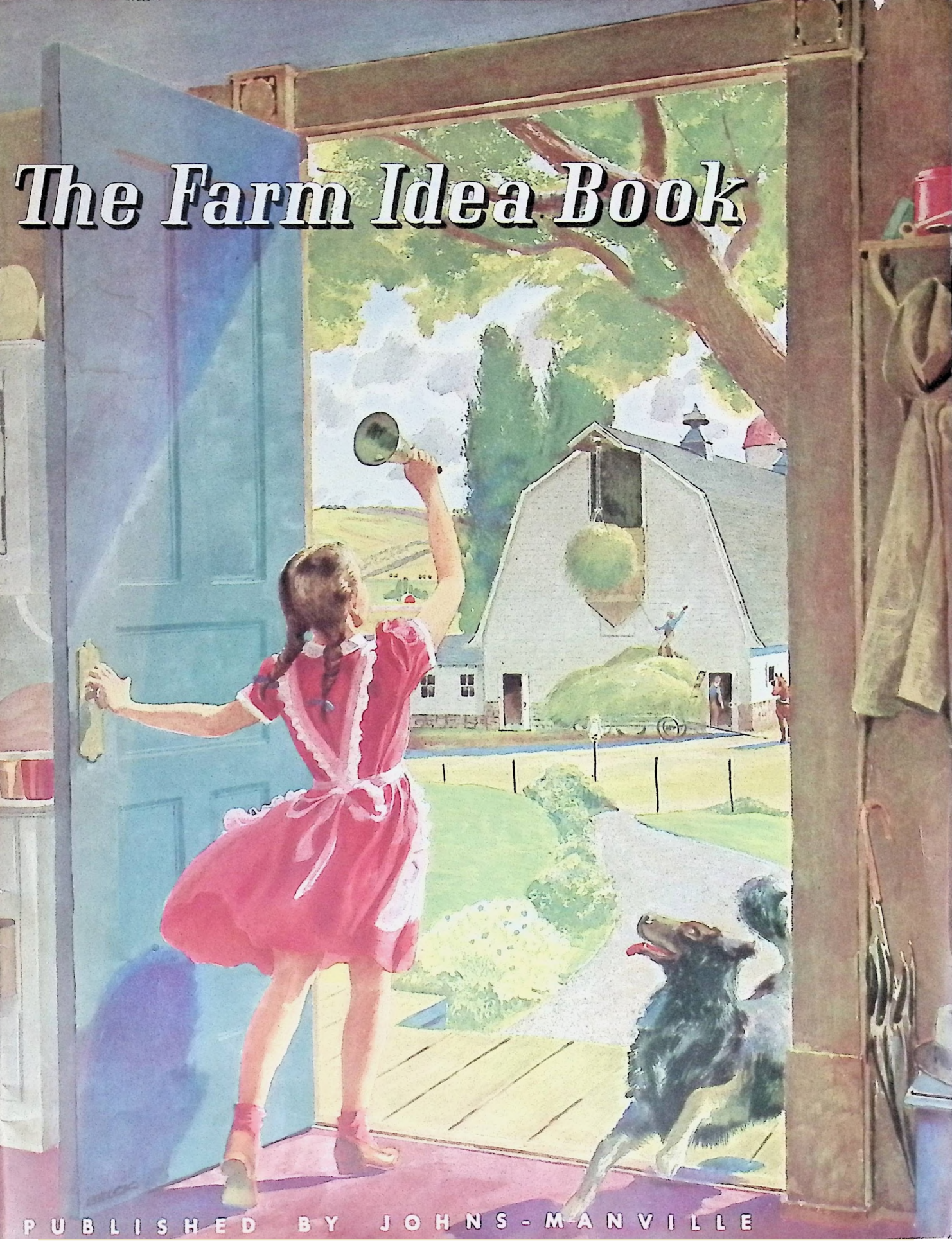


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★CONTENTS

PAGE

Front Cover.....by Peter Helck
Foreword 3

Roof Ideas

Protection Against FIRE and WEATHER.....4-5
How Asbestos Protects the Roof.....6-7
Presenting the J-M American Colonial Shingle 8-9
Roof Application Facts.....10-11
Lightning Protection 12
How to Figure Roof Areas.....13
Things To Know About Flashings.....14
Roof Maintenance.....15
Expert Discusses Asphalt Shingles.....16-17
Roll Roofings.....18
Applying Good Roofing Properly.....19

Ideas for Sidewalls

How Asbestos Reduces Sidewall Upkeep.....20-21
Before and After.....22
Asbestos Siding—Application.....23

Insulation and Ventilation Ideas

Insulation and Ventilation on the Farm.....24-25
Modern Insulating Materials.....26-27
Insulating the Dairy Barn.....28-29
Insulating the Poultry House.....30-31
Insulating Other Farm Buildings.....32-33
Slants on Water Systems.....34
Facts About Fences.....35

Ideas for Interior Walls

Interior Sanitation and Fire Protection.....36-37
Sanitation with Asbestos Flexboard.....38-39
Valuable Uses of Asbestos Flexboard.....40-41

Ideas for the Farm Home

Maintenance and Care of the Farm Home.....42
Farm Houses Made New.....43
Fixing an Extra Room in Attic.....44
What to Do About Cracked Ceilings.....45
Suggestions for the Garden and Yard.....46-47
Rehabilitating Bathrooms and Kitchens.....48-49
Comfort in the Farm Home.....50-51
Constructing Rat-Proof Buildings.....52-62
Your J-M Dealer Can Help You.....63



This is a book about farm buildings and farm homes

The chief function of every farm building and every farm home is SHELTER . . . adequate shelter to provide protection for the farm family, farm implements, the crops, the herds and flocks. And in these days, when there is a national need for greater quantities of every farm product, farmers are realizing, more than ever before, the importance of their buildings and the contribution they make toward increased production.

Because of the number of buildings necessary on the farm and the type of construction employed in the past, fire is a more serious hazard than in any other business or industry. This destructive force takes a tremendous toll on farms, year in and year out. With the nation at war and the world looking to American agriculture for food, the loss of every building, crop or herd is irreparable. This book offers many helpful suggestions for protecting your home and farm buildings against the hazard of fire.

Exposed on all sides to the ravages of wind, rain, sleet, snow and sun, these buildings are constantly being subjected to the wearing attacks of the weather. Unless they are shielded against the weather and armored against rot, decay and deterioration, constant maintenance and repair is necessary. This in turn means the loss of many man-hours of labor which should be devoted to productive work. Protection against the weather is therefore an important consideration in planning and providing adequate and maintenance-free shelter. This book tells about the many modern developments that assure maximum protection against weather and wear.

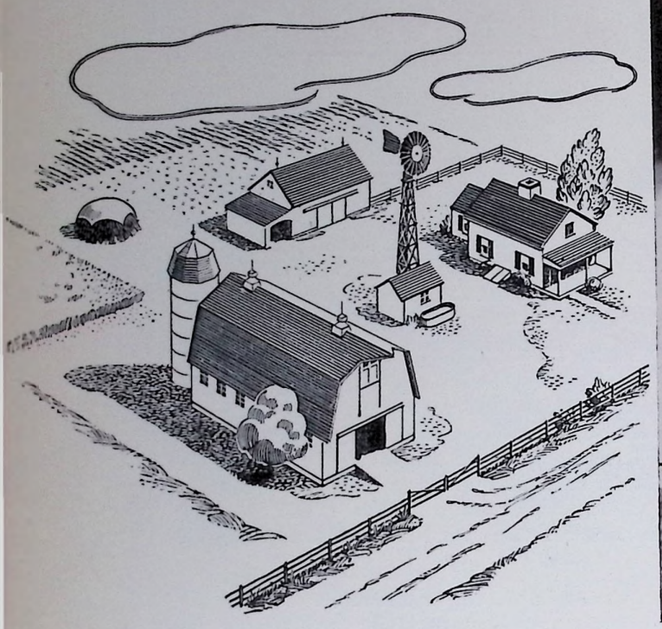
Science and industry have also been constantly at work on the problem of sanitation, developing and providing ways and means of favorably influencing health, yield and protection. No matter how well farm buildings are constructed, unless they assure good health and afford a barrier against disease, rodents, bacteria, etc., they are likely to represent a distinct hazard to profitable production. This book illustrates and describes important and effective methods for assuring modern, sanitary conditions.

The Farm Idea Book is issued in the interest of helping you solve these and many other farm building problems. If it proves of value to you and helps you protect your buildings and increase your production, it will have served the purpose for which it was prepared.

THE CLARK COUNTY LUMBER CO.
SPRINGFIELD, OHIO

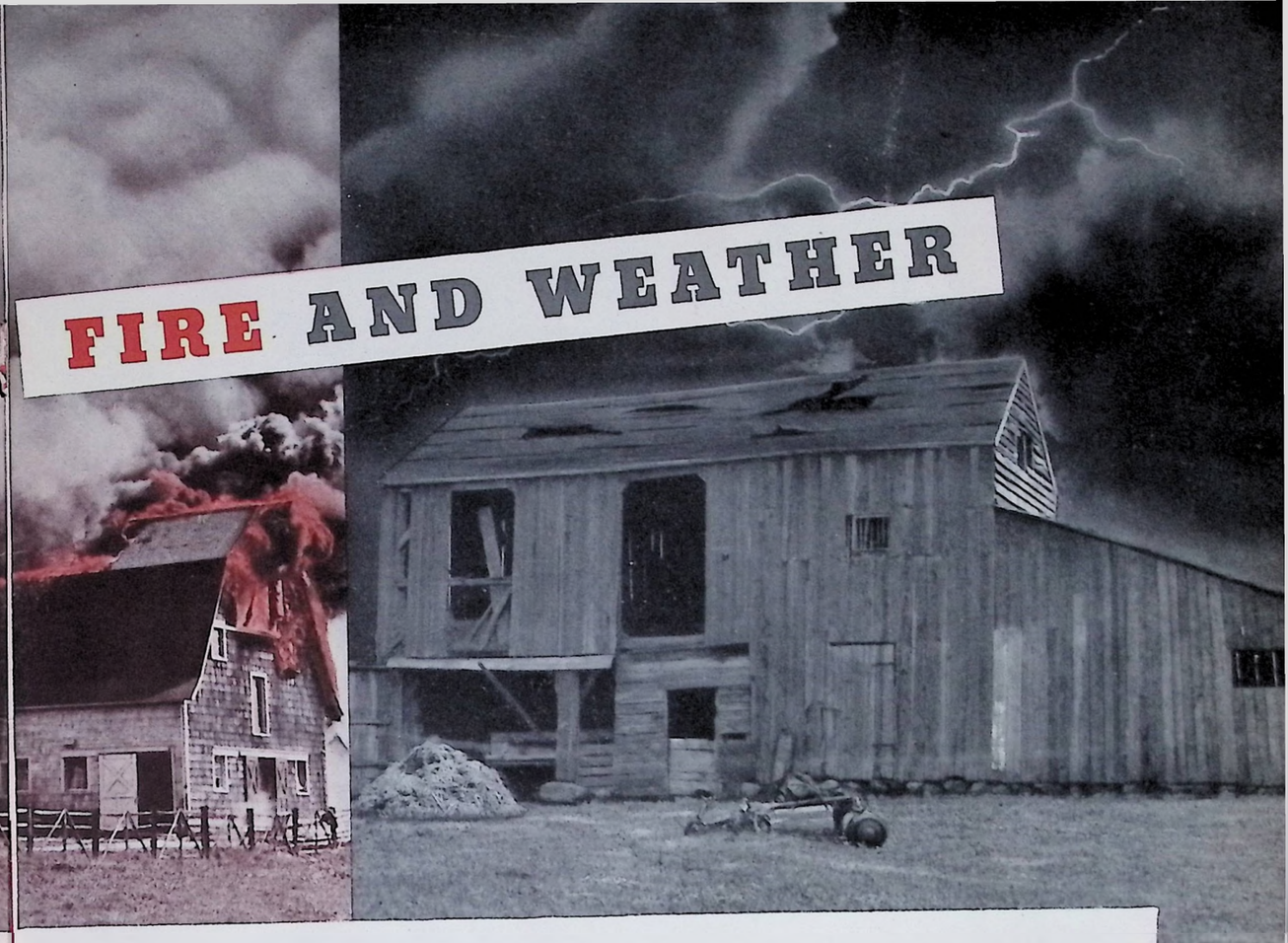
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Every building is exposed to attack by two relentless enemies . . . .





FIRE AND WEATHER



One of the most valuable assets which you as a farmer possess, is the group of buildings that house your machinery, shelter your stock and provide a home for you and your family. If yours is an average farm, they represent a considerable investment—one which it has taken you many years of hard work to acquire. In fact, if a comparison were possible, it would probably show that you have a larger proportion of your worldly possessions invested in buildings than the operator of almost any other business.

But in another sense, these buildings of yours are also a liability. They are a liability because they are constantly exposed to an attack against which they have little or no defense. As you read these words, a farm building is somewhere being destroyed by fire. Every twenty minutes of the day and night, day in and day out, this happens. A spark from a pile of burning rubbish . . . a carelessly thrown match or cigarette—and before resistance can be organized another farm building has been wiped out. The loss amounts to the staggering total of 150 millions of dollars each year, but unfortunately fire losses cannot be measured in terms of dollars alone—as you are well aware if you are one of those who have learned through bitter first-hand experience. Estimates of such losses never take into account the slowing down of production, the valuable time lost, the stock that can never be replaced, even though it was fully insured!

WEATHER ALSO TAKES ITS TOLL

But fire is not the only hazard to which your farm buildings are exposed. Weather is another enemy constantly seeking their destruction. And although wind, rain, sleet, snow and sun are not as spectacular in their attacks as fire, their work over a period of time is no less damaging. "Cold fire," someone has fittingly called the rot and deterioration that slowly but surely take their toll of farm buildings. No figures are available to show just how much these losses amount to in the course of a year, but every practical farmer knows that building maintenance is an expenditure that never stops and that it represents one of the largest single items of expense on his annual balance sheet!

