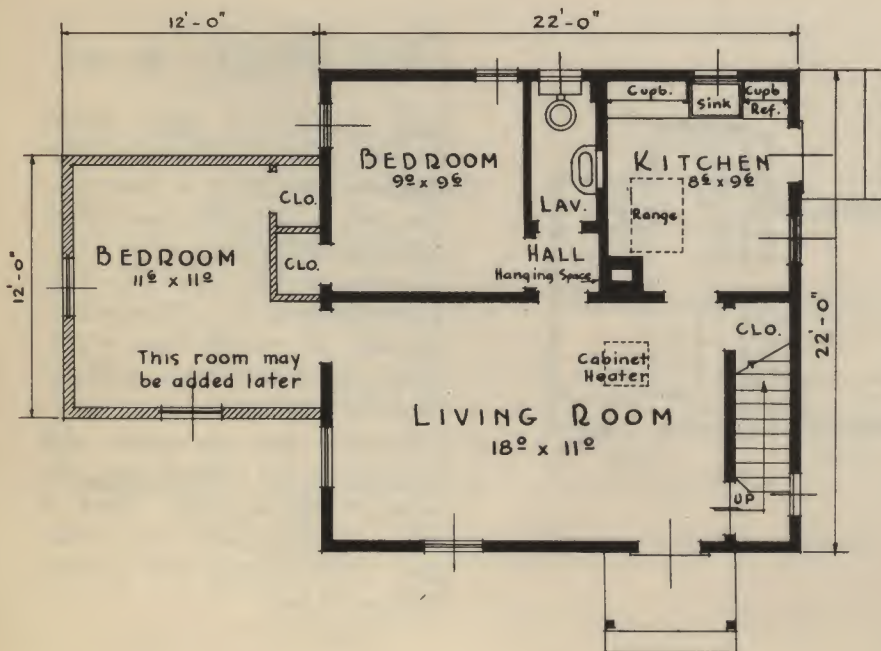
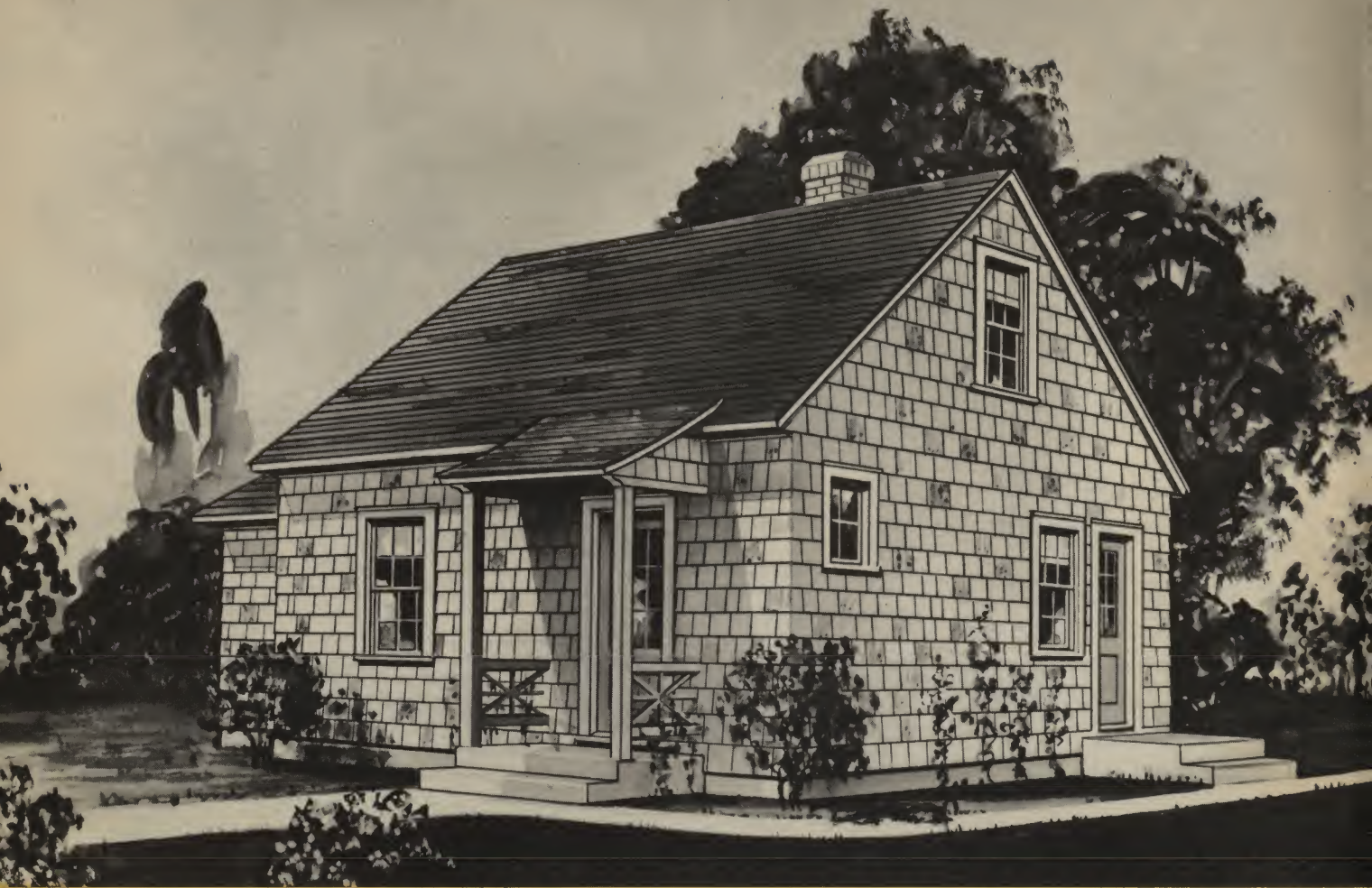


SECOND FLOOR PLAN

## Farm House—No. 412

● A modification of a design originated for the Farmer's Wife Magazine in 1938. A feature of the plan is the main hall which connects with all first story rooms including service room. This room is at grade level. The smaller bedroom on second floor is provided with double bunk making it ideal for two boys.

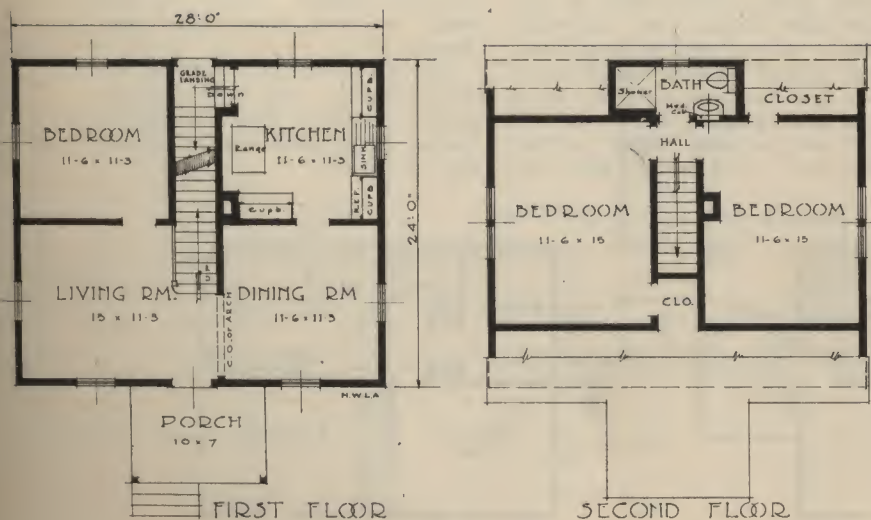
Exterior walls are shown with  $\frac{3}{4}$ "x8 siding but shingles can very satisfactorily be used. Roof of either composition or wood shingles. Cubic footage with upstairs finished 16,300.



## Farm Home — No. 410

● A home for the small family requiring good accommodations, at a minimum of expenditure. A second bedroom can easily be added as indicated on the floor plan. A roomy attic, easily accessible, provides space for an additional room should it be desired. An alternate arrangement is shown on the working plans providing basement stairway, door opening into kitchen.

Standard 16" shingles are used on walls and roof. If basement is included a shower can be installed there for only a few dollars additional cost.



## Farm Home—No. 420

● A plan which has proved very satisfactory where an economical home of six rooms is required. House has full basement. The exterior design has purposely been kept plain to hold down expense but at the same time the proportions and general design offer the owner a house which will prove attractive.

Roof and walls of 16" standard shingles with boards and battens above porch. Good insulation will return dividends in reduced heating costs and greater summer comfort. Steel shower unit planned in bath.



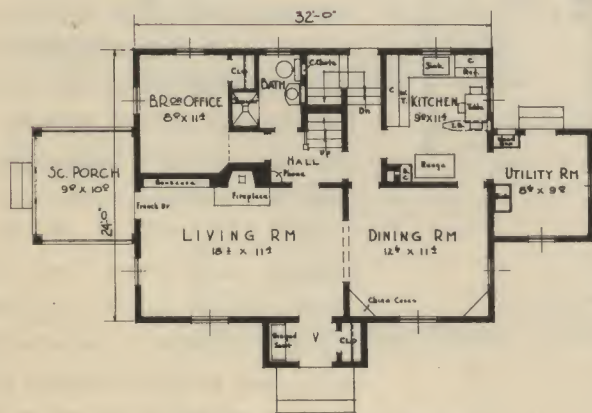
## Farm House

NO. 413

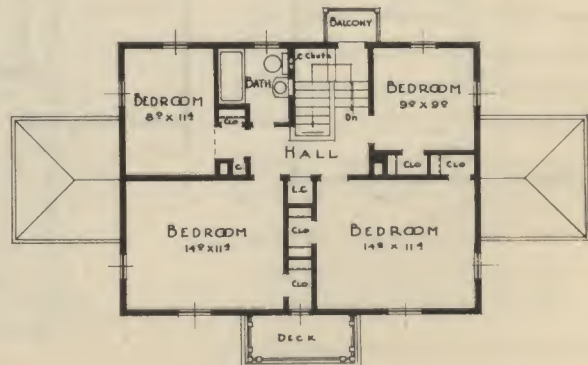
● A pleasing exterior developed along formal lines, combined with an efficient floor arrangement. Important features are commodious dining room, well planned kitchen, service room, first floor bedroom or office, living room with fireplace and a stairway and rear entrance which provides easy access to all rooms. Four bed-

rooms, two of which are large, are provided upstairs. There are two baths, one with compartment type shower.

Walls are covered with  $10 \times \frac{3}{4}$ " siding, combined with a wide frieze of water-proofed plywood. Roof shingles are doubled every sixth course. Cubic Footage, 23,600.