In the past there was little that the average farmer could do to protect his buildings against these two enemies—fire and weather. He either had to run the risk of using materials that would burn, rot or decay, or he had to resort to other types of construction that were, in most cases, too costly for general farm use.

Obviously, here was a problem which required solution. So the laboratories of the building materials manufacturers went to work on it. They sought new materials which could survive the attacks of fire and weather—materials which could stand up on the roof or walls of a farm building year after year with minimum attention for maintenance — and they found one practical answer in the mineral asbestos. By combining asbestos fibres with another non-combustible, permanent material—portland cement—they succeeded in producing a building material that possesses the desirable characteristics of being both fireproof and rotproof. They fabricated this asbestos-cement material into many different products—among them, roofing shingles that protect farm buildings from the dangerous hazard of the roof-communicated fire, and siding shingles that require no preservative treatment and need little if any maintenance of any kind for the life of the building.

ASBESTOS PROTECTS YOUR INVESTMENT

Today in farming communities in every section of the country, these products made of asbestos are gradually replacing other less durable, inflammable materials in farm building construction. They are adaptable for use on practically every type of structure and any carpenter can apply them. Costing but little more than materials which do not have the advantages of fire-protection and immunity to rot and deterioration, their cost in the long run is actually less when the saving in upkeep is figured in. Recently, improvements in application methods have brought their applied cost still lower.

On the following pages you will find numerous examples of how these fireproof asbestos materials may be employed to protect your farm building investment and provide a greater degree of security for your live-stock and equipment.

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How Asbestos protects farm buildings at their most vulnerable point— THE ROOF

In searching for ways to protect farm buildings from the attacks of fire and weather, building materials manufacturers naturally paid special attention to the roof. For the roof is the most vulnerable part of any building. The glaring sun beats down on it day after day. It must resist constant assault by wind, rain, sleet and snow. And it is particularly vulnerable to attack by that most destructive invader of all—fire.

FIREPROOF AND ROTPROOF

To provide the most effective safeguard against these forces that seek to destroy farm property through the roof, Johns-Manville developed the asbestos roofing shingle. Fabricated of asbestos and portland cement, they are fireproof—not just fire-resistant. Even the white-hot flame of a blowtorch cannot burn them! This means that any building on which they are applied is completely protected from the hazards of roof-communicated fires. Flying embers or sparks from a nearby fire only flicker out harmlessly when they fall on a roof of these fireproof shingles. There are numerous cases on record in which fires have been prevented from spreading and farm buildings saved from destruction, thanks to the effective barrier of a J-M Asbestos Shingle roof.

These shingles also provide lasting, maintenance-free protection against weather. Because of their asbestos-cement composition, they are immune to rot and decay. Long exposure to the hot sun cannot dry them out and they are unaffected by snow and ice. Even when subjected to unusual extremes of weather such as high winds, they have proved their ability to withstand damage.

"BUILT TO LAST 30 YEARS PLUS"

Further proof of their durability and weather-resistant qualities was brought to light recently when Johns-Manville inspected thousands of the very first J-M Asbestos Shingles ever applied. After more than 30 years of exposure, these shingles were found to be in excellent condition! Because of this record, Johns-Manville refers to them as the shingles that are "built to last 30 years plus"—a deliberate understatement, since even the oldest of these fireproof, rotproof shingles are still good for many more years of service.

If you are looking for the roofing material that will give you the best all-round protection for your farm buildings, Johns-Manville recommends the asbestos shingle. Your original investment will be only slightly higher and this is more than offset by the extra years of service you will get and the fact that a roof of these durable shingles will still be on the job long after a roof of less durable materials would have succumbed to the attacks of weather. Recently a new development has greatly simplified the application of asbestos shingles and brought their applied cost lower than it has ever been before. The interesting story of this new development—the American Colonial Asbestos Shingle—is told on the following pages.

Read these statements about the protection afforded by J-M Asbestos Shingles

FIREPROOF!

Some years ago in a Long Island Community, fire destroyed 16 blocks of residences. Burning embers falling on inflammable roofs spread the conflagration. On one street, five houses were almost entirely destroyed. In the center of the group stood a house undamaged and unscarred. It was protected by fireproof Asbestos shingles.

TIME-PROOF!

J-M Asbestos Shingles were applied on a building in Meriden, Connecticut in 1908. In 1939, this building was razed and a new one erected. The original asbestos shingles were salvaged and used on the new building. After 30 years they were still in excellent condition.

WIND-PROOF!

A farm house with a J-M Asbestos roof stands on a hill outside of Leominster, Mass. In September 1938 it was directly in the path of the New England hurricane. Other nearby buildings suffered severe damage but the roof of this house came through without the loss of one Asbestos shingle.

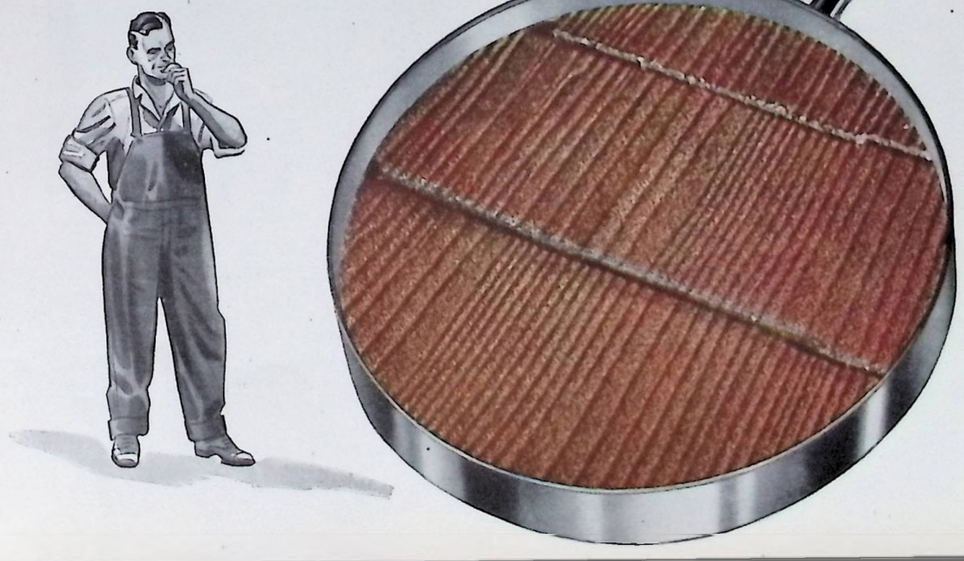
Presenting the Johns-Manville

AMERICAN COLONIAL ASBESTOS SHINGLE

For more than three decades, much of the ingenuity, scientific skill and research ability of the Johns-Manville roofing laboratories have been focused on one objective—a lasting, beautiful roof at a price every farmer could afford. With the development of the American Colonial Asbestos Shingle, this objective has been reached.

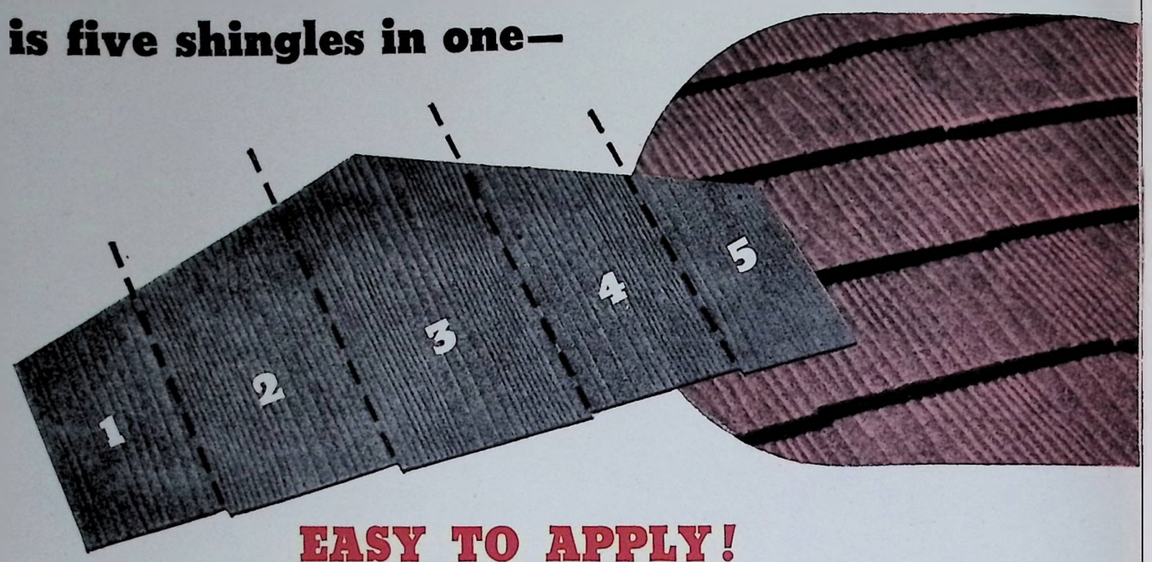
This new roofing shingle retains all the time-tested advantages—the long-term fire and weather protection, the freedom from costly maintenance—for which all Johns-Manville Asbestos Shingles are well known. But it combines with these desirable qualities a beauty of texture and color which, up to now, has never been obtainable in a fabricated shingle at a price so low. Here is the deep graining of fine old weathered wood . . . the soft color tones that blend naturally with sidewalls and look well in any surroundings. Here, too, is a shingle with a true "American method" appearance . . . the simple, dignified lines which harmonize so well with the architecture of American farm buildings.

And this new shingle possesses another important feature which makes it particularly adaptable for use on farm buildings. That feature is ease and economy of application. (See next two pages)



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The American Colonial Asbestos Shingle is five shingles in one—

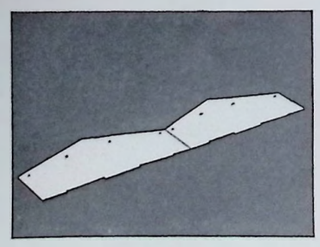


EASY TO APPLY!

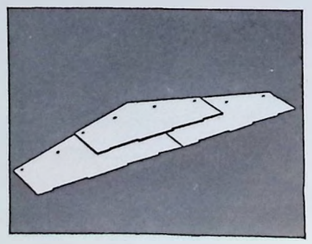
Heretofore, asbestos shingles have always been made as *individual* shingles, which, naturally, had to be applied one at a time. The J-M American Colonial Shingle, on the other hand, is fabricated as a strip shingle which covers in a single operation as much area as five ordinary shingles. It is so simple and economical to apply that any carpenter can lay up a roof with these shingles as quickly and easily as with asphalt strip shingles.

Thanks to these application economies, and to further savings due to modern mass production methods, Johns-Manville is now able to offer a roof of textured asbestos shingles of American method appearance at the lowest price in its history!

Low in first cost, easy to apply, fireproof, and "built to last 30 years plus," these beautiful American Colonial asbestos shingles are the logical choice for farm building of all types. Johns-Manville recommends them for use on farm homes as well as on dairy barns, granaries, machine sheds, storage buildings, multiple poultry houses, hog houses and other farm buildings where lasting, low-cost protection against fire and weather is desired. They are equally practical for use on new buildings or for re-roofing an existing structure. And once applied, a roof of American Colonials requires no periodic upkeep—no expensive repairs. It is an investment in protection that will endure as long as the building itself stands.



1. Applied like any strip shingle—The diagram above illustrates Step No. 1 in applying American Colonial Shingles on a roof. Note that only four nails are required for fastening and that each shingle is automatically lined up with the one next to it when the ends are placed together.



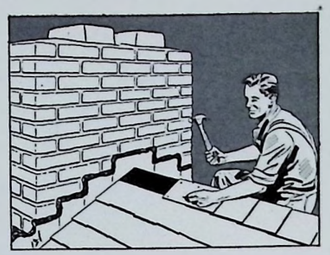
2. Self-spacing feature saves time—This diagram illustrates how the self-aligning principle simplifies application after the first course of shingles has been laid. The second course shingles are lined up by placing the shoulders over the points of the shingles on the preceding course.



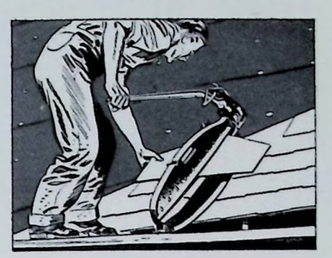
3. Can be laid up blindfolded—Anyone who is familiar with laying roof shingles can actually apply American Colonials blindfolded, so simple are these self-aligning J-M Asbestos Shingles to apply. No chalk lines are necessary, no delays in measuring each course.



4. Easy to handle—Packed in bundles that weigh about the same as asphalt strips, American Colonials are easily handled on the job. Yet because they are strong, rigid strips of asbestos and cement, they will withstand rough handling during application.



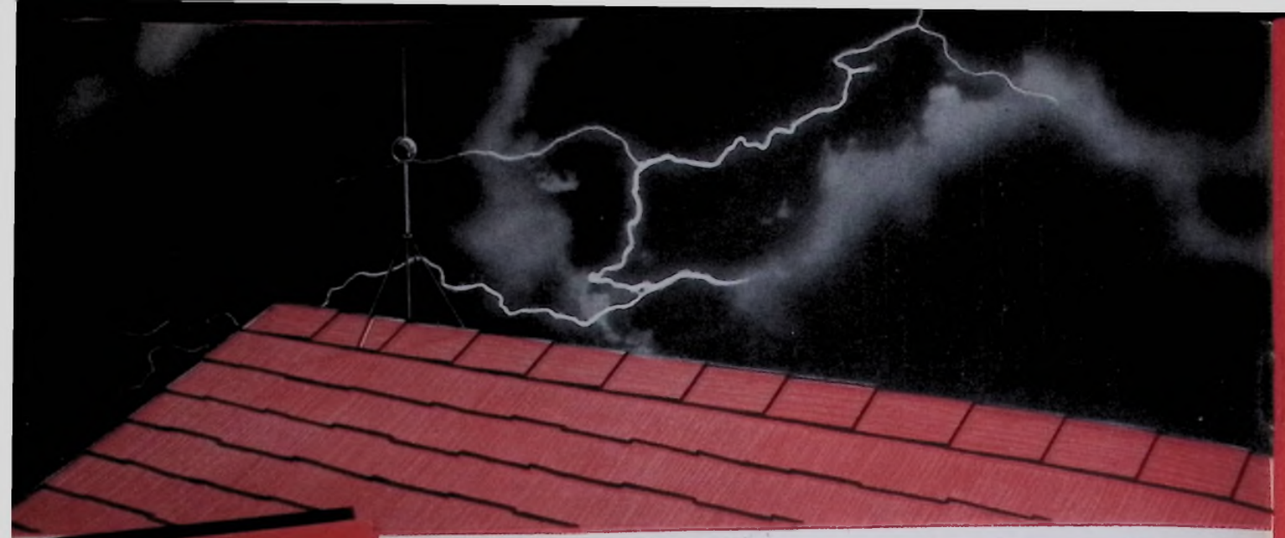
5. Easily applied on ridges—Special American Colonial Ridge and Hip Shingles are supplied in exactly the same texture and color as the main roof shingles. The nail-holes are punched at the factory and they are nailed in place as easily as any other ridge shingle.

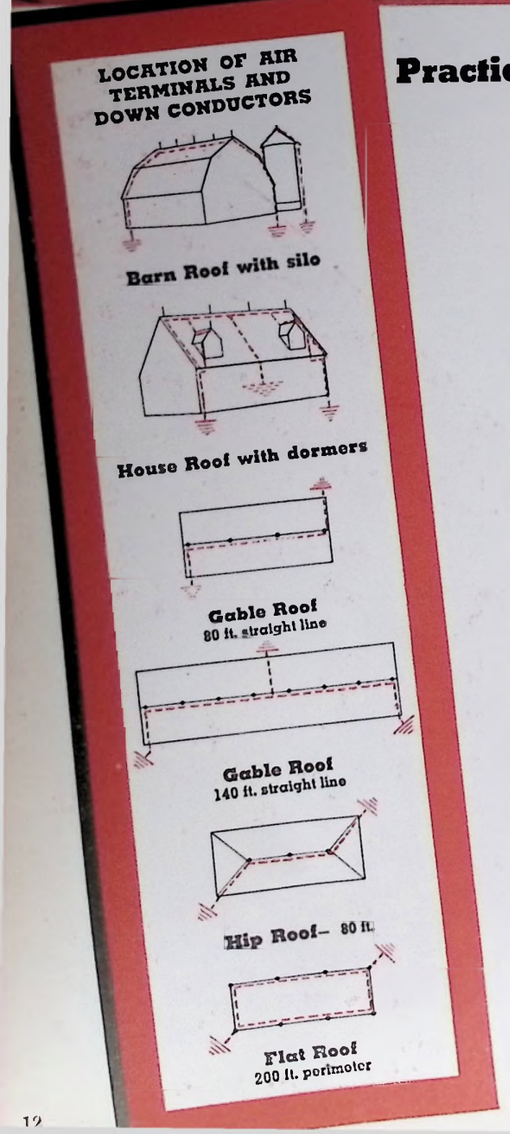


6. Readily cut on the job—When it is necessary to cut the shingles at the end of a row, or to fit around valleys, dormers, etc., a shingle cutter (available from your J-M Dealer) does the job in a clean, quick, manner. Cutting may be done right on the roof.



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Practical suggestions for lightning protection

It seems as if nature, in many cases actually conspires against the farmer and his buildings from the standpoint of adding to the many causes of fire. One of the most serious natural causes of fire is the ever-present danger of lightning striking one of the buildings with the resulting hazard of the fire thus caused being communicated to other buildings.

The National Board of Fire Underwriters does not consider metal or metal parts of a structure as being a substitute for an adequate lightning conductor system. Lightning conductor systems are required on all rodded farm buildings, regardless of the material of which they are constructed.

The air terminals, or rods, should be placed at, or within, two feet of the ends of the ridges, gables and prominent dormers. Terminals 10 to 30 inches in height should be spaced not over 20 feet apart, and in addition they should be placed so that no corner of a chimney is more than two feet from a terminal.

Two down conductors with independent ground connections, preferably at diagonally opposite corners, are required for the average farm building. If the building is over 80 feet in length and is rectangular in shape, and has either a straight gable, round gambrel or hip roof, an additional conductor is necessary for every additional 60 feet of ridge length.

If the building is square, with a flat or hip roof, the number of down conductors is based on the total number of linear feet around the base of the building (the perimeter).

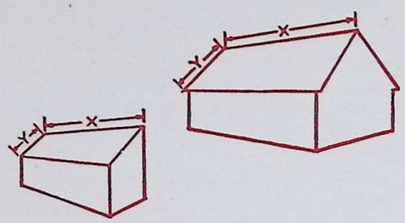
If the building is "ell" or "tee" shaped, install conductors on the main portion as if it were an independent building and then furnish additional conductors for the wings—one for each 60 feet of ridge length or less. These wing conductors should be connected to the conductor on the main portion of the building.

Proper ground connections are important to the effectiveness of a lightning-conductor system. If the soil is normally moist, the conductor should be extended into the ground to a depth of 10 feet. In moist, sandy or gravel soils, the conductor should be run from the building into a trench three feet deep. In relatively dry sand or gravel, two electrodes spaced six feet apart should be driven ten feet below grade.

Proper lightning protection should be an important consideration to every farmer when building new structures or remodeling an existing building.

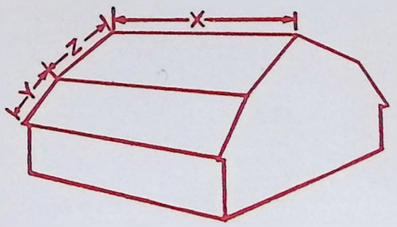
How to figure roof areas for various types of buildings

Here is a simple method of measuring the roof area of any building on your farm to determine the amount of roofing material necessary



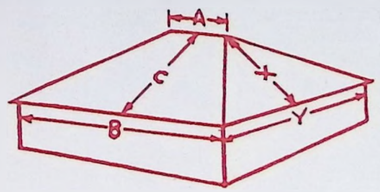
SHED AND GABLE ROOFS

Because of the similarity of these two types of roofs, the method of calculating the roof areas is the same. The length of the roof indicated by "X" is multiplied by the length of the rafter indicated by "Y", to arrive at the roof area of the Shed Type. For the Gable roof, multiply the length of "X" by "Y" and then multiply the total by two to determine the number of square feet of gable roof. To find the number of squares of roofing needed, whether roll roofing, asphalt or asbestos shingles, divide the total roof area by 100. (A square of roofing is 10′ x 10′).



GAMBREL ROOFS

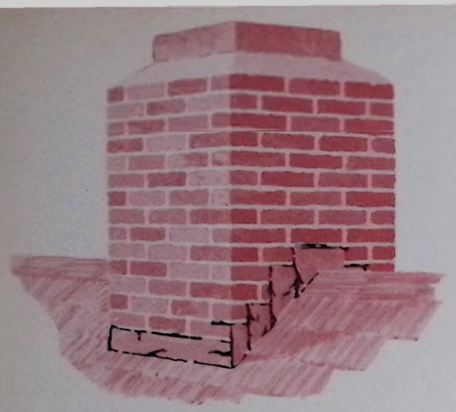
In figuring the roof area of the Gambrel roof, it is only necessary to add the lengths of the line marked "Y" to the length of "Z" to arrive at the rafter figure. Then multiply the sum of these two by the length of the roof indicated on the diagram as "X". This represents the area of one side of the roof. Double this figure to determine the entire roof area. Then divide by 100 to find the number of squares of roofing material needed, whether roll roofing or asbestos or asphalt shingles.



HIP ROOFS

The Hip type roof requires some additional measurements because of the four-way contour of this design. Add the length of the ridge marked "A" to the length of the eave "B" and divide by two. Multiply this sum by the height marked "C". Then measure the height of the triangle side "X" and multiply this by the length of the short eave "Y". Divide the result of this by two. Add the two answers and multiply by two to get total roof area—(four sides). Here again divide by 100 to find the number of squares of either roll or asbestos or asphalt shingle roofing needed to cover the total area.

Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 7 of 33
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Some things you should know about flashings . . . the critical part of every roof

It is comparatively easy to lay a tight roof. But to build a tight flashing at the angle between the roof and the chimney, or any other vertical surface, is a different matter. This is also true of valleys and gutters. In fact, it is generally recognized that the flashings are the critical parts of a roof. It is therefore well to check these vitally important places regularly, even if you are satisfied that the roof itself is in sound condition.

If there is a leak in the roof, it is particularly important to examine the flashings *even if the leak doesn't seem to be near them.* Water that seeps through a weak flashing has a way of spreading out and showing a damp spot on a ceiling or wall quite some distance away.

When examining the flashings on your roof, you will have a better idea of what to look for and how to detect weak spots if you understand the principles of good flashing construction as given on this page.

Flashing Materials—Sheet metal, particularly copper or zinc, is the preferred flashing material and it should be heavy enough to withstand corrosion under normal local conditions. Sixteen ounce copper is generally considered satisfactory except near industrial areas where 20 oz. copper should be used. Flashings should be carefully planned before cutting the material.

Chimney Flashing—Figure 1 shows the approved method of protecting the angle between the roof deck and a brick chimney. It consists of a base flashing of sheet metal installed in units, one to each course of shingles, the successive units overlapping each other as illustrated. This base flashing extends out under the shingles from 4 to 6 inches and up the side of the chimney enough to permit overlapping by the counter flashing at least 4 inches. The counter flashing is also of sheet metal. It is built into the courses in the brick-work while the chimney is being constructed. When flashing an existing chimney, the counter flashing should be inserted 1 inch into the mortar joint and wedged in place with lead or strip metal wedges. Afterwards, the mortar joints should be pointed up with caulking putty. A flashing built in the above manner gives excellent protection, because any rain water which seeps under the shingles which butt against the chimney is automatically diverted out on top of the roof shingles instead of under them.



Figure 1

Valleys—The use of sheet metal for valleys is preferable but when not available a good grade of smooth-surfaced asphalt roofing applied in two plies will give good service. Also the open type of valley, wider at the bottom than at the top, is desirable. This taper helps drain water and reduces trouble from ice and snow. When metal is used the edges of the valley lining should be turned ½ inch to form a water stop and secured with metal cleats 10 inches apart. (See Figure 2.) Metal flashing should be wide enough to extend at least 4 inches under the roof covering. Because sheet metal expands and contracts, never allow the nails which fasten the shingles to pierce the valley. When re-roofing over old shingles, fill the old valleys with wood strips of sufficient thickness to bring the valley surface flush with the old roof. Then proceed as described above.

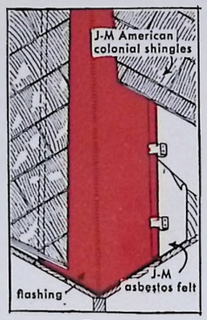


Figure 2

When roll roofing is used, cut a 36″ wide roll into 2 strips, 12″ wide and 24″ wide. Apply the 12″ strip first, then the 24″ width on top of it—with a generous application of roof putty between the plies.

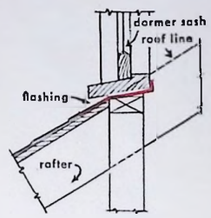


Figure 3

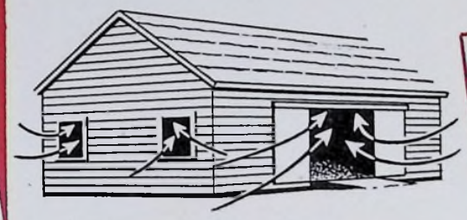
Dormer Window Flashing—Best protection is obtained by installing a copper pan extending 4 inches down on the shingles and at least 1 inch up the back of the window stool. (See Figure 3.) Carry the metal 2 inches up the fronts and sides of the studs that form the sides of the openings.

Some Rules for Proper Roof Maintenance

It pays to keep an eye on a roof. Look it over occasionally to spot possible points of trouble and correct them before the damage progresses to the point where it may be difficult or expensive to repair. Watch for things like this:



1. Mortar may loosen and fall out of place on chimneys and other masonry work, thereby permitting infiltration of rain which you may think is due to a leaky roof. Keep the brickwork in good condition.



2. Particularly keep an eye on roofs during wind storms to observe action under the force of the wind in order to spot potential weak spots or breaks. On buildings where the roof boards have shrunk due to summer heat, leaving spaces between the boards, you can often watch the effect of gusts of wind blowing in an open door and on up through the cracks in the roof boards, lifting the roofing up and down with every gust of wind. Of course, every such lift is a pull at the nails and is bound to cause trouble, particularly along the eaves and ridge if allowed to continue. The most immediate correction is to keep doors and window openings closed in such weather and in severe cases it may be necessary to line the underside of the roof because no roofing can be expected to last unless applied over a reasonably tight deck.



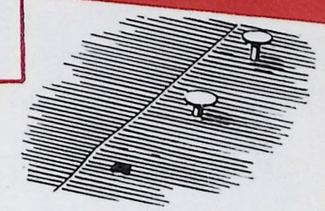
3. Leader outlets and valleys should be kept free from dirt, leaves and other refuse so that water does not back up under shingles. In some severe climates melting snow may freeze and cause water to back up under shingles so that at times it may be desirable to remove such accumulations, but be careful you don't damage the roof in so doing.



4. Keep metal flashings and valleys in good condition by painting with lead and oil paints or Asphalt Roof Coatings. Any suspicious spots in flashings can easily be taken care of by troweling on a layer of Asbestos Roof Putty.



5. The life of Smooth Surfaced Roofing can be considerably increased by an application of roof coating about every four or five years. However, if the felts are badly dried out or rotted, no roof coating can accomplish the desired result of putting new life into them.