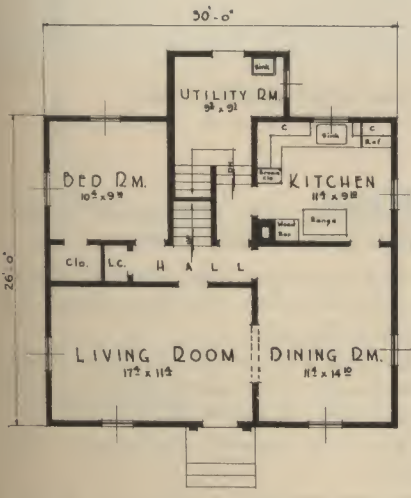


FIRST FLOOR PLAN

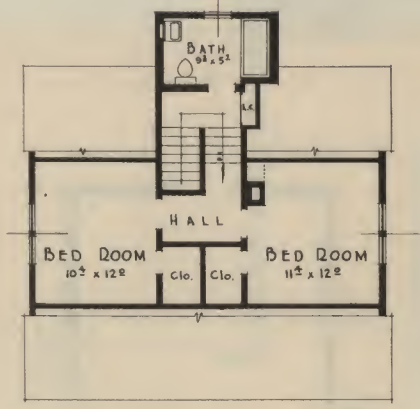


SECOND FLOOR PLAN





FIRST FLOOR PLAN



SECOND FLOOR PLAN

## Farm House—No. 414

● By placing bath on a lower level than second floor and over service room some saving of space is effected and a thoroughly satisfactory plan results. Good access is provided between service room and the other first floor rooms enabling hired men to reach dining room without passing through kitchen which is of generous size. There is also some dining space in kitchen.

The roof is kept low yet bedrooms are not in any sense attic room as the lowest walls in these rooms are 5' high. Cubical contents amounts to 19,600. Walls are covered with 3/4 x 8 siding with roof of wood or composition shingles. This home would look very well with shingled walls and standard roof shingles laid with 7 to 7 1/2" exposure could be used. A farm house which should appeal to many.

# GARAGES



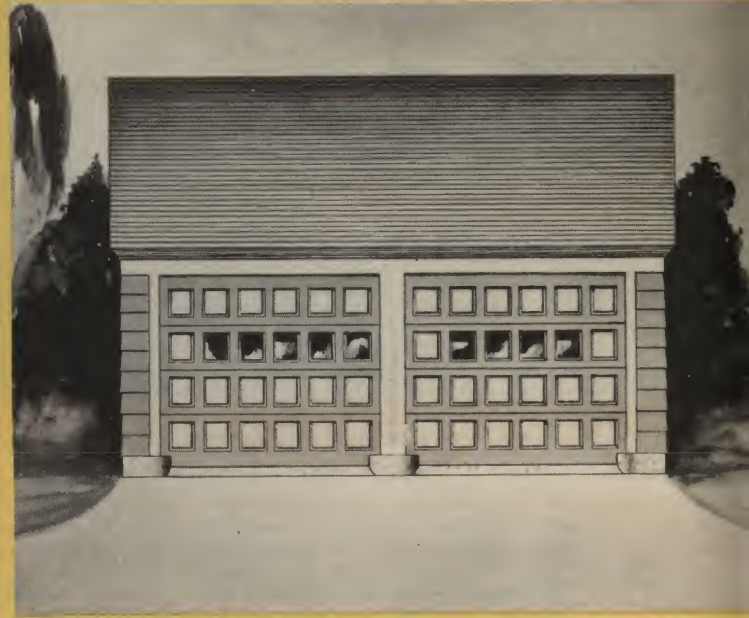
SUGGESTION C—COLONIAL



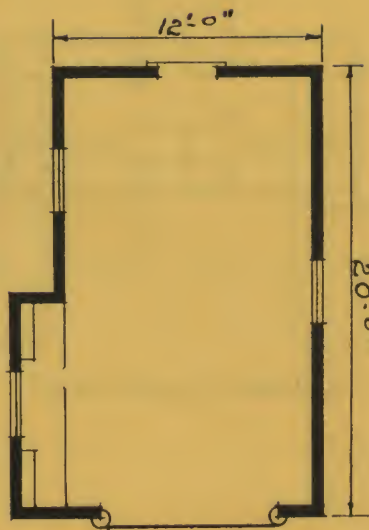
SUGGESTION D—MODERN



SUGGESTION B—COLONIAL



SUGGESTION E—COLONIAL



SUGGESTION A—ENGLISH

**Garages**—These garage plans are suggestions only—no working plans being available.

● Plan A is English with characteristic lumber lintel over door, sweeping roof line and leaded glass door.

Plan B is a double garage suitable for use with nearly any style architecture by a change of materials. Recommended size 20 x 20.

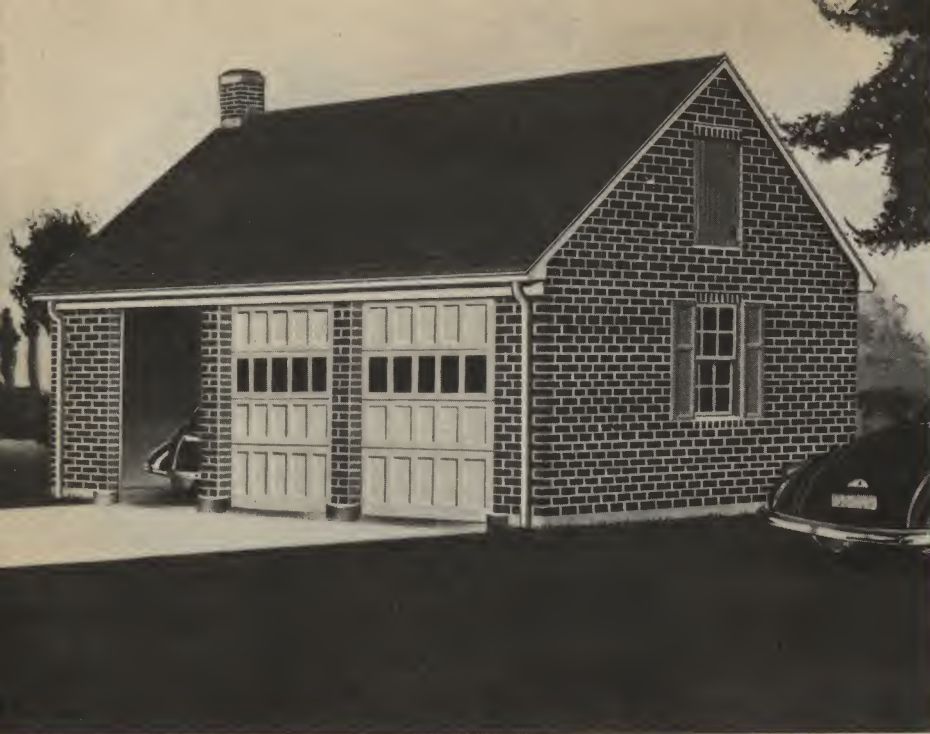
Plan C is Colonial, recommended size 12 x 20.

Plan D is Modern with stucco exterior, 12 x 20 size to be preferred.

Plan E is similar to B but with a gable roof.

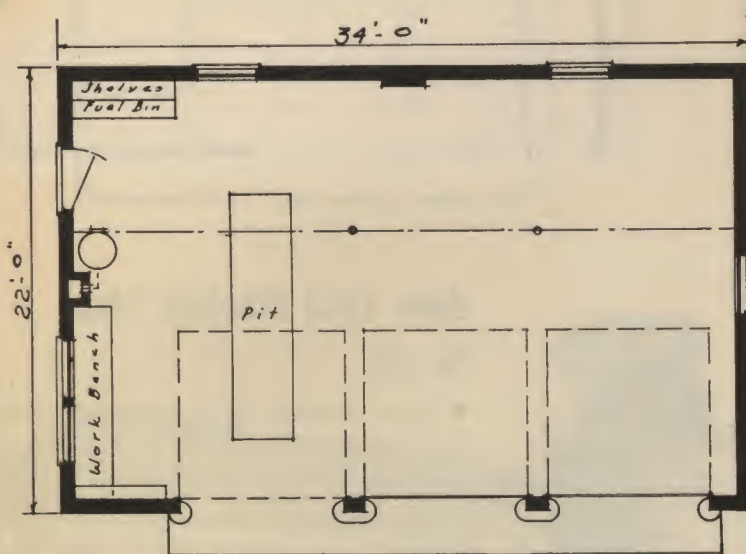
In some locations it is desirable to have doors in the gables to prevent dripping and consequent ice formation in front of doors.

A Good Car Deserves the Protection of a Weathertight Garage



## Garage and Shop—No. 415

● A building for repair of automobiles, tractors, trucks, etc. Attic offers good storage for lumber, ladders and various equipment. Walls 8" hollow tile; roof, composition or cedar shingles; pit has removable plank floor. Chimney is provided.



**Work Bench—No. 492** ● Size 8' x 3', solid and well braced, legs of 4x4; top of two 3"x12" and one 2x12 planks. Framing bolted together.



## Ice House—No. 497

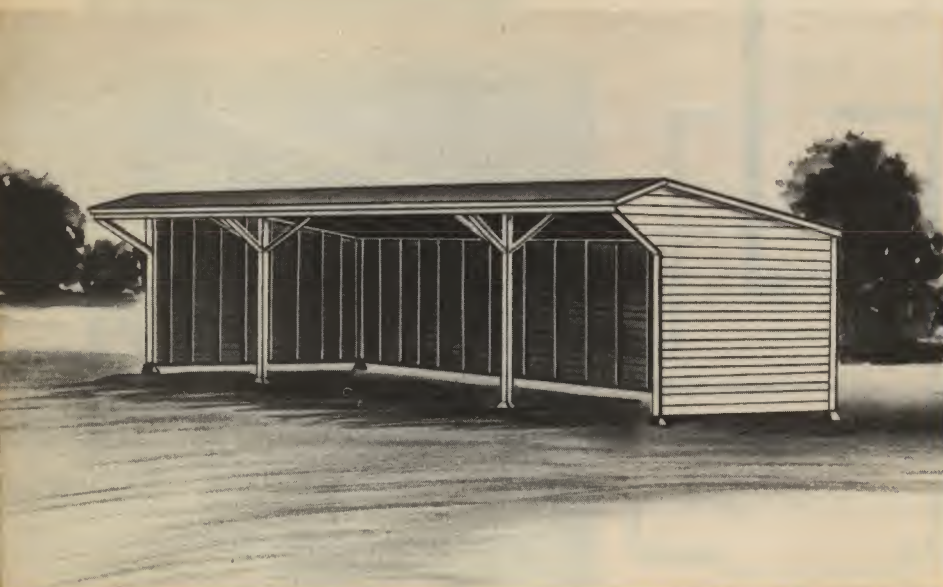
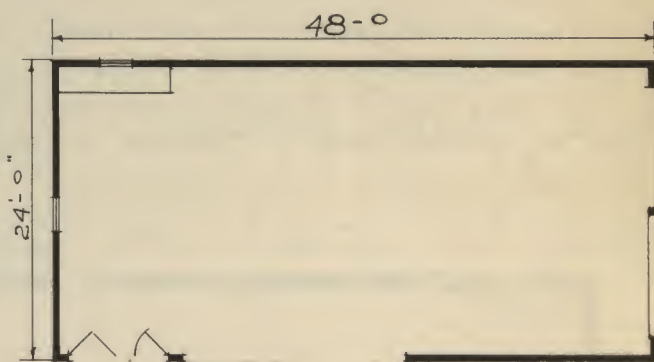
● Walls are of 8" hollow tile, 11½' high on sides, with wood shingle roof. Floor consists of 16" fill of gravel or cinders. Capacity 30-35 tons, allowing for packing material.