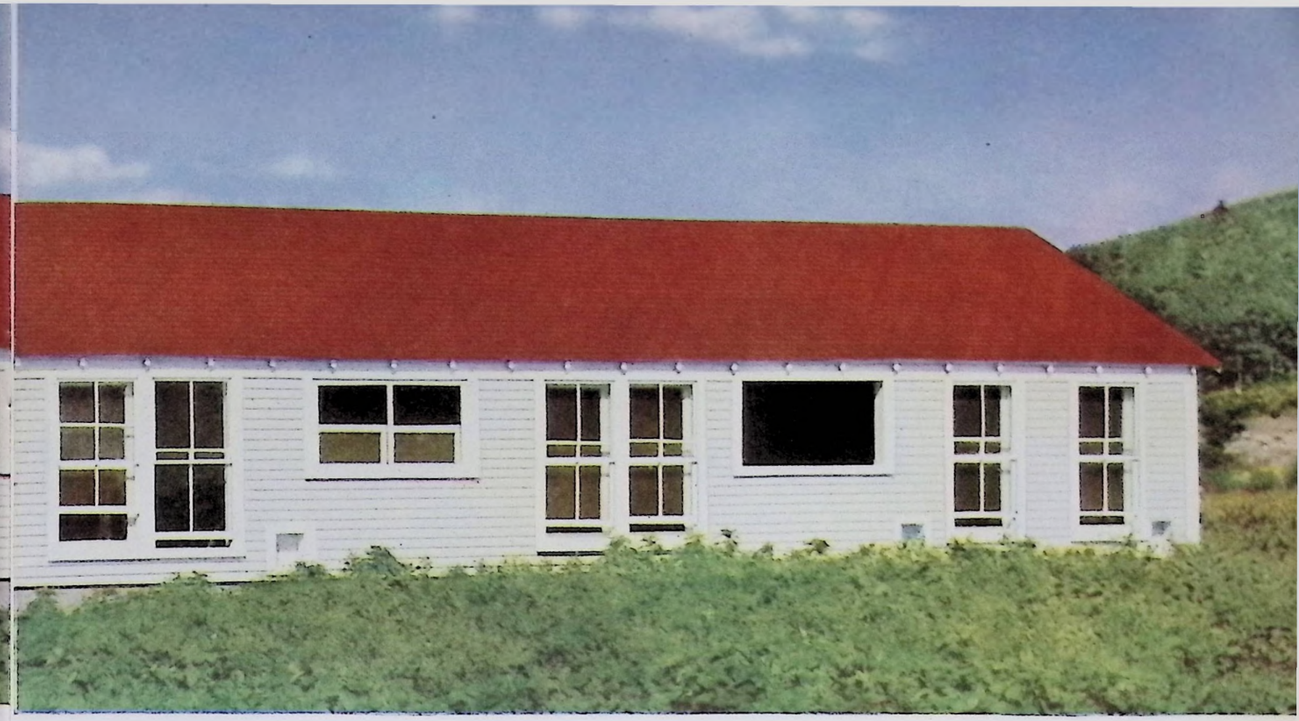


6. Check Roll Roofings secured by exposed nailing to see that such nails have not worked loose, been drawn by the sun, etc. Renail where necessary and if any holes are left because of removal of the original nails, fill with Roof Putty.

Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 8 of 33
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The Expert tells what you should know about Asphalt Shingles

Every year more asphalt shingles are used than any other type of roof shingle. The advantages which have made this shingle the most popular of all roofing shingles are: it is low in cost; it has proved, through performance, that it will provide many years of satisfactory service; it is fire resistant; and it offers a wide selection of colorful patterns.

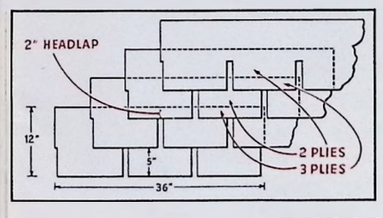
The basic elements of an asphalt shingle are as follows: a roofing felt is first saturated with asphalt, one of the most important moisture resisting agents known. It is then given a special coating of asphalt into which mineral granules available in a variety of colors are embedded. These granules, when thoroughly embedded in the thick asphalt coating, form a wearing surface which successfully resists the action of rain, wind and sun. Naturally, the length of service of the shingles is greatly dependent upon the weight of the roofing felt, the thickness and quality of the protective coating of asphalt, and the type of granules used on the wearing surface.

The average layman cannot judge quality by merely looking at a shingle, for the ingredients that decide its quality are not visible to the eye. Such things as the way the felt is made; its strength and the absorption of the asphalt saturant; the proper refining of the asphalt; the excellence of the mineral filler used in making the coating; all can be determined only by the most meticulous laboratory testing. Manufacturers like Johns-Manville make their own felt and refine their own asphalt to rigid laboratory requirements. Furthermore, they use ceramic granules for lasting color, selecting only those with an opaque center which prevents the sun's rays from passing through and damaging the asphalt coating underneath.

For the reasons stated above, we believe that the best safeguard to guide the purchase of asphalt shingles is to make sure that they bear the name of a manufacturer with a nation-wide reputation for quality merchandise.

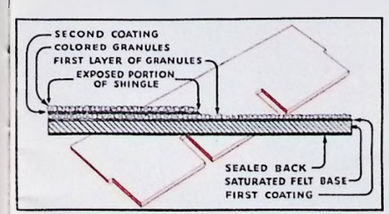
AMOUNT OF HEADLAP IMPORTANT

Be sure the shingle you select has a good headlap. By headlap we mean the amount a shingle overlaps the one in the course below. For instance, in a 12" strip shingle, there is a headlap of 2" beyond the top of the cut-out. (See diagram.) This is good protection. Note also that this shingle provides a minimum of two layers at all points except the cut-out notch. Some asphalt shingles are so designed that when laid a large percent of the roof area has only a single ply of protection. Shingles designed to give a double ply of roof protection are more economical in the long run.



DOUBLE COATED THICK BUTT SHINGLES

These shingles fulfill all the requirements of a good shingle as described above, plus a clever distribution of asphalt coating to give better protection. Instead of one uniform thick layer of asphalt coating, these shingles have two layers — are double coated. (See Diagram.) First, one layer of coating is applied and surfaced with fine granules. Then the shingle is given another layer of coating, along and slightly beyond the exposed butts, after which the final granule surfacing is applied. Thus we have a double coated shingle with extra thickness on the exposed butts to provide better protection and appearance at no increase in cost.



A good roof is a combination of quality materials and good workmanship

While any carpenter can easily apply asphalt shingles, it is important that he carefully follow the directions which are packed with the shingles. Before the job is started, however, and in some cases before you even buy the shingles, the following general information should be considered:

1. Use asphalt shingles only on a roof that has a roof pitch at least four inches to the foot. A lower pitch is dangerous because it may permit wind to force rain up under the courses and beyond the headlap.

2. If the building is new, be sure roof boards are dry, well seasoned, narrow in width and preferably tongued and grooved. Green lumber is apt to shrink and buckle the shingles.

3. If it is an old roof, replace decayed and missing shingles and secure loose ones. Split curled butts and nail flat. If necessary, level out old roof deck with beveled wood strips.

4. Line all valleys with non-rusting sheet-metal or two thicknesses of heavyweight roll roofing before applying shingles.

5. For securing the new shingles, buy galvanized flat headed nails of sufficient length to be driven into the roof boarding approximately one inch. Nails for re-roofing over old shingles must be longer than those for new work. Failure to properly secure shingles may permit wind to loosen them and cause damage. Therefore, be sure to use recommended number of nails and locate them as directed. For instance, on a 12" Thick Butt Strip always apply nails in the thick butt portion as shown.

Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 9 of 33
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Helping you select the proper roll roofings



Asphalt Roll Roofing is probably the most popular roof covering used for small farm buildings for the very good reason that it offers excellent value and utility per dollar of cost. Simple and easy to apply, fire resistant to a high degree, it also provides most inexpensive weather protection. There are numerous grades of this product, however, and like most everything else, the value you receive is in proportion to the price you pay.

SMOOTH SURFACED ROOFING

This type is made by all manufacturers in several weights such as 35, 45, 55 and 65 lbs. per square of 100 square feet. Also, each weight is often made in two or more qualities such as J-M Pilot Roofing and J-M Planet Roofing. Here's the difference between two rolls of the same weight. Both are made in the same way of the same basic raw materials, but the felt base of Pilot Roofing, the better grade, is thicker and stronger than in the Planet grade. Likewise, in Pilot Roofing the outer coating of asphalt is not as thick as on the Planet, hence it is more flexible and will not crack as easily. For these reasons Pilot roofing will last longer in service, will not tear as easily in a high wind and offers better fire protection. Naturally, the Pilot roofing costs more than Planet because it contains a higher proportion of felt which costs more than asphalt, but it provides service on the roof far beyond its additional cost. Therefore, we recommend J-M Pilot roofing for your more permanent structures. For temporary buildings or where first cost is of prime importance, Planet roofing will give good service.



COLORFUL, MINERAL-SURFACED ROOFING

In many cases, particularly on homes, a bright colorful roofing is desired. In such cases, we recommend J-M Slatekote, a roll roofing surfaced with colorful mineral granules which in addition to providing color also serve to protect the asphalt coating from the sun's rays. When properly applied, J-M Slatekote Roofing will give many years of trouble-free service.



IT PAYS TO BUY GOOD ROOFING AND APPLY IT PROPERLY

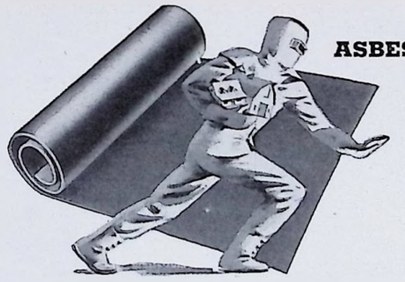
The actual measure of the cost of roofing is its cost per year of service, i.e. cost of material, plus cost of application, divided by years of use. Obviously, it costs just as much to apply a cheap, short-lived piece of goods as one that will last twice as long. Therefore, good roofing is economical on all the more permanent buildings. J-M asphalt roofings are manufactured completely in J-M factories, utilizing the best of materials and methods. Instead of buying a ready-made felt base, Johns-Manville produces its own to meet rigid standards of quality. Instead of buying ready-to-use asphalt saturant and coating, J-M refines these in its own stills at each plant according to J-M standards. Consequently, the entire production is under constant laboratory control from start to finish with the benefit of J-M's years of experience in the roofing business.

Always remember that good application is as important as buying good roofing. Before starting any job, carefully read the direction sheet packed in the roll.

A FEW DON'TS

- ✗ Don't apply Roll Roofing unless the pitch of the roof is at least 4" in 12".
- ✗ Don't skimp on the 2" headlap or 4" sidelap.
- ✗ Don't skimp on lap cement.
- ✗ Don't fail to drive nails as shown in the direction sheets which are packed in the rolls.
- ✗ Don't try to handle a full 36' roll on the roof. Cut it into 12' lengths on the ground, let it stretch and flatten out for a day—then re-roll and carry up on the roof.

Also remember you can increase the life of any smooth-surfaced roofing by painting every few years with a good roof coating such as J-M Regal or J-M Fibrous Enamel.



ASBESTOS ROLL ROOFING

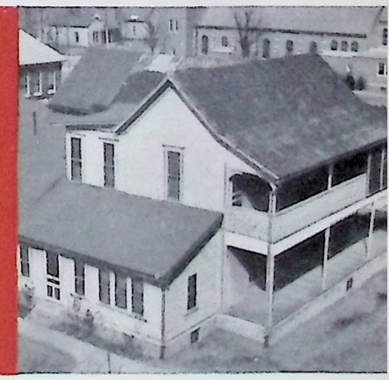
This is, of course, the most permanent type of roll roofing you can buy because it is made on a felt of mineral asbestos fibres which will not rot or decay. Furthermore, they are fireproof. The asbestos felt is impregnated with a special waterproofing asphalt and this is protected from the drying-out action of the sun's rays by the asbestos fibres themselves which form a protective covering of stone. When, in time, the outer asphalt wears off, it leaves a pleasing gray surface of asbestos felt. But underneath, there will still be live, black asphalt.

SEVERAL STYLES AND WEIGHTS TO CHOOSE FROM

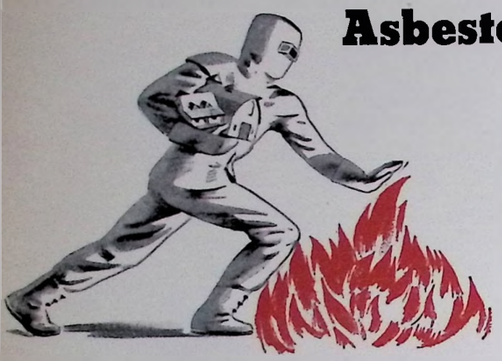
The Johns-Manville line of asbestos roofings include several different styles and weights for various purposes. One of the best of these for use on the farm is J-M White Top Roofing. This consists of several plies of asphalt-impregnated *asbestos* felt, cemented together with asphalt and having a top ply of white, unimpregnated *asbestos* felt. In addition to its long life and fireproof qualities, it provides a surface that reflects light and thus helps reduce interior temperatures in hot weather.

40 YEARS OF SERVICE ON A ROOF!

The building shown at right is the Nurses Home for St. Bernard's Hospital at Jonesboro, Arkansas. The roof is J-M asbestos White Top Roofing and was applied in 1902. Picture was taken in 1942. The owners write — "The original White Top Roofing is still in service. Our expense in the maintenance of this roof has been very, very low."



Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 10 of 33
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Asbestos Siding Shingles — a new development for the farm

IMPROVED APPEARANCE—REDUCED UPKEEP EXPENSE—FIREPROOF

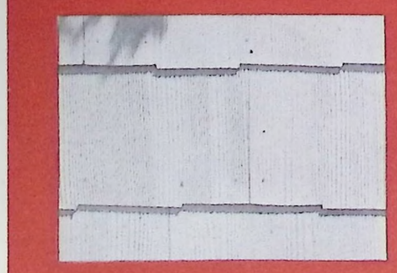
One of the most important recent developments in the field of farm building materials is that of the asbestos siding shingle. Introduced only a few short years ago, it has met with widespread approval by the American farmer, who has been quick to see and appreciate its advantages from the standpoint of economy and freedom from upkeep expense.