## Machine Shed—No. 454

● It is to be conservatively estimated that a machine shed will pay a return of 20% yearly on its investment in the reduction of depreciation on farm machinery housed in the building. This design provides space for a garage at one end which may be partitioned off if desired. The end doors are 12' in height. Walls are of 1x12 boards and 1x2 battens while the roof is of cedar shingles.



## Open Type Machine Shed

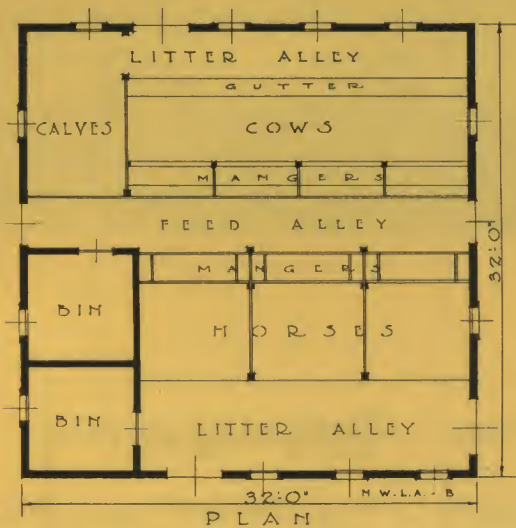
No. 455

● Some owners prefer an open front shed. The design shown here is well constructed with adequate bracing. Bracing of open type buildings is extremely important because wind gets inside and may cause damage to a flimsy structure. The walls are of 6" drop siding; roll roofing being used on the roof.



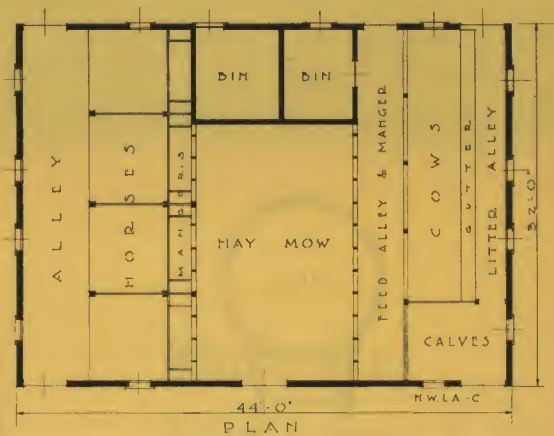
## Low Cost Barn—No. 431

● A good arrangement with center feed alley which simplifies caring for stock. Construction 2x4 framing; 2x8 joists; drop siding, shingles on roof.

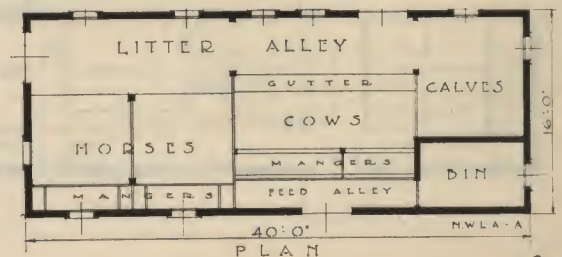


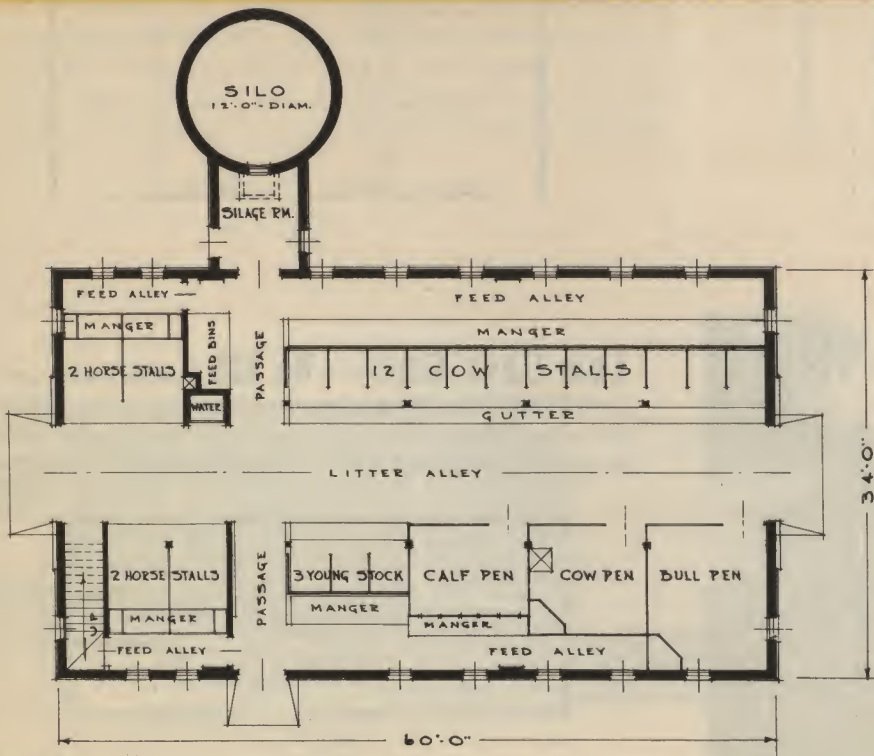
## Low Cost Barn—No. 432

● In some localities farmers like this type of barn with hay mow extending to grade level. The stock can be fed through openings in the lower walls. Construction calls for drop siding on the walls; shingles on the roof. Studs and rafters are 2x4".



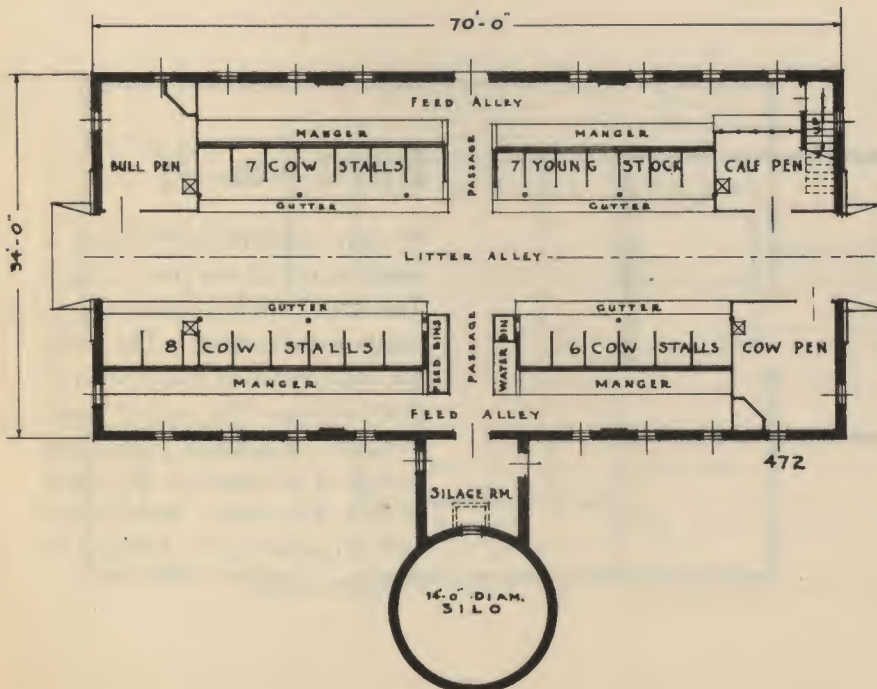
**Low Cost Barn—No. 430** Under certain conditions a stable rather than a barn is desired. This building has no hay mow. By increasing the pitch of the rafters some hay mow space could be provided. Walls are of drop siding; roof of shingles.





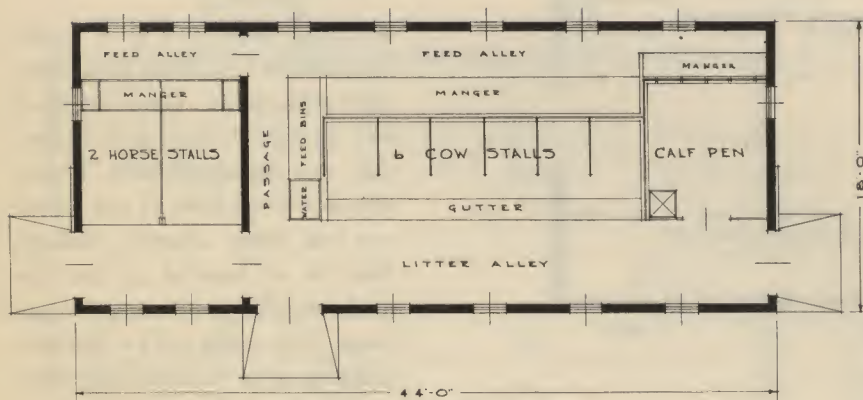
## Barn — No. 471

● A combination barn which will appeal to many farmers. The construction of this barn is the same as that of No. 472 on the opposite page. The silo is 12' in diameter but, of course, any size silo can be used. The view of this barn shows the type louvres which are installed in both No. 471 and No. 472. Plans show a layout for gravity ventilating system.



## Barn — No. 472

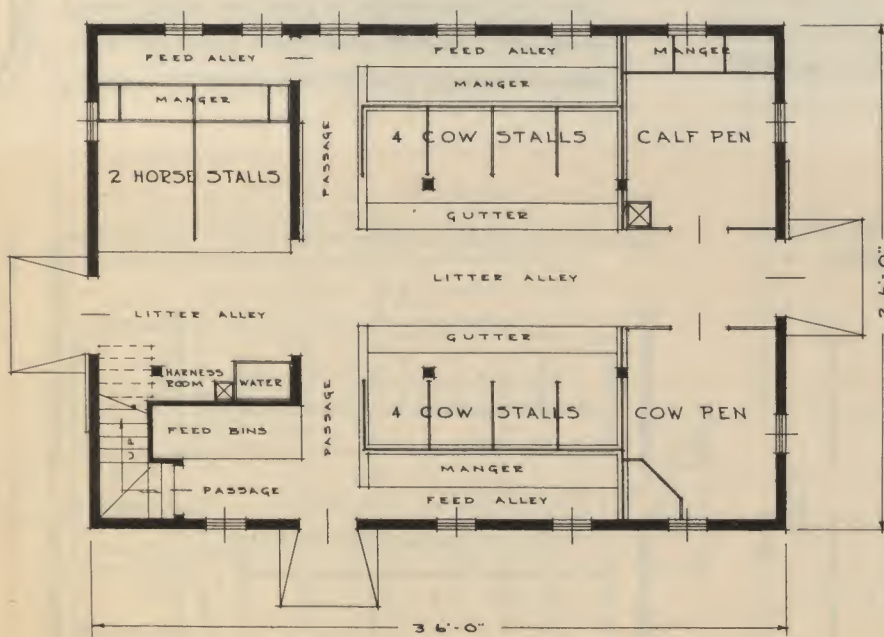
● Lower walls are of 8" matt face hollow tile, with piers built into long walls. Gable walls of 10" vertical boards and battens over 2x4 horizontal girts. A very effective treatment of the exterior has been secured through the use of louvres in the one gable end for ventilating the hay mow. Plan calls for 14' tile silo. Gravity type ventilating system is arranged.



## Barn—No. 473

● Some owners may desire a small barn with one row of stalls. This little barn fills these requirements satisfactorily. The walls are constructed of frame with 6" drop siding. The roof of wood shingles. A gravity ventilating system is arranged in the dairy section of the barn. Foundation wall is carried up to a height of 2' above grade.





## Barn—No. 474

● A small combination type barn with the accommodations for two horses, eight cows and several calves. Picture shows a view of the end where calf pens are located. Concrete wall is carried 2' above grade, balance being frame construction with 6" drop siding. Roof is of cedar or composition shingles. Working plans show the installation of a gravity type ventilating system.



### Gambrel Roof Exterior

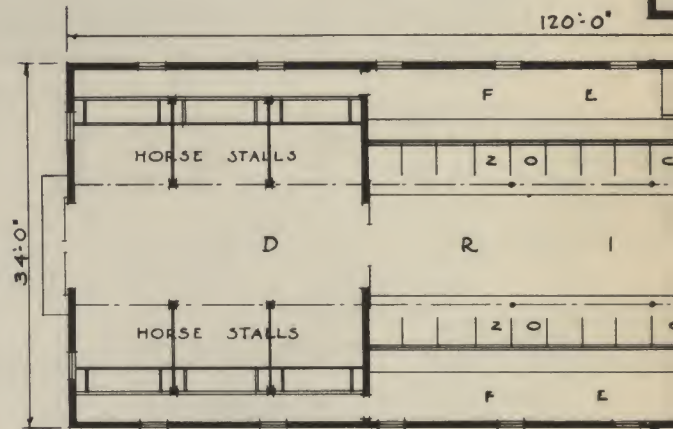
#### No. 470

● While the gothic roof is in much demand there are many who still prefer the gambrel roofed barn. When properly proportioned it is an extremely pleasing roof and one which is easily built. Design No. 470 is a construction sheet showing full information for the construction of barns 32', 34' and 36' in width including gable bracing. The sections provide for a 2½' concrete wall upon which 10' long studdings are placed locating top plate approximately 4' above mow floor.

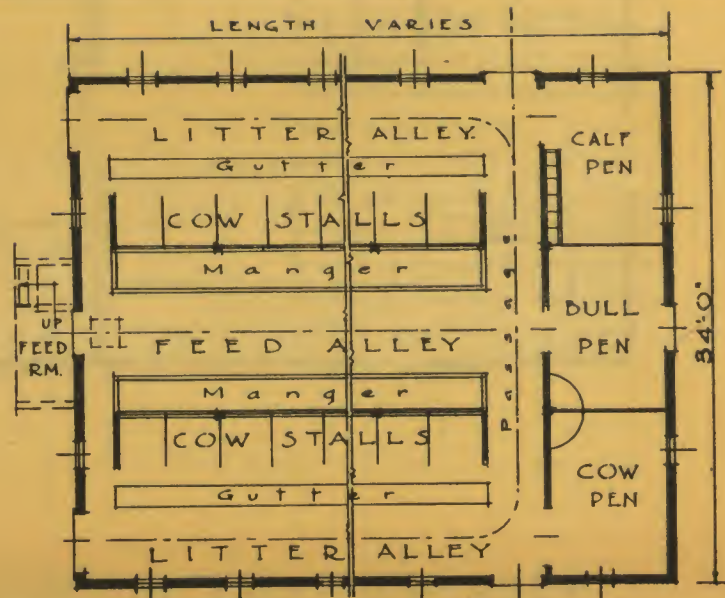
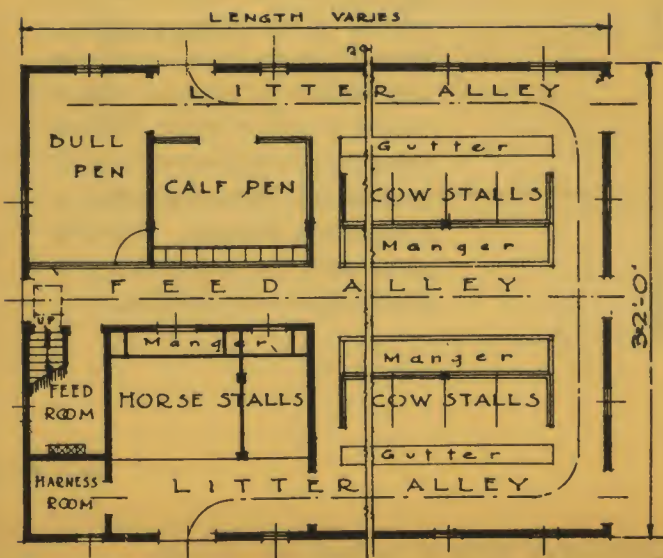
If tile walls are used up to joists these details are easily adapted to such construction. Cornice is simplified type with crown moulding in gables. Framing calls for 2x6 rafters spaced 24" on centers, with knee bracing and lower rafter bracing at same spacing.

THESE PLANS ARE SUGGESTIONS ONLY AND NOT TO BE USED WITHOUT THE ASSISTANCE OF A PROFESSIONAL ARCHITECT.

● Since a farmer's barn is very similar to the manufacturer's factory it is important that the arrangement be such that a minimum of labor is required in attending to the daily chores. Farm school authorities consider step-saving as one of the most necessary factors in farm building design. Adequate feed, litter and service



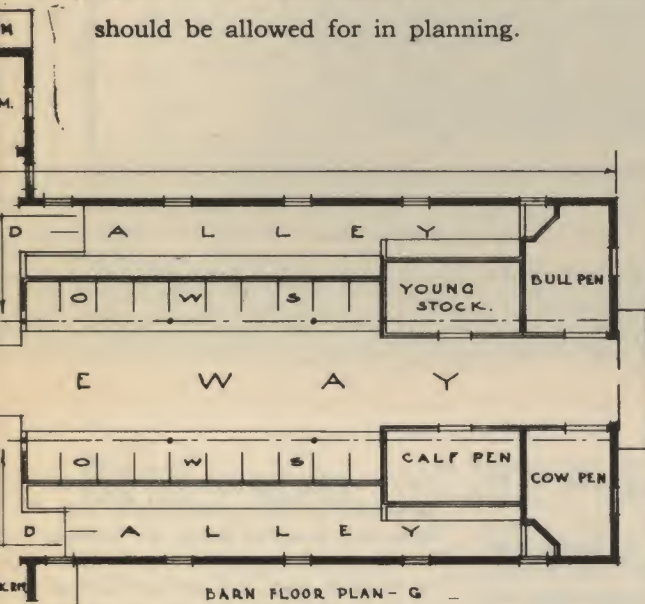
● The many excellent agricultural colleges operated by State or other universities are continually working toward perfection in farm building design. They are doing much constructive work and their technical advisors are usually glad to co-operate in assisting



## C D E F G

WORKING DRAWINGS ARE AVAILABLE FOR THEM

alleys, while adding some square footage to a barn plan, are usually worth much more than their slight extra cost in reducing work and simplifying chores. If a ventilating system is to be installed, some space for out-take flues will be required and should be allowed for in planning.



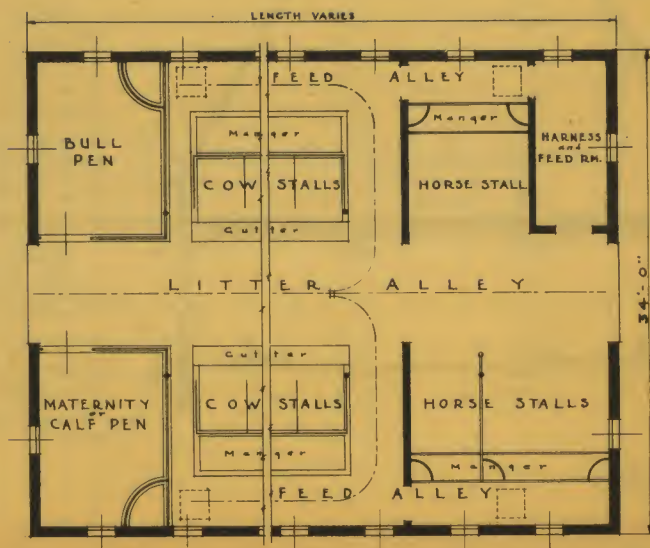
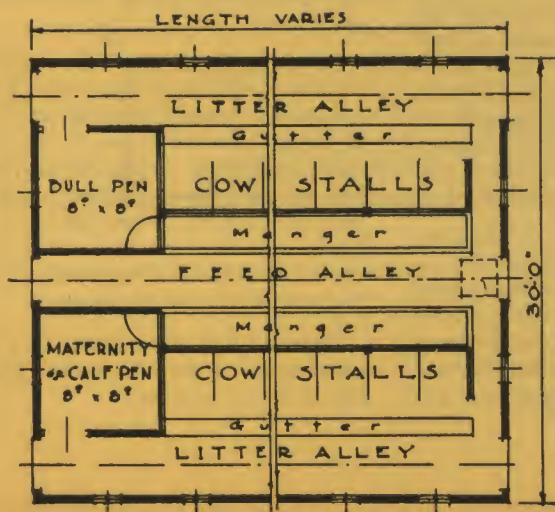
farmers who have special problems. Good planning is just as essential on the farm as in factory, store or public building. Minimum stall dimensions are given on closing pages.



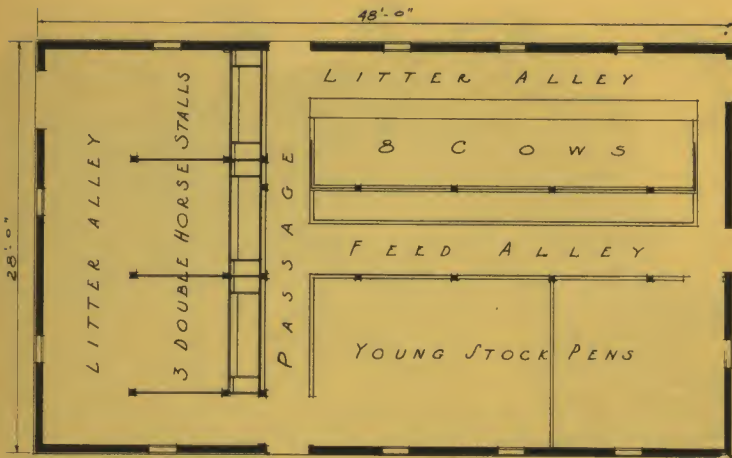
## Gothic Roof Exterior No. 476

● Rafters for gothic roof construction are readily cut from common boards with a band saw, one being first cut and used as a pattern. Good construction is important with this roof, adequate nailing being essential. Cement coated box nails prevent splitting and provide increased holding power. Gable trusses of some kind are required. Our details show a good type.