Like its companion product, the asbestos roofing shingle (described on pages 6 and 7), the asbestos siding shingle is fabricated of two highly durable materials—asbestos and cement. Like the asbestos roofing shingle, it is both fireproof and rotproof. But unlike ordinary siding materials, it needs no preservative treatment to safeguard it from exposure to the weather. This "protective maintenance," which represents so large a portion of the average farmer's outlay for the upkeep of his buildings, becomes a negligible consideration when asbestos siding shingles are used. Once applied, they require practically no attention for the life of the building!

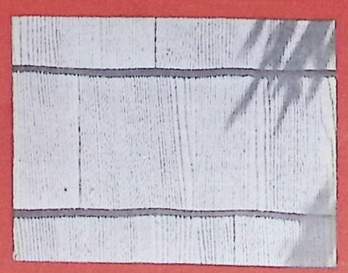
Asbestos siding shingles as made by Johns-Manville are adaptable for use on practically any type of farm building—new or old. Easy to lay up, they can be applied by anyone familiar with the application of ordinary siding shingles. On existing buildings they are applied right over the old shingles or clapboards.

And if you are one of those who take pride in your buildings, you will find a source of real satisfaction in the appearance of these durable, fireproof asbestos siding shingles. Possessing an interesting surface texture which duplicates the graining of natural wood, they completely transform the appearance of any building on which they are applied. They are available in two colors—gray and white.

Whether you have a barn, a machine shed or some other structure that needs new siding or are planning an addition to one of your buildings to provide additional space for stock or equipment, you would do well to consider Johns-Manville Asbestos Siding Shingles for the job. They are low in cost, easy to apply, attractive in appearance and their fireproof, rotproof qualities assure complete protection for the exterior of every farm building. And it is protection which extends the owner's pocketbook too, for these lasting shingles will not require one cent for maintenance for many years to come.



J-M Asbestos Siding Shingles in Cedar-grain Texture, giving the effect of weathered wood. Note the charm of the staggered edges.



J-M Asbestos Siding Shingles with wavy shadow lines, and Cedargrain texture reproduces the beauty of sawed wood shingles.

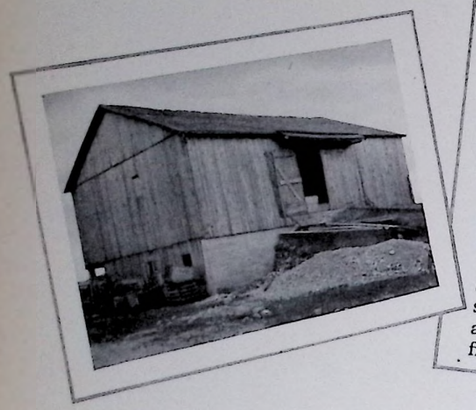


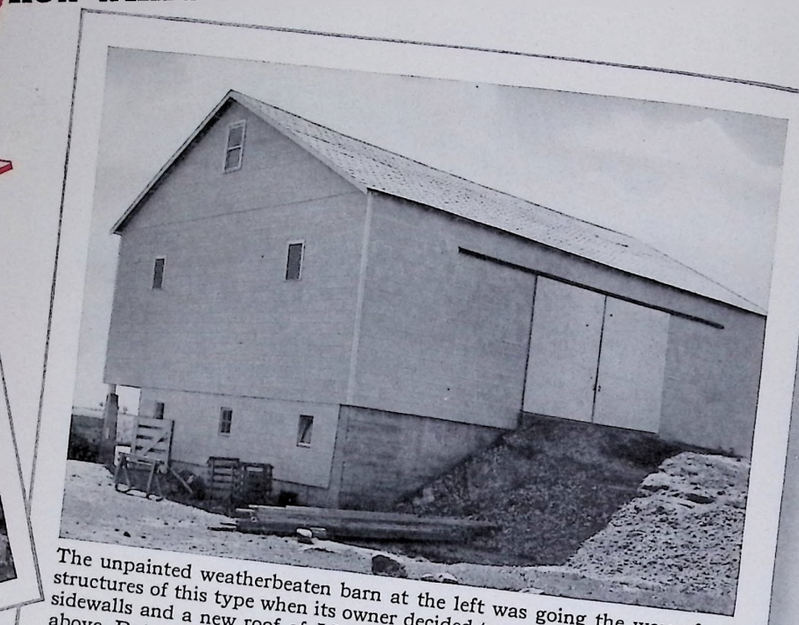
Another interesting development in J-M Asbestos Siding Shingles is the Cedar-grain textured shingle with the straight edge for architectural simplicity.



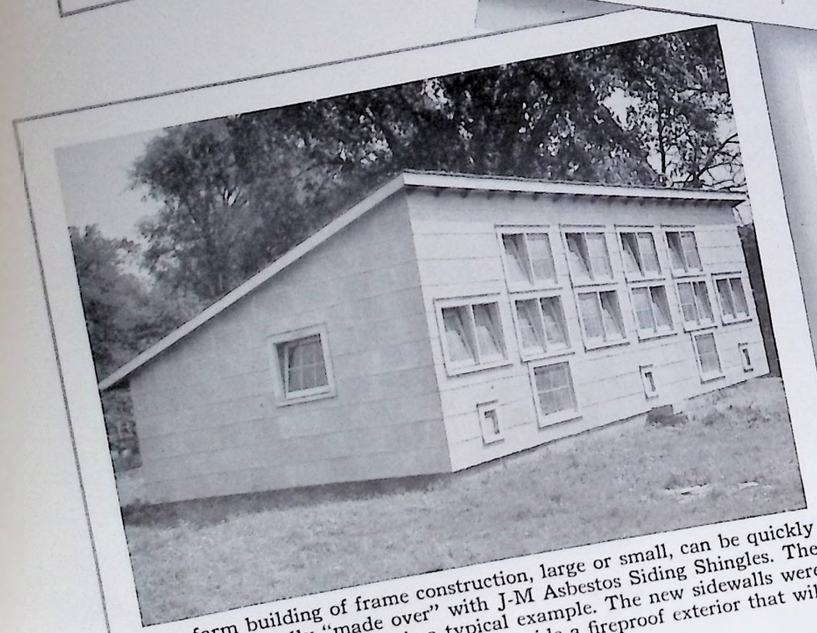
The camera tells the story of how old farm buildings are made like new with J-M Asbestos Siding Shingles





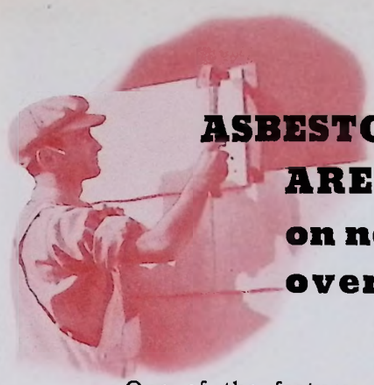


The unpainted weatherbeaten barn at the left was going the way of all structures of this type when its owner decided to save it by applying new sidewalls and a new roof of J-M Asbestos Shingles. The result is shown above. Rot and decay cannot attack it now—and it is free from exterior fire hazards as well.



Any farm building of frame construction, large or small, can be quickly and economically "made over" with J-M Asbestos Siding Shingles. The poultry house shown here is a typical example. The new sidewalls were applied right over the old siding to provide a fireproof exterior that will never need preservative treatment.





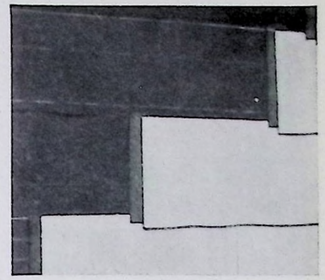
ASBESTOS SIDING SHINGLES ARE EASY TO APPLY—on new buildings or right over the old sidewalls

One of the features of Johns-Manville Asbestos Siding Shingles which makes them so practical and economical for farm use is the ease with which they are applied. No special skill or equipment is necessary—anyone familiar with the application of ordinary building materials can do the job. On an existing frame building, they are nailed directly over the old siding, as shown in the illustration above. On new construction, they are applied over wood sheathing in the same manner as wood shingles. In either case, a waterproof felt backer strip furnished with the shingles is used to protect against the infiltration of water or moisture at the vertical joints. Johns-Manville also recommends the use of J-M 15 lb. Asphalt Saturated Felt as a lining between the shingles and the sheathing or old siding to provide additional protection and reduce wind infiltration. (See photo, upper right.)

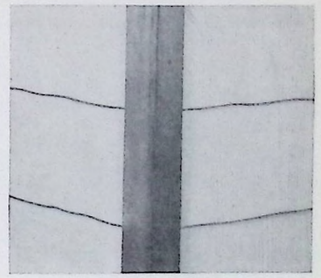


This modern dairy barn is protected against exterior fire hazards and insured against costly maintenance expense with Johns-Manville Asbestos Shingles applied on both the sidewalls and the roof.

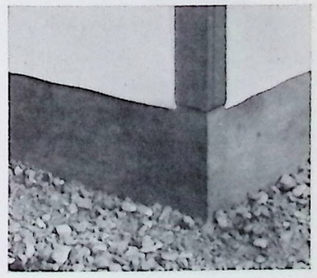
Some helpful hints on the application of J-M Asbestos Siding Shingles



Where it is important that a weather-tight job be obtained, it is recommended that a layer of asphalt felt be applied between the shingles and the wood sheathing or old sidewalls, as shown above.



The use of corner boards gives a finished appearance to the job and also protects the shingles against possible damage from wagon or tractor wheels. The boards should be painted to match the remaining trim.



A layer of gravel spread next to the foundation prevents rain from spattering and staining the sidewalls. This is especially important in sections where the soil is very red or black.





The Agricultural Engineer

discusses the importance of ventilation and insulation for farm buildings

Practical farmers agree that adequate housing of animals and proper storage of produce are necessary for a profitable operation. Production of hogs, stock and poultry as well as yields from dairying are greater when animals are given better care and attention. Fruits and vegetables, too, return more money when they can be carried over from the harvest seasons in proper buildings. It is during the off seasons that this produce returns bigger profits.

Adequate housing and proper storage in most areas mean temperature control within the structure, as well as keeping out rain, sleet and snow. Sudden changes of temperature or wide fluctuations of temperature, reduce production, and in the case of cold, increase the feed bill as well.

During the past years insulations have been developed that help control these conditions when properly used in conjunction with a reliable ventilating system. It is the insulating material that controls temperature, and the ventilating system that changes the air as required within the building, keeping interior moisture conditions under control.

It is just as poor economy to insulate without providing adequate ventilation as to ventilate without proper insulation.

If the natural draft type of flue ventilation is depended upon for changing the air, this type of system will not work without the aid of insulation. First the flues themselves should be insulated and along with this the part of the building to be ventilated must be insulated, too. Even so, this type of system requires constant attention, to prevent leaks in the ventilating flues and to adjust the flue openings to meet the various conditions caused by the fluctuations of the weather.

With natural draft ventilation, most farmers find that it is a case of too much ventilation at one time and not enough at others. Proper insulation, however, can assist in balancing this condition.

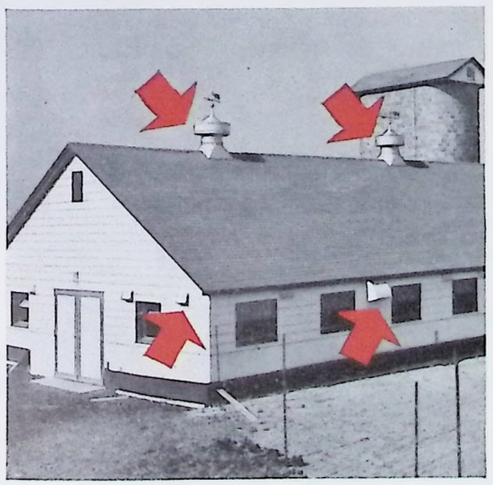
Where high line electric power is available, the most reliable system is an electric system. This can be set so that it will be controlled by temperature or humidity conditions, or by a combination of both. The system becomes automatic and assures closer control over the conditions that return maximum profits. But with the electric system, insulation is just as necessary as with the natural draft type.

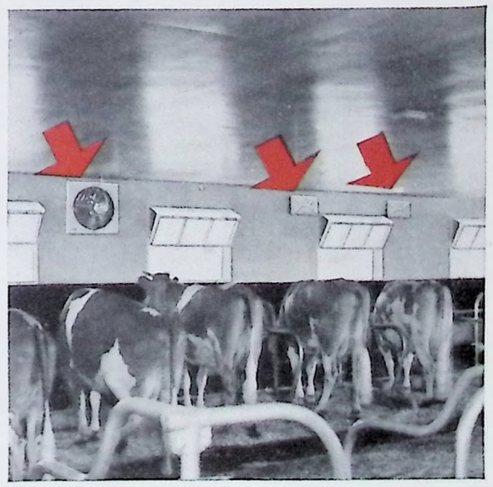
To insure the conditions that will return higher profits, study the zone map of the country (see pages 28 and 30); determine which zone you farm in and insulate and ventilate your buildings to conform to the requirements set up for insulation in that zone, as shown on the chart.

The United States Department of Agriculture suggests the *minimum* amount of insulation required for each zone. We have adapted those *minimum* requirements in terms of types and thicknesses of Johns-Manville insulations so that it will be easy for you to buy the right type and thickness of insulation for your zone.

Consult a reliable manufacturer of farm ventilating equipment when considering ventilation for your specific needs.

The arrows in the illustrations below show the location of the ventilating equipment on the exterior and interior of a typical barn.





Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 13 of 33
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What you should know about modern insulating materials

Rock Wool Insulation

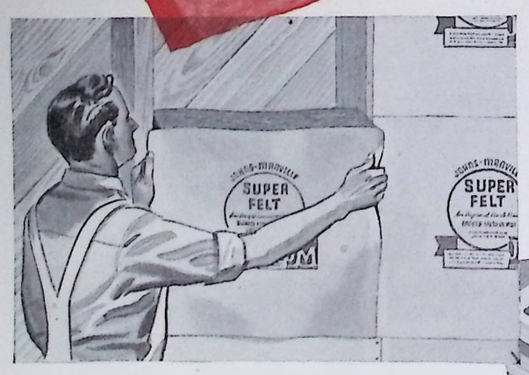


With the ever-increasing recognition on the part of the farmer of the value of improved shelter, insulation has assumed increased significance and importance in every phase of farm operation.

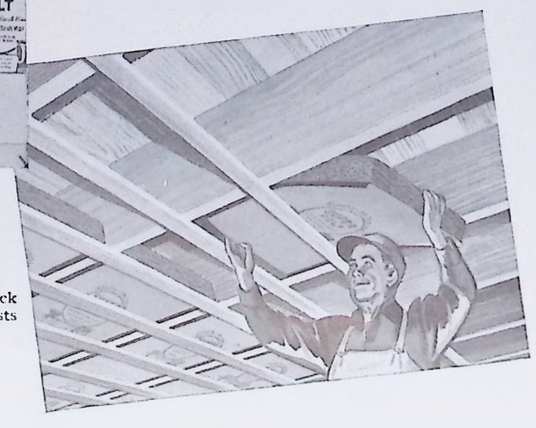
Since that is the case and since there are many kinds of insulating materials to meet various needs, it is well to consider the subject from the standpoint of which kind of insulation belongs where.

For the home, Rock Wool is one of the most efficient and economical insulating materials available. It comes in two forms. The J-M Superfelt Batt as illustrated at the left is intended for use in erecting new houses or in accessible open attic spaces. It is also excellent for use in the Dairy Barn, and many other farm buildings. For existing houses, J-M Rock Wool is available in a nodulated form so that it can be pneumatically "blown" under the attic floor and into the hollow spaces in the sidewalls. (See page 50.)

J-M Superfelt Rock Wool batts are easy to apply and large areas can be covered quickly and economically. The fluffy Rock Wool is felted into batts and cemented to a waterproof backing. This backing acts as a vapor seal and is flanged so that the batts can be easily and securely tacked between the framing members. These batts can be placed between the ceiling joists from underneath as illustrated, or from above. They can also be tacked between the roof rafters in ordinary rafter construction. Since these batts are pre-formed at the factory, correct width, thickness and density are assured and the danger of voids or thin spots is reduced to a minimum. Rock Wool Insulation in the home and in the larger farm buildings, offers maximum protection against extreme summer heat . . . keeps heat inside the building in winter and protects against extreme temperature changes winter and summer.



In this illustration, J-M Superfelt Rock Wool is shown being placed between the studs in the sidewall of a barn under construction.



This illustration shows how the full-width, full thick Superfelt Batts can be applied between the floor joists working from below.

Structural Insulation



Today, as a result of scientific research and development, Johns-Manville Insulating Board has become one of the most versatile and widely used of all structural building materials. In the different forms and styles in which it is furnished, this improved wood fibre board performs three major functions: it builds, it decorates and it insulates.

This and the following pages deal specifically with the advantages of Insulating Board in large sheets ½" thick by 4' wide in various lengths. In this form it is adaptable to an almost countless number of farm building uses. (For complete information regarding the practical and decorative uses of Insulating Board as an interior wall and ceiling finish in the home, see pages 44 and 45).

Because J-M Insulating Board is structurally strong, it can be used in place of wood for many purposes, yet it provides a greater measure of protection against heat and cold due to its excellent insulating qualities. Thus, by using J-M Insulating Board as a structural building material, desirable insulation is provided at no additional cost. When you build with Insulating Board you actually insulate as you build!

Another important use for Insulating Board is for sheathing in new construction. For this purpose, it is furnished with an asphalt coating in sheets 25/32" thick. Known as J-M Weathertite Sheathing, this product serves as a combination sheathing and insulation over which the exterior siding can be applied. Used in this way, it provides a great measure of protection against air penetration and insures a building which is wind and weather tight.

The complete line of J-M Insulating Board products has been tested through many years of actual farm use and provides a versatile type of material to fit many important building and remodeling needs on the modern farm.

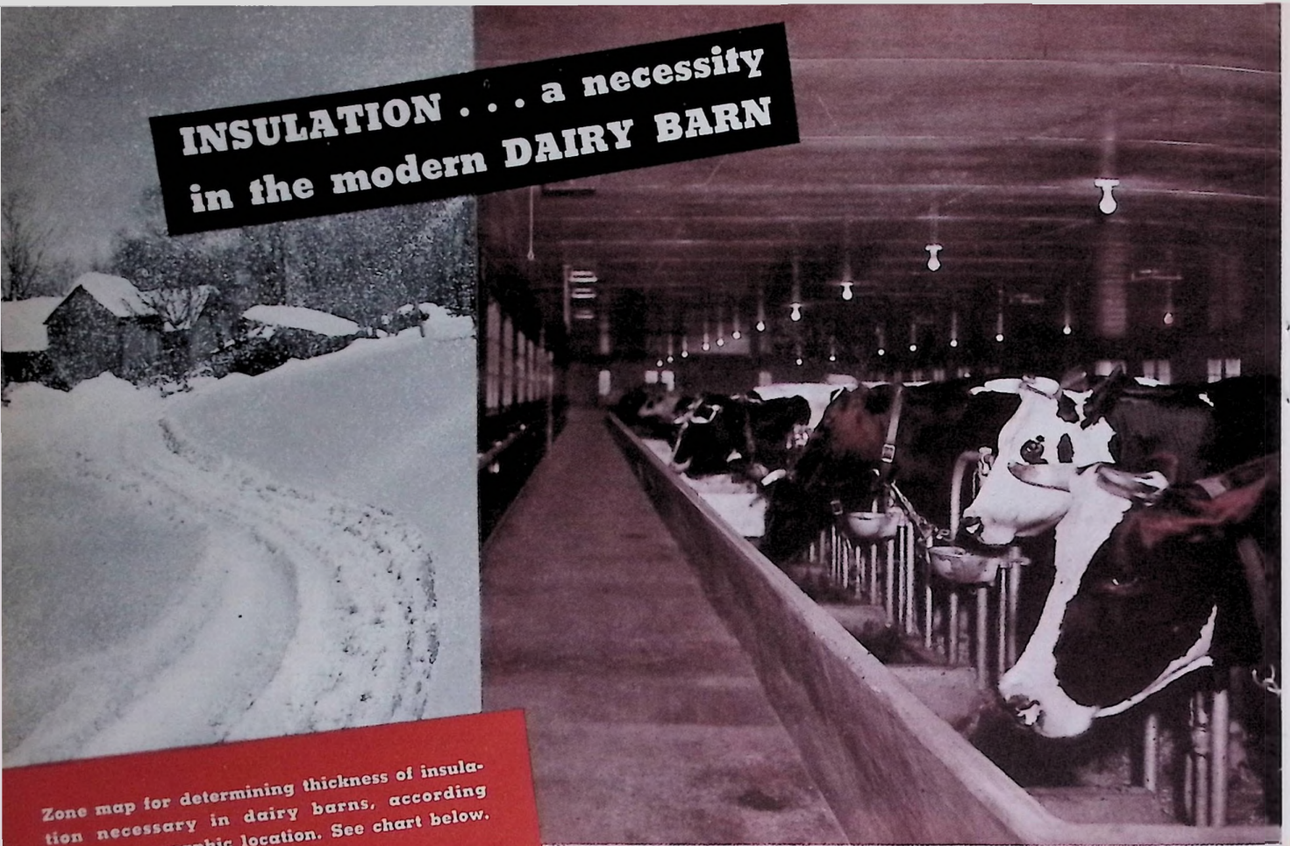
Applying J-M Insulating Board horizontally. The sheets are 4 feet wide and are available in 8, 9, 10, and 12 foot lengths.



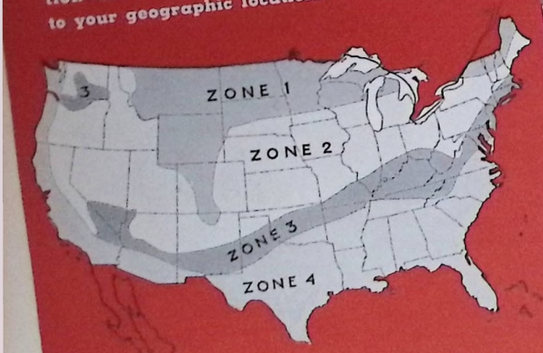
Applying J-M Weathertite Sheathing in 4 foot widths designed for vertical application. It is also available in 2' x 8' sheets for horizontal application. Both types have exceptional bracing strength.

Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 14 of 33
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INSULATION . . . a necessity in the modern DAIRY BARN



Zone map for determining thickness of insulation necessary in dairy barns, according to your geographic location. See chart below.



Type and Thickness of Insulation For Dairy Barns (minimum requirements)

ZONE 1 AND NORTHERN PART OF ZONE 2

MASONRY & BRICK CONST. — WALLS:—Need J-M Ful-Thik Rock Wool insulation, but in most cases would be difficult and expensive to do properly. CEILINGS:—1 story barn: J-M Ful-Thik Rock Wool. Barn with hay mow: J-M Semi-Thik Rock Wool.

FRAME CONST. — WALLS:—J-M Ful-Thik Rock Wool. CEILINGS:—1 story barn: J-M Ful-Thik Rock Wool. Barn with hay mow: J-M Semi-Thik Rock Wool.

SOUTHERN PART OF ZONE 2 AND ALL ZONE 3

MASONRY & BRICK CONST. — WALLS:—Need J-M Semi-Thik Rock Wool insulation but in most cases would be difficult and expensive to do properly. CEILINGS:—All types of construction—J-M Semi-Thik Rock Wool.

FRAME CONST. — WALLS:—J-M Semi-Thik Rock Wool. CEILINGS:—J-M Semi-Thik Rock Wool.

ZONE 4

ALL CONST. — CEILINGS:—J-M Ful-Thik Rock Wool.

Insulation Is Essential To Proper Barn Ventilation In Any Climate

In no other building on the farm is proper insulation and ventilation so important as in the Dairy Barn. Dairy farmers everywhere realize that insulation has a definite bearing on production and profits. They know too, that the close control of temperature through proper ventilation is only possible where there is adequate insulation.

In winter, insulation helps prevent the loss of body heat of the cattle and assists in controlling temperatures at as near the 50° level as possible. Authorities all agree that a cow eats less and produces more at this temperature, and that wide fluctuations, up or down will affect production and increase feed costs.

Excessive condensed moisture must be prevented during the cold weather in order to eliminate the possibility of frost within the barn. This is where the combination of ventilation and insulation is again important. The ventilation assures frequent changes of air thus preventing a stagnant, musty atmosphere and the insulation assists in the control of proper temperature.

In summer, there must be an effective barrier against the passage of the sun's heat into the barn so that when the cows come in from pasture, the barn will be considerably cooler than the outside temperature. If the inside of the barn has become unbearably hot as a result of the day-long heat pouring into the building, it will remain hot well into the night and cause discomfort to the herd. On the other hand, an efficiently insulated barn will be up to 15° cooler than outside temperatures in the hottest summer weather. Here again insulation contributes to the health and productiveness of the herd and therefore to profit.

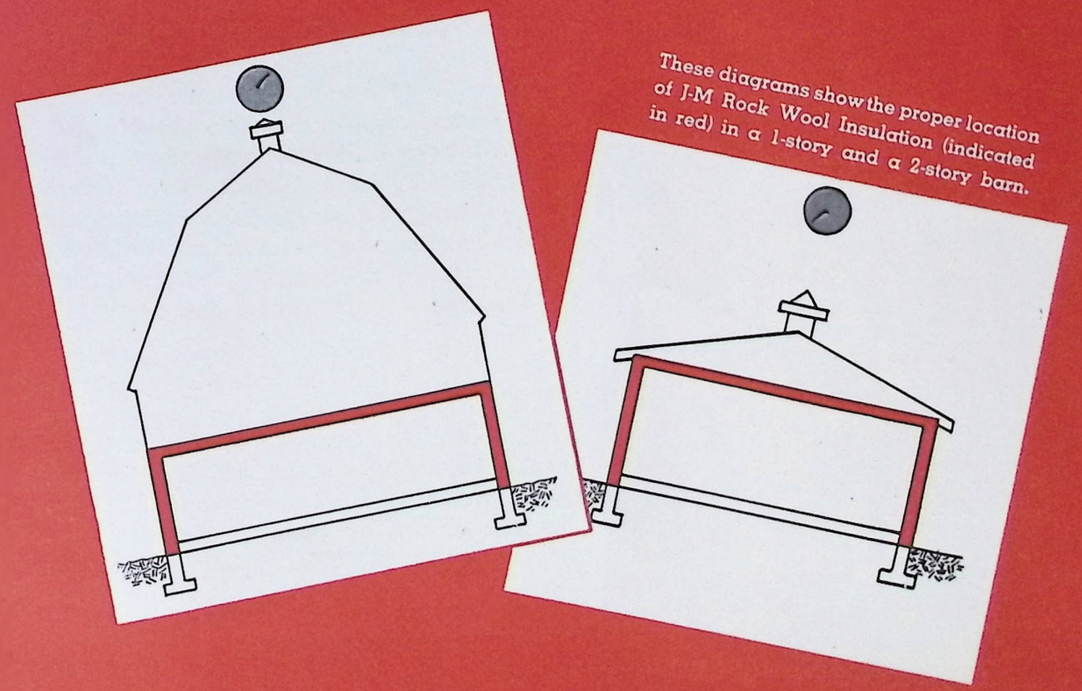
Every dairyman considering building a new barn or remodeling the existing barn should give serious consideration to the use of Rock Wool under the entire roof area, and in the sidewalls since, as explained on the preceding pages, Rock Wool is one of the most highly efficient insulations known. And in addition to its efficiency, it is fireproof and being made of practically indestructible minerals, it will last the entire life of the building. Under many conditions, an effective insulation treatment for the walls results from placing semi-thick J-M Rock Wool batts between the studs, covering the insulation with a vapor-proof paper and finishing the interior wall surfaces to suit your requirements.