Plans and details for 4 widths of barn (32, 34, 36 and 38 feet) are available. The details are for frame wall construction but the roof is readily adaptable to tile wall construction as indicated in the above picture. Rafters rest on mow joists and are tied to them. The roof sheathing is placed diagonally across rafters and if lower walls are of frame it is recommended that this diagonal sheathing continue down to bottom plate.

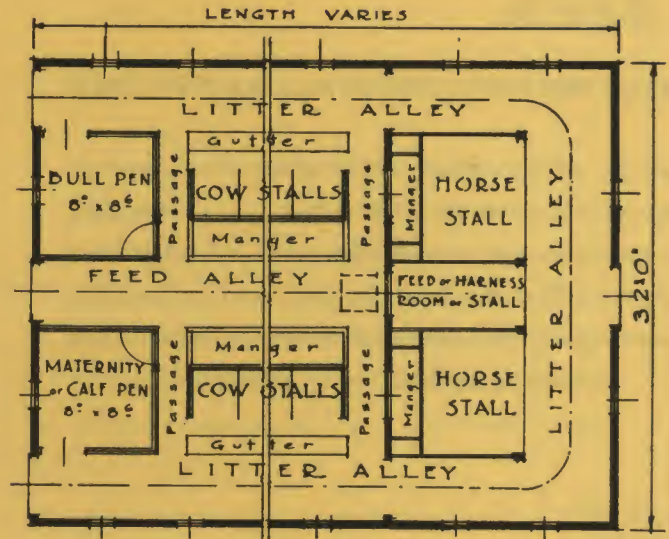


# ADDITIONAL BARN PLAN SUGGESTIONS



BARN FLOOR PLAN—E

● Two additional suggested floor plans for barns. Barn plans are generally individual with each owner since conditions vary on each farm. These plans are readily adaptable to different size buildings. With the materials available today the farmer can obtain a better building than at any time previous for the money invested. Your building ma-



BARN FLOOR PLAN—F

terial dealer will help you in obtaining the proper plan for your new barn.

NOTE: Stock barn plans are not obtainable for barn plans A to F. These are suggestions only.

## Ventilation System—No. 400 A Home-made Gravity System

● Ventilation of farm buildings is important where the owner desires maximum production. Ventilation will not only afford better conditions for hous-

ing stock but will also prolong the life of the building itself.

Excessive humidity is a serious problem in the barn during winter months. A cow breathes off approximately ten pounds of water daily which causes heavy condensation on cold walls and glass surfaces. Ventilation will remove much of this moisture thus greatly improving conditions.

A good ventilating system cannot be successful in a barn which is not warmly built. It is also highly desirable that storm sash be provided on barn windows.

Briefly the home-made system should have foul air ducts which are square or nearly so and having a length of at least 20'. Figure 32 square inches per horse and 36 square inches per cow. Poorly built barns require no fresh air intakes but in the well built barn figure total intake area at about one half of foul air ducts.

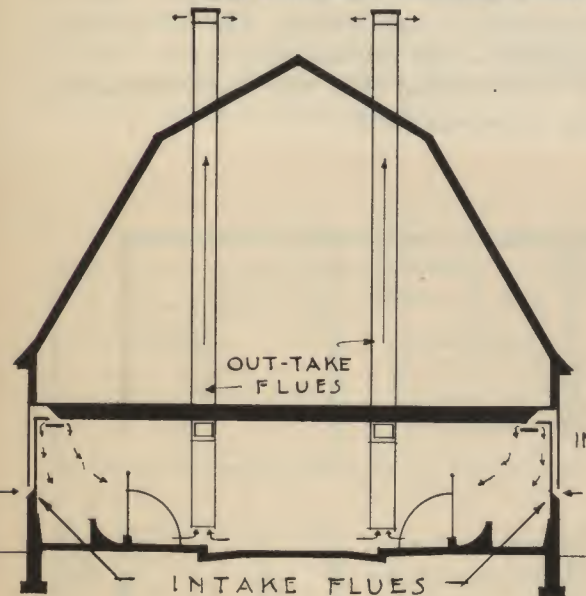
The foul air duct should drop down to within 18" of the floor and have a by-pass door near ceiling, also a pivoted damper. The portion of duct which is suspended below ceiling may be constructed of burlap. Intakes should have their outside opening about four feet

below ceiling line with the fresh air openings in ceiling preferably in locations near heads of stock. Air intakes should quite naturally be located as far as possible from foul air outtakes so that fresh air will not be drawn directly from opening to outlet. The fresh air opening should have a baffle to diffuse the fresh air as it enters.

Success of this gravity system is dependent upon an outside flue or flues running straight up like a chimney and extending a few feet above ridge of roof. Bends will retard its usefulness. Ducts must be insulated to perform to the best advantage. One large out-take duct is considered better than several small ones.

The success of operation requires adjustable controls for both inlet and outlet flues. Experience has shown that in very cold weather it may not be necessary to take any fresh air other than that secured through leakage around doors or windows. It may also be necessary to close outlet flues under extreme conditions. A temperature of 50° F. is desirable for dairy animals.

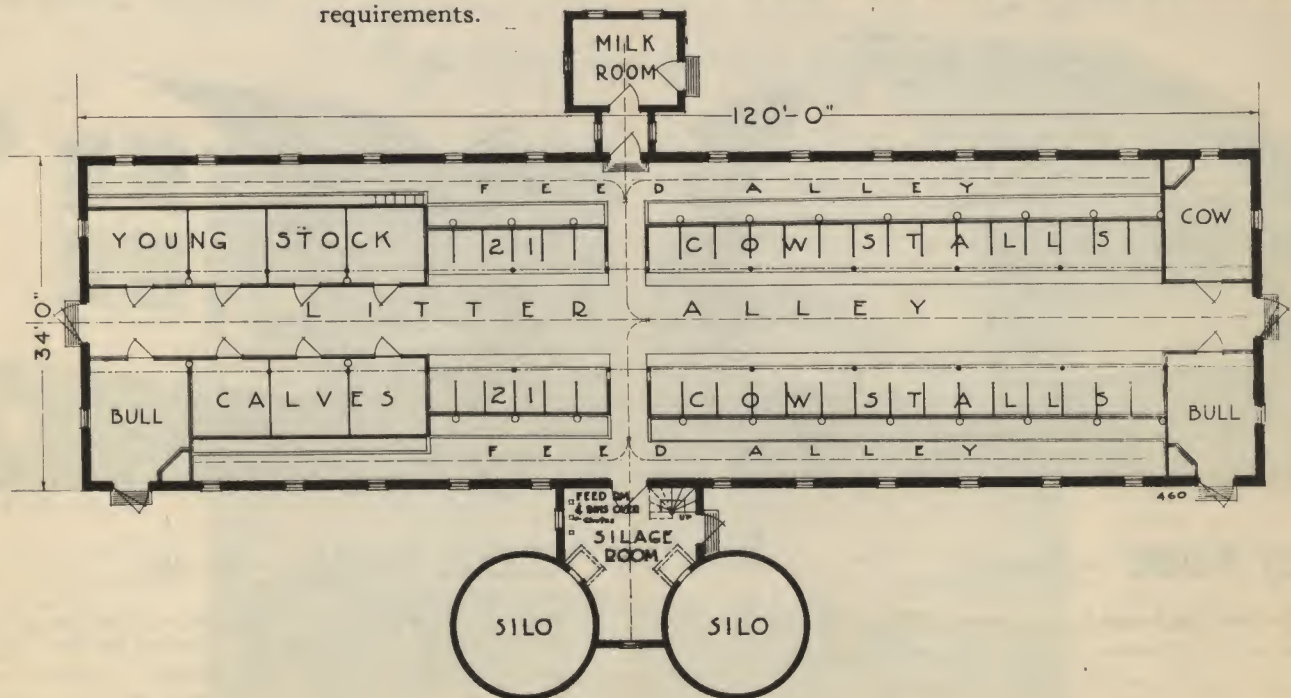
Plan No. 400 shows details for the construction of such a gravity type system for use in barns.





## Barn — No. 460

● A more pretentious type of building designed for the large dairy farm. The lower walls are 12" hollow tile with 10" boards and battens in the gables. Roof of cedar or composition shingles. Two 14' silos are provided, opening into silage room. Opposite from the silage room is the milk room. The main barn is 34x120. Ventilating system is not shown on plans since the owner of such a barn will undoubtedly install a mechanical system which the manufacturer will lay out to fit the individual requirements.





**Chicken Brooder — No. 403** ● A type recommended by poultry experts, size 10x12; capacity 350 chicks. Drop siding on exterior walls; roll roofing on roof; lining of 1x4 flooring and ceiling of  $\frac{1}{2}$ " insulating board with blanket insulation in the wall and ceiling optional; double floor. Brooder stove should be placed slightly off center toward the rear to permit a wider range of temperatures at floor. Roofing or hardware cloth should be used to keep chicks out of corners.



**Chicken Brooder — No. 404** ● Hexagonal brooders are preferred by many. This one measures 7' on the side or 14' across the points. The capacity is 350 chicks. 4" or 6" dressed and matched material is used on the exterior with roll roofing on the roof. Floor is double. In cold climates lining and insulation is recommended.



**Turkey Brooder — No. 405**  
● Ground size 12x12 with 5' studding. 1x4 flooring is used on the walls and 1x12, with a 2" lap, on the roof. Designed for turkeys but may be used for chicks. Capacity 150 poults.



**Chicken Brooder — No. 406**  
● A new modern type. This design makes use of  $\frac{1}{4}$ " plywood. Building is planned in 4' sections for easy shipment—sections being assembled at site. Exterior of plywood with roll roofing on roof; insulating board lining optional; double floor; capacity 400 chicks. Ground Size 12 x 12.

## Poultry House

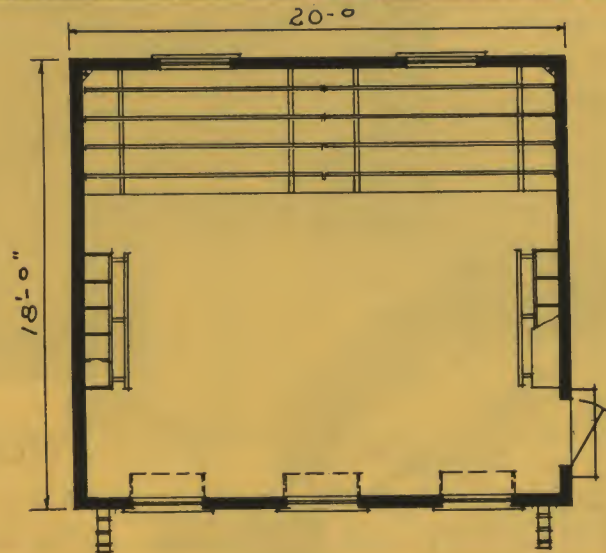
### Straw Loft Type—No. 401

● The straw loft type house affords an insulated ceiling with ventilation up through the straw and out of the openings in



the gables. It is important that the straw be changed periodically to prevent breeding of disease. The roof is of wood shingles; walls of drop siding. The straw is laid over 1x6 which are spaced.

● Both houses are the same except for roof construction. Floors are of concrete laid over hollow tile on gravel fill. Windows are provided with draft shields and tip in. Additional ventilating sash are located in rear walls under dropping boards. Nests are



made so that they are easily removed from wall for cleaning the roosts or made so that they may be raised over dropping boards for the same purpose. They are counterweighted to make the raising operation easy. Insulation and lining are recommended with both houses.

## Poultry House

### Shed Roof Type—No. 402

● This type of roof is recommended by poultry experts. Butterfly ventilators, pivoted at the

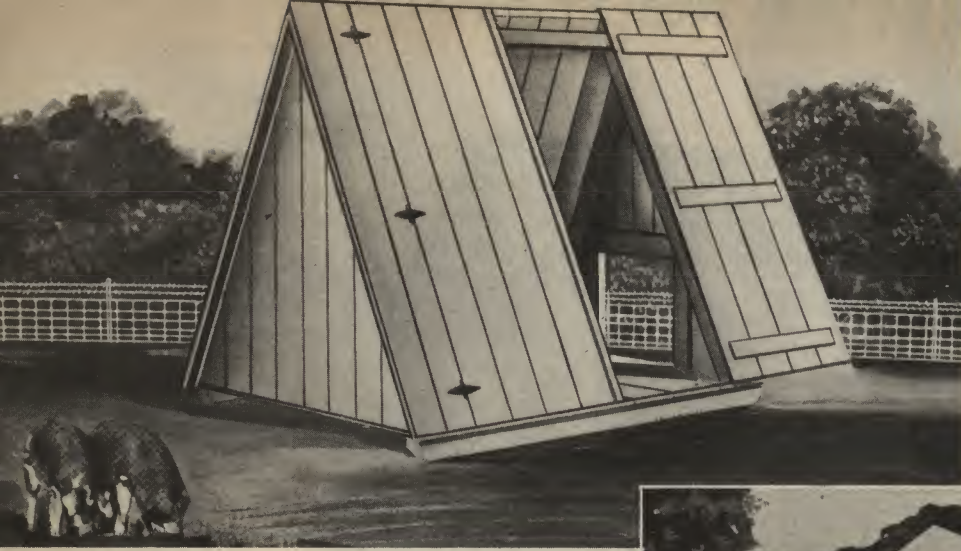


ends, provide good ventilation at the highest point along the ceiling. Walls are covered with drop siding; roof with roll roofing.

# PORTABLE HOG HOUSES AND SHELTERS

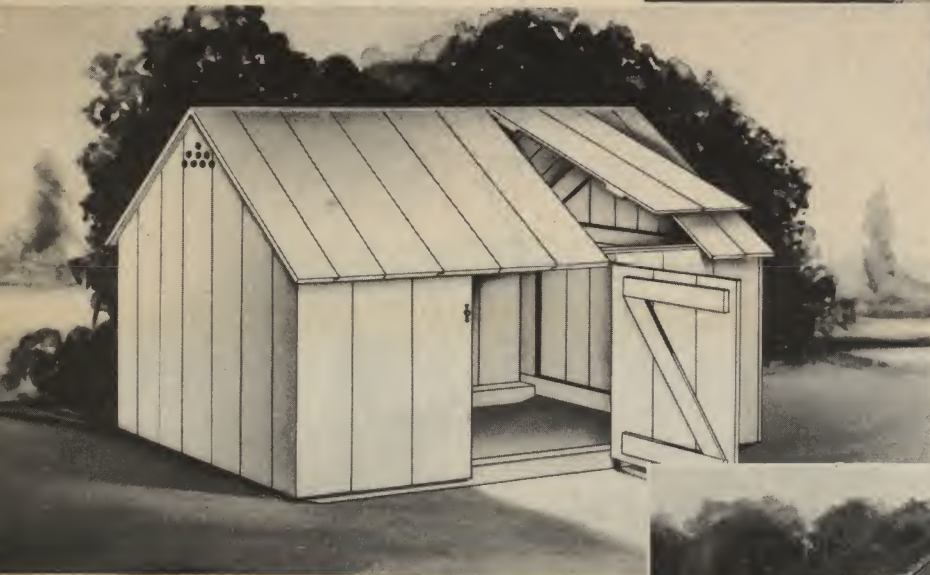
## Portable Hog House — No. 440

● Size 6x8, has a floor. Doors on one side of roof open the building up when desired. Framing is of 2x4 with 10" shiplap for walls and roof and 2x12 plank for floor.



## Portable Hog House — No. 442

● Size 5/9x7 on the ground. There is no floor. 1x12 boards are used for roof and walls. Framing is of 2x4. Two doors in roof are provided.



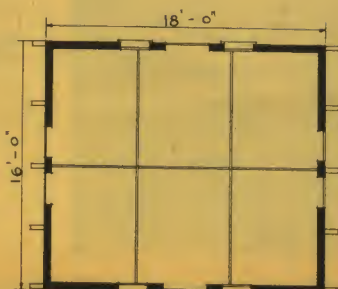
## Portable Hog House — No. 443

● A variation of the above types. No floor is provided. Size on ground 6x8. Framing is of 2x4 with 12" shiplap used on walls and roof. Roof doors provide sun and air when desired.



## Portable Hog House — No. 445

● A six pen portable brooder size 16 x 18. Pen partitions are removable. Framing is of 2 x 4 with 1 x 12 shiplap on walls and shiplap cover with roll roofing. 1 x 4 flooring is laid over 2 x 4 joists resting on 4 x 4 skids.





## Hog House — No. 446

● A good hog house where winters are not extreme. Should face South. In Northern localities heat should be provided. Window area is less than in most houses now built but ample for proper light, yet not so much as to cause excessive temperature drops inside. Drop sided walls with roll roofing on roof.



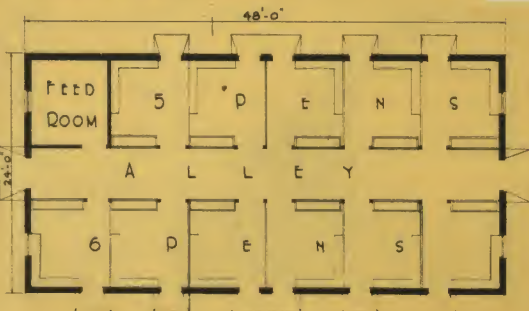
## Hog House — No. 447

● This hog house is designed for cold climates. It should be placed with the long dimension North and South so that both sides of the building receive sunshine in the same proportion. The straw loft furnishes bedding in cold weather and provides an insulated ceiling. Wall insulation is desirable. Window area is correctly designed for cold Northern winters. Some heating is necessary to produce best results. A building of this kind should be insulated. Walls are covered with drop siding; roof with composition or cedar shingles. Foul air flues with lower sections of burlap are provided in both No. 446 and No. 447 houses.



## Hog House — No. 448

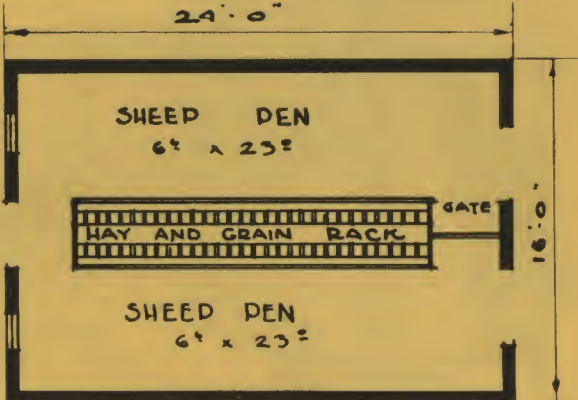
● An attractive, efficient hog house with gambrel roof and hollow tile walls. Metal roof windows are provided. The roof may be of either composition or cedar shingles. Ventilating system has not been planned but can readily be installed to suit conditions.





**Sheep Barn—No. 450**

● A practical sheep barn 16x24. Boards and battens on walls; roll roofing on roof. Studding and rafters 2x4. Concrete foundation and earth floor.



**Sheep Shelter—No. 451**

● An inexpensive, open shelter which is placed to face south. Feeding racks on all three walls. Size 16x20. Boards and battens on walls; roll roofing on roof; earth floor; concrete footings.

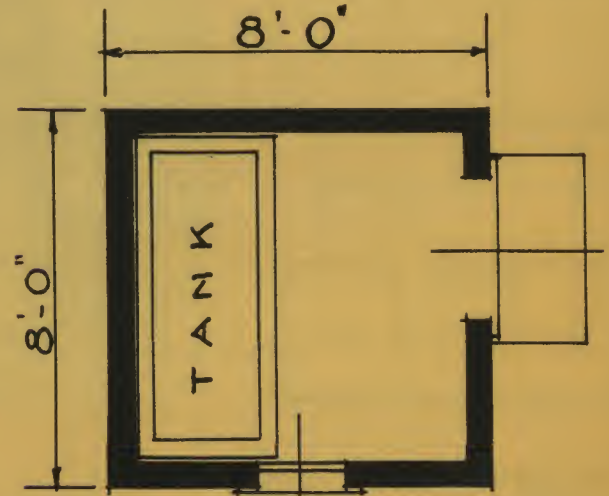


# MILK HOUSES



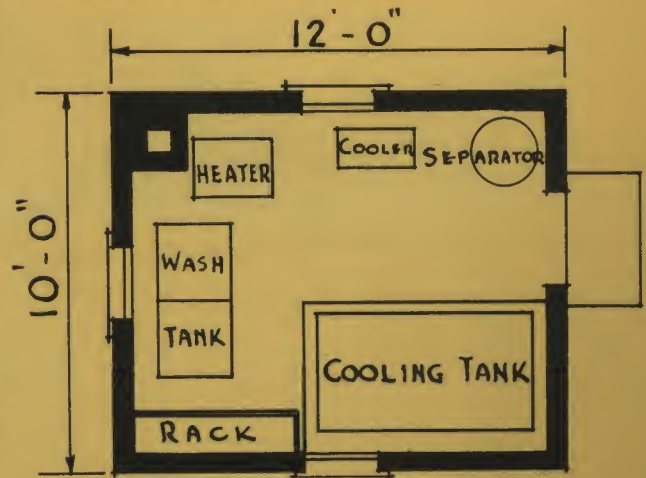
**Milk House—No. 452.** This house will serve the needs of the farmer having a small herd of cows. The tank is designed efficiently, being set with top about 1' above floor, making it easy to lift the milk cans out. The usual practice is to run the water from the well through the tank and out again using the water as it leaves the tank for watering stock. Well water, to efficiently cool the milk, should have a temperature of approximately 48 degrees fahrenheit. Cities are becoming more strict in their regulations regarding handling of milk, making it advisable for the successful farmer to provide a sanitary and efficient milk house.