Assuming a ventilating system has been installed, or is contemplated, both the ventilation and the insulation will perform most efficiently if the windows and doors are tight fitting so that air cannot leak or escape through. Such leaks make it extremely difficult to obtain scientific temperature control.

In installing insulation in any barn it is advisable to install a vapor-proof membrane directly to the face of the studs, due to the high humidity that exists in the barn as a result of animal heat.

Today insulation is a *necessity* in the dairy barn to maintain healthful temperatures, assure maximum production and cut feed costs.



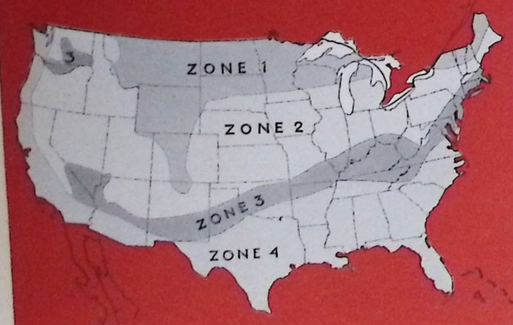


These diagrams show the proper location of J-M Rock Wool Insulation (indicated in red) in a 1-story and a 2-story barn.

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Zone map for determining thickness of insulation necessary in poultry buildings, according to your geographic location. See chart below.



Type and Thickness of Insulation For Poultry Houses (minimum requirements)

ZONE I:
One-inch insulation of J-M Building Board as interior lining on walls and ceilings. Wainscot of ⅛" J-M Standard Asbestos Flexboard to a height of 2 feet.

ZONE II:
One-inch insulation of J-M Building Board on ceiling and ½" on walls. Wainscot of ⅛" J-M Standard Asbestos Flexboard to a height of 2 feet.

ZONE III:
½" insulation of J-M Building Board on walls and ceiling. Wainscot of ⅛" J-M Standard Asbestos Flexboard to a height of 2 feet.

ZONE IV:
½" insulation of J-M Building Board on ceiling.

30

Insulation increases poultry production and profits

In order to assure maximum year-round revenue from a flock, every poultry man strives to maintain good egg production during the late fall and winter. Hens have a tendency to be non-productive if they are cold. And a chilly, damp house often means serious sickness among the flock in addition to loss of production.

Since the function of insulation is to help keep heat inside buildings in winter, and outside in summer, it is easy to understand why insulation has become a vital necessity in helping poultrymen earn additional income. Hens can adjust themselves and their egg-laying organs to gradual changes in temperature but not to sudden variations. Adequate insulation prevents sudden fluctuations of inside temperatures even when the weather outside changes suddenly. It thus helps make for more uniform inside temperatures.

Ventilation, too, is important in the poultry house. Dampness is a hazard and during the cold months excess moisture must be carried off by adequate circulation of air without creating a draft. With low temperatures outside, however, ventilation alone will not accomplish this result. It must have the assistance of sufficient insulation.

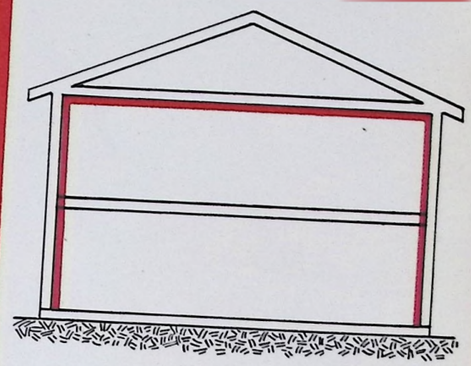
Insulation can be used, and is furnished by Johns-Manville, in two ways: for the interior of existing buildings or as an insulating sheathing on new construction.

JOHNS-MANVILLE INSULATING BOARD INSULATES AS IT BUILDS

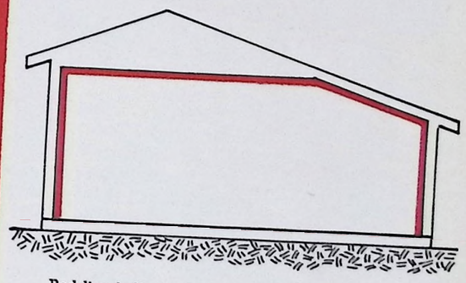
Johns-Manville Insulating Board is an ideal insulation for every type of poultry house from the smallest to the largest. It is both an insulation and a structural product. Made of compressed wood fibres, it is structurally strong. Because all joints center on the framing members, a wind-tight finished job is virtually assured.

The type and thickness of insulation required in any poultry building is determined by your local climate. The weather map and chart is offered as a guide in selecting the suitable Johns-Manville insulation to meet the requirements in various zones and in the type of building to be insulated.

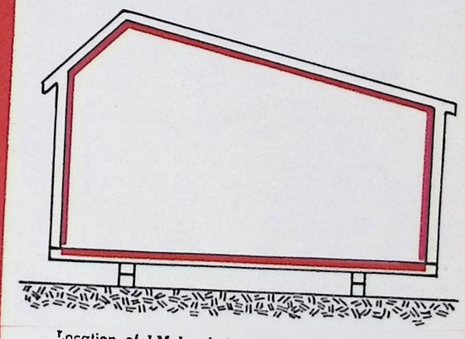
J-M Insulating Board can be applied directly to the framing or over old ceilings in buildings which are of ordinary, uninsulated construction. On new poultry houses, J-M Weathertite Sheathing, an asphalt-coated insulating board furnished in 25/32" thicknesses, replaces ordinary sheathing and provides high insulating value.



Where J-M Insulation (indicated in red) should be applied in a multiple poultry building.

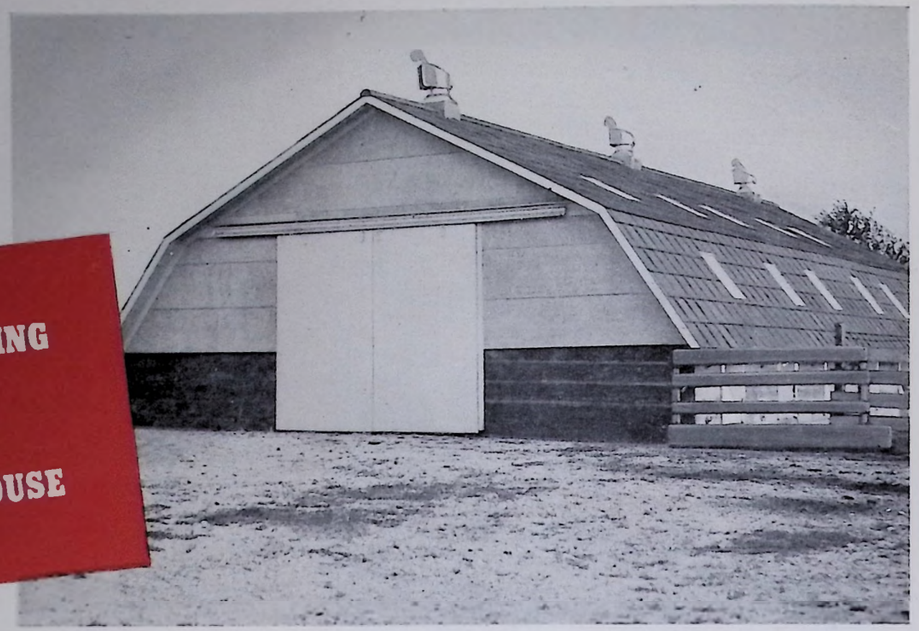


Red line indicates location of J-M Insulation in the laying house.



Location of J-M Insulation (indicated in red) in a typical brooder house.

INSULATING the HOG HOUSE



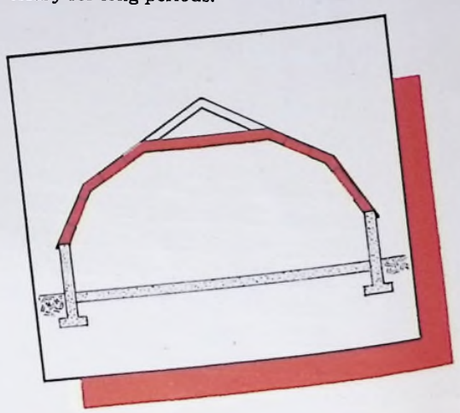
Contrary to usual belief, the hog is not as well protected against the weather as most domestic animals and for that reason proper housing in most climates is important. The hog is dependent upon the outer layers of fat for protection, and unless additional "insulation" is afforded, it means money out of the raiser's pocket. Fat, which represents pounds of weight, is wasted in maintaining body temperature under uninsulated conditions.

Maintaining proper temperature conditions is important during the fattening period, but it is vitally essential during the farrowing periods. This is especially true when early and late farrowing is practiced in an effort to obtain best possible prices.

It costs just as much to keep a sow with only half a litter as it would if all her young had survived, to say nothing of the loss of litter and potential income. Well insulated, dry, ventilated houses that permit adequate sunshine are the cure for most of the ills and losses of litter. A damp, cold, poorly ventilated house is the greatest enemy of good production because it lowers vitality, wastes fatty tissue and contributes to epidemics of fatal pneumonia.

Johns-Manville Rock Wool Insulation in the walls and under the roof of the colony hog house conserves animal heat in winter, helps keep the interior cooler in summer and makes it easier to control inside temperatures the year 'round. The combination of a protective barrier of Rock Wool Insulation and proper ventilation assist materially in maintaining a dry, healthful house, under all weather conditions. Maximum, full-thick insulation is recommended in the colony house.

The diagram below shows the proper location of J-M Insulation in a Colony Hog House. When artificial heat is used during severe winter periods, the insulation prevents the rapid escape of heat through the ceiling and sidewalls and it therefore requires *less* fuel to heat a properly insulated colony hog house . . . a decided economy where artificial heat is necessary for long periods.



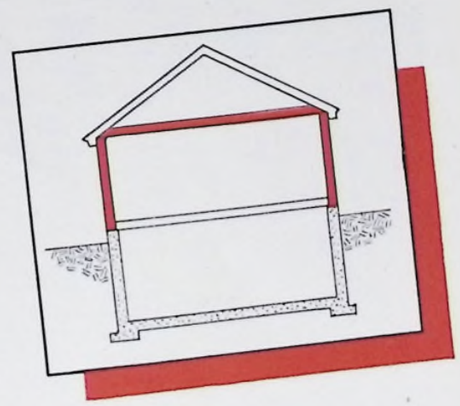
INSULATING STORAGE BUILDINGS



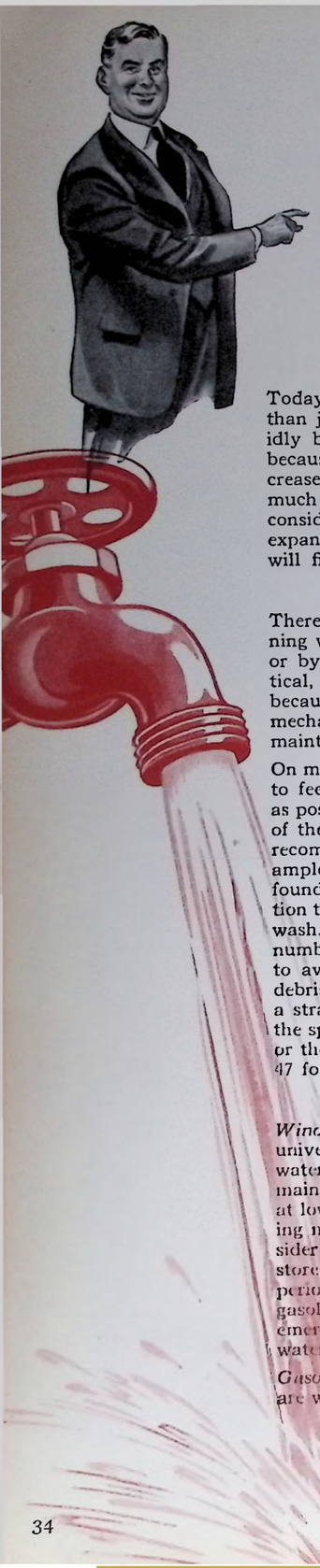
Insulation and ventilation are the two most important factors in non-refrigerated, farm storage buildings. Profits from storage depend upon how well they perform. Without a working combination of both, proper storage is impossible. Ventilation will help control humidity as it provides fresh air. Insulation will not only help maintain the correct inside temperature regardless of outside conditions, but it also helps to control the humidity.

Properly applied J-M Rock Wool Insulation in sidewalls and ceilings will provide the necessary insulation. The thickness of insulation required will vary with the temperature to be maintained and the location of your farm. Due to the high humidity usually carried in produce storage buildings, the effectiveness of the insulation is dependent on how well it is vapor sealed. It is because of this that Johns-Manville suggests the use of "triple vapor seal" over insulation when used in storage buildings. Where one thickness of rock wool is sufficient, place the batt with the paper backing to the interior wall. Where two thicknesses of batts are used, one should be placed with the paper backing to the exterior wall and the other with the paper backing to the interior wall.

Over the exterior sheathing apply one layer of Johns-Manville vapor seal paper with lapped edges. Over this apply a second layer of J-M vapor seal paper, breaking joints with the first layer. Then apply the exterior asbestos siding shingles. Over the interior sheathing apply two layers of J-M vapor seal paper with broken joints, the same as on the exterior sheathing. All joints should be lapped 3" and the vapor seal paper carefully tacked down with large headed nails. Over this apply the Standard Asbestos Flexboard interior finish. All insulated space should be vented to the exterior of the building where possible, especially where insulation is under the roof. The diagram below shows the proper location of J-M Insulation in a typical produce storage building.