Walls sided, roof shingled.

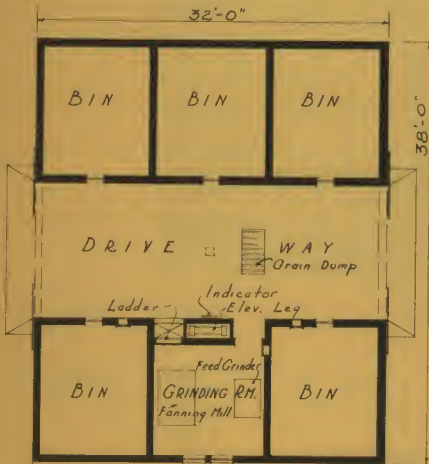


**Milk House—No. 453.** Where it is required that milk be separated before being sent to a creamery a larger milk house is desirable than shown above. The floor plan shown has been developed by the Agricultural Extension Division of the University of Minnesota. Cooling tank is placed with top about 1' above floor as in the milk house shown above. It would seem desirable in this house to use cement plaster over metal lath for the inside walls, although wood sheathing which has been well painted might be substituted.

Shingled walls and roof, brick chimney.



SANITATION IS IMPORTANT IN THE MILK HOUSE



**Grain Elevator—No. 485.** An improved design with proper arrangement of bins and elevator. Studs and rafters are of 2x6; bins are lined with dressed and matched sheathing. Exterior walls are to be of dressed and matched sheathing covered with galvanized steel sheets or of drop siding. Roof of shingles or galvanized steel sheets over sheathing. There are eight bins with a total capacity of 11,500 bushels ( $1\frac{1}{4}$  cu. ft. per bushel).

## CORN CRIB AND GRANARY—No. 484

**Elevator type—**not shown here. Another elevator plan is available which is not pictured here. It is 25x32 with 11' center driveway leaving corn cribs either side of drive 7x32. These cribs extend approximately 17' high—giving a capacity for ear corn of nearly 3000 bushel, while bins for grain above driveway provide a capacity of 2000 bushel.

The exterior is similar in appearance to No. 485 with similar cupola for elevator but side wall studs are 16'. Crib siding, drop siding and cedar shingles are called for on plans.

This design was developed by Mr. Wm. McArthur, an Iowa "Master-farmer," and published in the Farmer Magazine, March 13, 1937.



## Portable Granary—No. 486

● Size 10x16 with 9' studs. Filling doors in each gable. Main doors equipped with louvres sloping in. The rat-proof protection can be eliminated if preferred.

**Walls:** Frame, drop siding, lined with flooring. **Roof:** Cedar or composition shingles. **Floor:** 4" flooring, 4x6 skids. **Capacity:** 900 bushels.



## Granary and Corn Crib

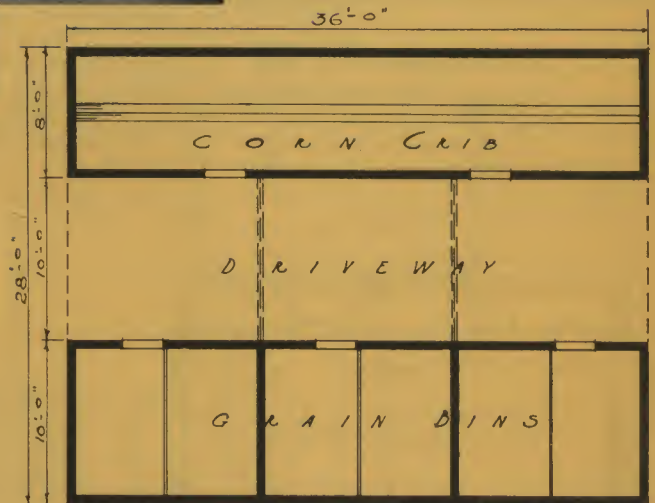
No. 487

● A well designed building holding 1000 bushels of ear corn (at  $2\frac{1}{2}$  cu. ft. per bu.) and 2400 bushels of grain (at  $1\frac{1}{4}$  cu. ft. per bu.). A guard of galvanized steel is installed at sill to protect against invasion by rats. Construction calls for 2x6 rafters and studs, 4" bevelled crib siding on crib, 6" drop siding on bins and 1x10 boards and battens in gables. Roof may be covered with wood or composition shingles or with sheet metal.



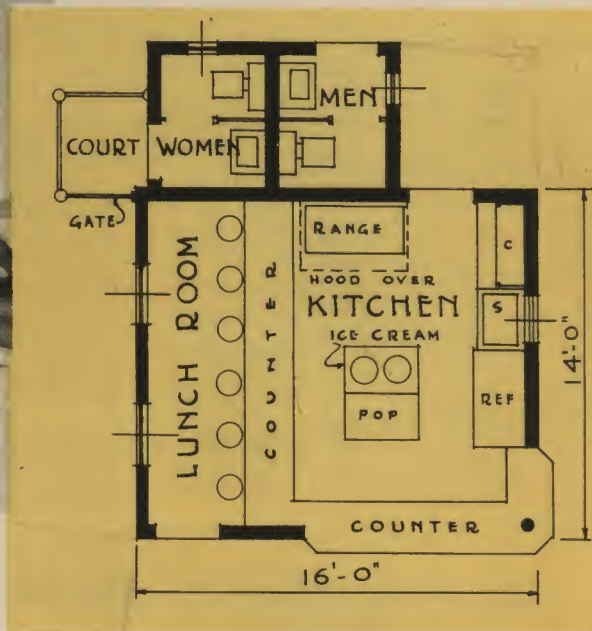
**Portable Corn Crib—No. 488.** Size 6x16 with 9' studs. Skids for moving. Made narrow to provide ventilation. Should be braced to prevent possible overturning in wind. Dropping walls, shingled roof.

**Circular Corn Cribs—No. 489-A and No. 489-B.** A clever design developed by Joseph J. Cap. Two plans—Plan A, circular 10' in diameter at base; Plan B, as shown with some straight walls, size 10x14½ at base. Capacity of A 280 bushels; of B 420 bushels ( $2\frac{1}{2}$  cu. ft. per bushel). Ventilating stacks insure proper air circulation.



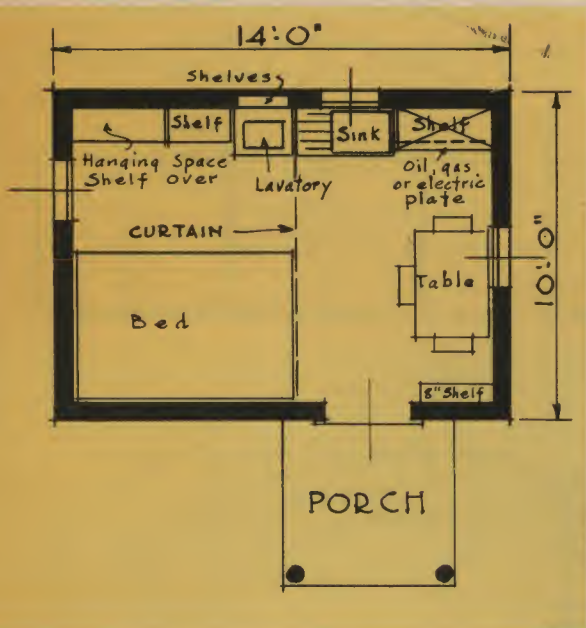


**Lunch Room—No. 433.** A lunch room which is carried out in the rustic style, particularly adapted to a northwood setting. This design has proven very popular. It offers both lunch stand and lunch counter service. The toilet rooms may be omitted



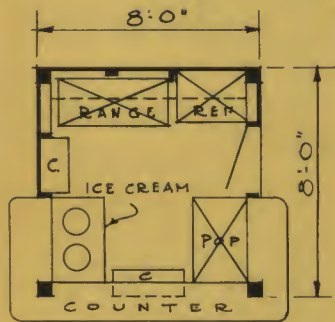
if it is necessary to economize. Designed with walls of log siding in 6" and 8" widths. The roof is given a ribbed effect by using batten strips over roll roofing. The use of real logs is recommended for corner posts, brackets and fence. The floor is planned of concrete.

This is the kind of building that will attract and appeal to the motorists' trade.



**Tourist Cabin—No. 439.** A cabin design suitable for a rustic setting, built with walls of log siding. The roof is given a ribbed effect by the use of batten strips over roll roofing. This is a very complete little building for its size and should appeal to the tourist who likes completeness. The floor is of concrete.

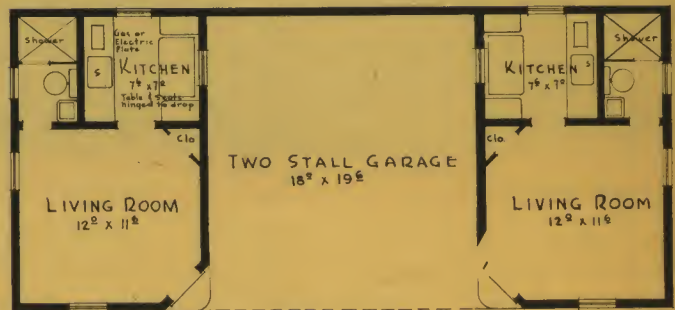




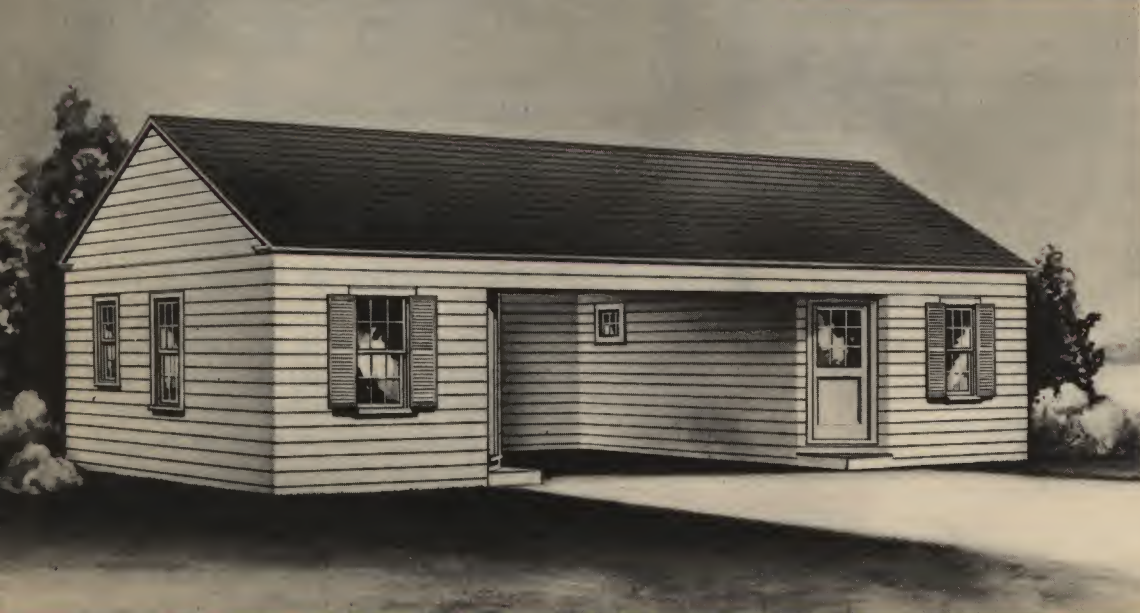
## Lunch Stand No. 437

● In French architecture, stained cedar or composition shingle roof, stained boards and battens on walls. Can be closed with shutters at night.

**Vegetable Stand—No. 438.** Easily constructed of common lumber, size 4 x 8 when closed. Ideal for roadside sales of farm produce.

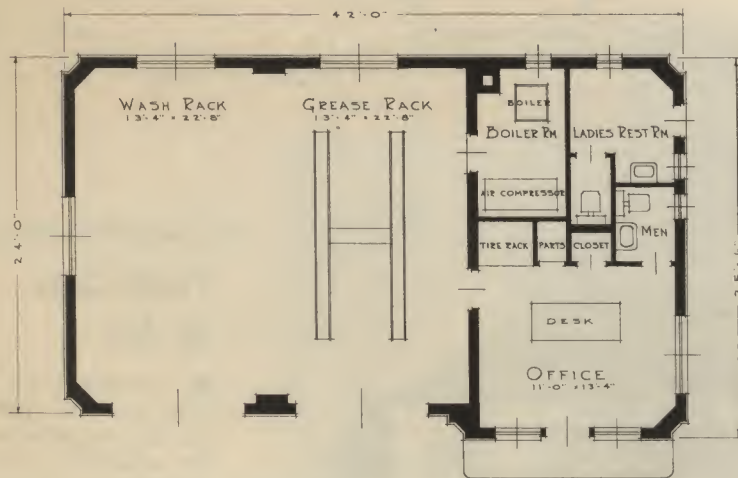


FLOOR PLAN



## Tourist Cabin No. 449

● A design which has been developed after a thorough investigation of the needs of the average motorist. A feature is the car shelter accessible under cover. Sided walls and shingled roof. Plywood lining recommended.



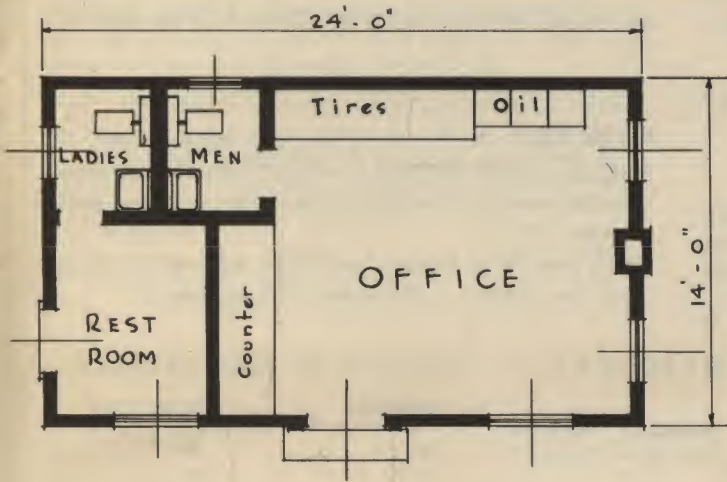
## Service Station—No. 495

● Complete and modern. Meets the prevailing standards in service station planning. The exterior is worked out using standard 5x8x12 hollow tile with jamb and corner units in certain locations. A built-up roof laid over deck insulation is specified. Coping is formed of galvanized steel sheets. A concrete wall is carried up 12" above floor level.

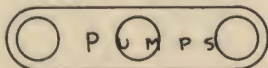
Ceiling height is 12'. Steel sash, overhead type garage doors and reinforced concrete floor are planned. The construction is such as to hold building cost down to a minimum.

GAS PUMPS





DRIVEWAY



## Service Station No. 496

● An economical little building along Colonial lines. Painted in white with blue or green shutters and roof it will attract business and be a credit to the community. Walls are planned with 8"x $\frac{3}{4}$ " siding, roof of stained shingles. Brick veneer painted white can be used at slight additional cost instead of siding or walls might be shingled. In line with the usual practice, women's room opens outside with access to men's room through office.

# • USEFUL INFORMATION

## FIGURING LUMBER

● A piece of lumber one foot square and one inch thick contains one board foot. The surfacing operations at the mill result in lumber being a little scant of nominal sizes in width and thickness, thus one inch lumber is approximately  $\frac{3}{4}$ " thick and  $\frac{3}{8}$ " to  $\frac{1}{2}$ " short of the nominal width. In computing the amount of board feet required to cover any certain area the actual square feet of area are obtained and a percentage of this area is added to allow for loss in coverage due to dressing and also for matching in the case of flooring, dropsiding, shiplap, etc.

To compute board footage of the following add to actual surface as follows:

1½ x 25/32 flooring . . . . .	add ½
2¼ x 25/32 flooring . . . . .	add ⅓
4" flooring . . . . .	add ¼
6" dropsiding . . . . .	add ⅕
10" shiplap . . . . .	add ⅙
Common boards in random widths 1/10	

## WOOD SHINGLES FOR ROOFS

● Wood shingles for roofs are usually  $\frac{2}{5}$  of an inch thick, 16 inches long and of random widths. A roof square (4 bundles) covers 100 square feet when laid 5 inches to weather. To the actual roof area should be added a one-half foot strip along eaves for doubling of the first course and approximately 5% where the roof has valleys, dormers, etc. Use only the best galvanized (hot zinc dipt) 3d shingle nails for applying.

Your dealer can supply a "Certigrade Handbook" covering proper application of wood shingles.

## PAINTING

● Painting should never be done on dirty, greasy or damp surfaces, nor over peeling paint. Painting is a big subject, therefore it is recommended that directions on can be carefully followed to secure

thoroughly satisfactory results. Paint dealers and manufacturers maintain service bureaus to aid the user who has special problems.

## COVERAGE OF HIGH QUALITY OUTSIDE READY-MIXED PAINT

● Take full surface area, do not deduct for openings and add 1/10 for under edge of siding. Fir or priming coat with lead and oil paint will cover 400-500 square feet per gallon on new, smooth, soft wood. Subsequent coats will cover 700-800 square feet per gallon. First coat over old work probably will not cover over 300-400 square feet per gallon unless surface is in good condition. High grade paint will go further and spread easier than cheap paint for either old or new work.

## BARN PLANNING

**Cow Stalls**—3-0 to 3-8 wide, center to center with 3-4 recommended as a minimum in first class barns. Length 4-10 to 5-2 center of stanchion rail to edge of gutter, length dependent upon stock to be housed. Gutter is sometimes constructed at slight angle to provide stalls of varying length. Some stanchion equipment provides adjustment toward or away from manger. Mangers for cows — two feet wide in clear with raised feed alley, 2-4 clear recommended for standard type.

*Detail Available—Order No. 498.*

**Horse Stalls**—width 8 to 9 feet, center to center, for double stalls; 4-8 to 5-6 feet, center to center, for single stalls. Length 7 to 8 feet exclusive of manger which should be not less than 1-10 in clear at top.

*Detail Available—Order No. 499.*

**Window Area**:—In barns allow one square foot of window area for each 20-25 square feet of floor area, window area is considered to be clear opening area between stops.

Draft shields at sides of windows with sash tilting in at top make a satisfactory arrangement.

## MISCELLANEOUS WEIGHTS AND MEASURES

**Acre**—Measure of land, 43,560 square feet, equivalent to 208.7 feet square. A square mile contains 640 acres.

**Bushel**—(Dry Measure)  $1\frac{1}{4}$  cubic feet (approximate). Allow from  $2\frac{1}{4}$  to  $2\frac{1}{2}$  cubic feet for each bushel when figuring capacity of a corn crib.

**Barrel**— $31\frac{1}{2}$  gallons.

**Coal—Soft**—40 cu. ft. per ton.

**Coal—Hard**—36 cu. ft. per ton. (Approximate figures)

**Rod**— $16\frac{1}{2}$  feet, 320 rods in a mile.

**Gallon**—(Liquid measure) contains 231 cubic inches; there are 7.48 gallons in one cubic foot.

**Hay**—(Well settled) 500 cubic feet per ton.

**Ice**—Allow 40-50 cubic feet per ton including packing. A cubic foot of ice weighs 57 pounds.

**Water**—A cubic foot of water contains 7.48 gallons and weighs 62 pounds.

**Wood**—(Fuel) A cord of wood contains 128 cubic feet, making a pile 4 x 4 x 8 feet.

## WEIGHTS OF FARM PRODUCE

Commodity	Pounds per bushel
Barley	48
Beans, white	60
Bran	20
Corn, shelled	56
Flax	56
Oats	32
Onions	57
Potatoes	60
Rye	56
Timothy	45
Turnips	55
Wheat	60

## CONCRETE MIXES

Kind of Work	Gallons of Water to Add to Each One-Sack Batch			Trial Mixture for First Batch			Maximum Aggregate Size
	Dry Sand and Pebbles	Moist Sand and Pebbles	Wet Sand and Pebbles	Portland Cement	Sand	Pebbles	
				Sack	cu.ft.	cu.ft.	In.
Fence posts, flower boxes and other work of very thin sections.	4½	3¾	3½	1	2	2	¾
Floors, steps, sidewalks, barn approaches, barnyard pavements, mangers, gutters, corner posts, well curbs and platforms, cisterns, water tanks, septic tanks.	5½	4¾	3¾	1	2	3	1
Walls above grade, water-tight basement walls, grain bins, manure pits, dipping vats, dams, hot beds, cold frames.	6½	5	4¾	1	2½	3½	1½
Footings, retaining walls, walls below grade, engine bases.	7½	6	5	1	3	5	2

Table from "Permanent Farm Repairs"  
(Published by Portland Cement Ass'n., Chicago)

● NOTE: It may be necessary to vary amounts of pebbles and sand slightly to secure a workable mix but under no circumstance should amount of water be increased. Increasing amount of water will reduce strength of concrete. Water suitable for drinking purposes and clean aggregates (sand and gravel) are necessary for lasting concrete work.

Pit run aggregate, as removed from an excavation, usually contains more sand in proportion to pebbles than desirable for good concrete, therefore it is recommended that such aggregate be screened with ¼" mesh screen to separate sand and that the sand and pebbles be then recombined in correct proportions.

# MODERNIZE YOUR PROPERTY

Modern Farm Buildings assure warmth, light, ventilation and health for animals and poultry.

These permanent improvements will increase production, decrease waste, protect machinery from weather, save labor, add to convenience and earn more profits.