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Interesting slants on water systems for the farm . . .

by *The Agricultural Engineer*

Today, running water on the farm is far more than just a boon to the housewife . . . it is rapidly becoming a necessity of modern farming, because it has demonstrated its ability to increase production and profits while lightening much of the drudgery of farm labor. If you are considering the installation of a water system or expansion of your present system, we believe you will find the following suggestions worthwhile.

WATER BY GRAVITY

There are two principal means of securing running water for the farm. These are by pumping or by gravity. Where conditions make it practical, the gravity system is usually preferable because its operation is simple and there are no mechanical parts to wear out and cause future maintenance expense.

On many farms, a spring can easily be developed to feed the water system by digging as closely as possible to the spot where the water oozes out of the ground. While digging down to gravel is recommended, this may not be necessary if an ample quantity of water can be developed on a foundation of clay or gravel. Curb the excavation to prevent caving in, and to keep out surface wash. Place the outlet pipe in the curbing a number of inches above the bottom of the sump to avoid obstruction of the pipe from mud or debris, and provide a gate valve equipped with a strainer to shut off flow when desired. Cover the spring tightly to prevent bailing and dipping or the entrance of trash and animals. (See page 47 for suggested spring house.)

PUMPING SYSTEM

Windmill—Pumping water by wind is the most universally used method of supplying running water to American farms. Properly installed and maintained, a windmill will give excellent service at low cost and can usually be depended on during most of the months of the year. If you consider a windmill, be sure to make provision to store sufficient water to tide you over windless periods. If possible, it is advisable to have a gasoline engine which can be connected up for emergency pumping or to provide fresh drinking water over prolonged windless periods.

Gasoline Engines—Gasoline and diesel engines are widely used for pumping water on the farm. These may be equipped so as to turn off when the water in the tank reaches a given pressure. They are more expensive to operate than a windmill because of the fuel consumption and the extra care required to keep them in good condition. However, this is usually more than offset by their convenience and reliability during any kind of weather.

Electric Pumping—During recent years, electricity has become more and more widely used for water pumping because it is clean, quiet and convenient. Furthermore, the electric pump can be completely automatic, starting up when the pressure in the tank gets too low and turning off when it has been raised to a predetermined point. An electric pumping system is economical in operation and easy to maintain.

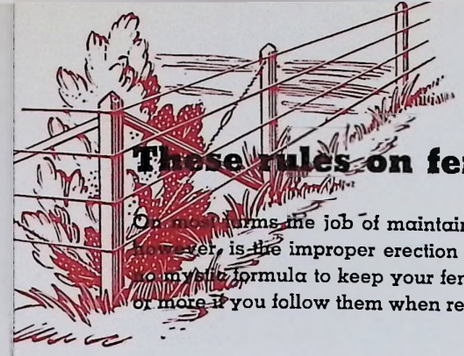
How to Determine the Amount of Water Required For Your Farm

The type of water system best suited to your farm will, of course, depend on its location, the best source of water, and the water requirements of your operation. Frequently, farmers have found it convenient as well as economical to use more than one system. In making your plans to install running water, be sure to provide adequately for your maximum requirements, taking into consideration special needs such as fire protection and sprinkling. The following table will guide you in estimating the daily volume of water you will require.

Approximate Gallons of Water Required Per Day

Each cow ..... 25 gallons	Each 100 chickens . 4 gallons
Each hog ..... 2 gallons	Each member of the household for all purposes (kitchen, laundry, bath, toilet and drinking) ..... 35 gallons
Each sheep .... 1½ gallons	
Each horse ..... 10 gallons	
Each beeve ..... 10 gallons	

A ¾ inch hose with a sprinkling nozzle will require an additional amount of from 275 to 300 gallons per hour. When estimating your requirements from the above table, add 10% to 15% to the total as a safety factor. Be sure to install a system large enough to pump this quantity of water during a daily period of from two to three hours. Wear and depreciation will thus be held to a minimum.



These rules on fences will save you time and money

One of the farms the job of maintaining fences is one which is never finished. Behind most fence trouble, however, is the improper erection of corner posts, gateposts and the spacing of line posts. While there is no mystic formula to keep your fences trouble free, the few rules below will save you money for ten years or more if you follow them when repairing your old fence or putting in a new one:

1. Choose your fence posts of steel or durable wood treated against decay.

2. Drive all posts below the freezing line or at least to a depth of three and a half feet. Drive steel line posts two feet.

3. Check carefully that the foundation for the post is and will remain firm.

4. Make fast anchor lugs of treated 2″ x 4″ timbers to the bottom of the corner posts to guard against the lifting action of frost. Drop a number of large stones into the hole to wedge the post before tamping the earth around the post.

5. Line posts should be 6″ in diameter, while brace posts should be 7″ in diameter and spaced 9 feet from corner posts.

6. The illustration (Fig. 2) shows method of bracing corner posts. About ten feet is considered the maximum length for brace posts. Longer posts buckle more easily under stress and shorter ones are apt to pull corner posts out of the ground. Braces should be at least 4″ x 4″ if made of wood. Diagonal corner braces should be about 10 inches from tops of corner posts and the same distance from the earth as illustrated in Fig. 1. Steel braces with preformed ends in either round or channel shapes are available from most fence manufacturers.

7. Stretch fencing independently from either side of corner posts, not around corner posts.

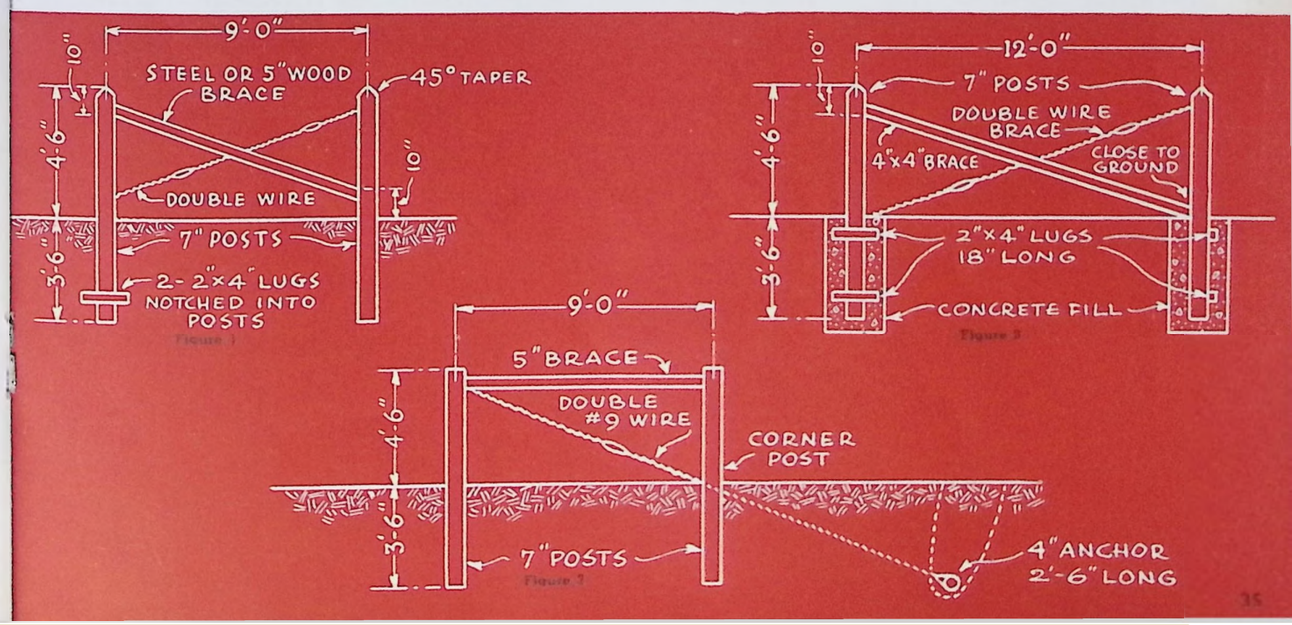
8. Follow the instructions of the manufacturer for best results in stretching or finishing the fence.

9. Space line posts equally from 12 to 16 feet apart in average field conditions. For barnyards, 10 foot spacing is more practical. In a long fence line, brace a line post every 40 or 50 rods as illustrated in Fig. 3, or set in a tapered concrete block.

10. Fences supported only by wood posts should be grounded every 9 rods. The ground connection should reach down to permanently moist soil to be effective.

11. When necessary to place a post (wood or steel) in a depression or gully, set it securely in a tapered concrete footing at least 1 foot square at the top.

12. A recommended concrete mix for post anchors is: 4 parts clean crushed gravel, 2 parts clean dry sand, and 1 part of good cement.



Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 18 of 33
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Interior Sanitation and Fire Protection

J-M Asbestos Flexboard . . . one of the most useful materials ever developed for farm buildings

One of the most time-consuming and laborious activities around any farm building is that of maintaining cleanliness. However, every farmer knows through long experience that sanitation pays profits in assuring good health, better production and better prices.

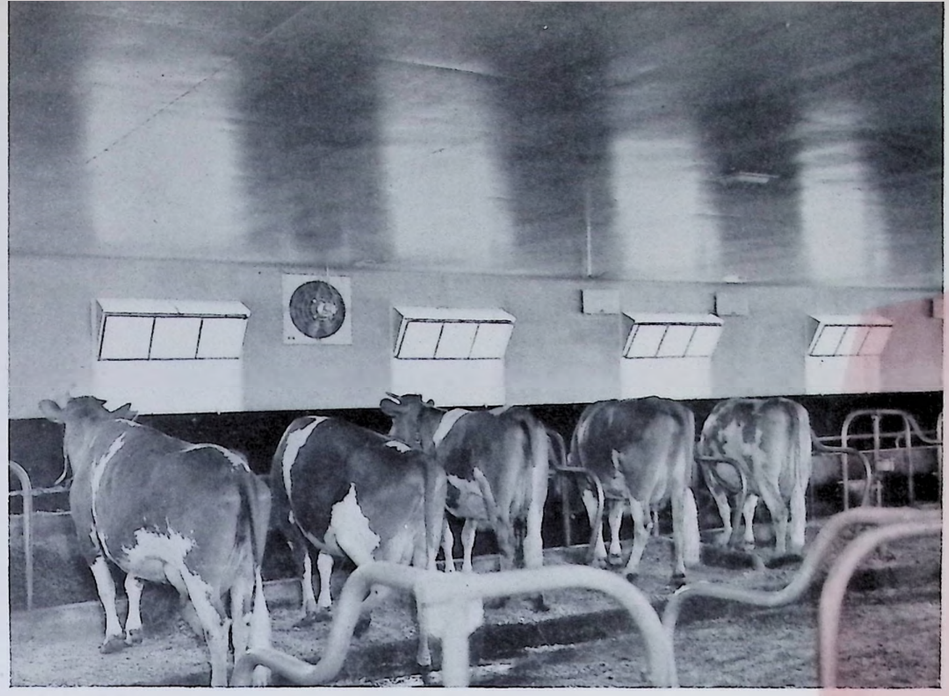
Until a comparatively few years ago, certain interior lining materials afforded desirable features, but while some were fireproof they were not easy to clean. Those that were easy to clean required constant maintenance or frequent preservative treatment. Others that were fairly sanitary were not fireproof.

Today, Johns-Manville Standard Asbestos Flexboard is recognized by thousands of farmers as one of the most useful materials ever developed for farm buildings . . . both as an interior lining and for certain kinds of exterior construction.

J-M Asbestos Flexboard is an economical, structural wallboard, composed of asbestos fibres and cement, and because of the practically indestructible nature of both these minerals, Flexboard will not rot, decay, corrode or burn. It is as fireproof as the asbestos from which it is made, and despite its hard, smooth surface and stone-like durability it is easy to work with ordinary carpenter's tools.

HOW ASBESTOS FLEXBOARD PROVIDES SANITATION

With its hard, smooth surface, J-M Standard Flexboard is practical and economical for lining the interiors of farm buildings, especially where sanitation is of paramount importance. Flexboard is formed under great pressure into dense, smooth, monolithic sheets and as a result of this density and smooth surface it not only can be regularly washed down, scrubbed, and hosed, but needs no periodic painting or preservative treatment to maintain its appearance and sanitation.



Rodent-proof, rot-proof and weather-resistant, Flexboard will not disintegrate, nor will it attract vermin. While it is the ideal wallboard for lining interiors, it also has many practical exterior uses and is adaptable for either new construction or over old walls and ceilings.

As either an interior lining or exterior structural board, Asbestos Flexboard is as permanent as the minerals from which it is fabricated.

EASY TO SAW . . . NAILS WITHOUT SPLITTING

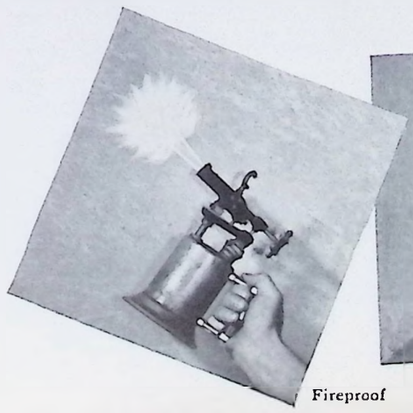
Standard Asbestos Flexboard ⅛" thick is most widely used by farmers. The sheets, although dense and smooth, can be cut with an ordinary carpenter's saw. There is no necessity to drill holes before nailing and nails can be driven close to the edge without cracking. Another important advantage of this product and the reason it was called *FLEX*board is the fact that it is FLEXIBLE. The sheets can be bent to a considerable degree over curved surfaces. All of these ease-of-application features help reduce construction cost. Furthermore, the material itself is surprisingly inexpensive.



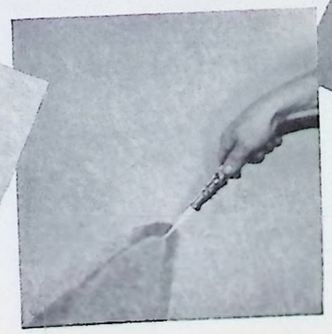
Easy to saw



Easy to nail

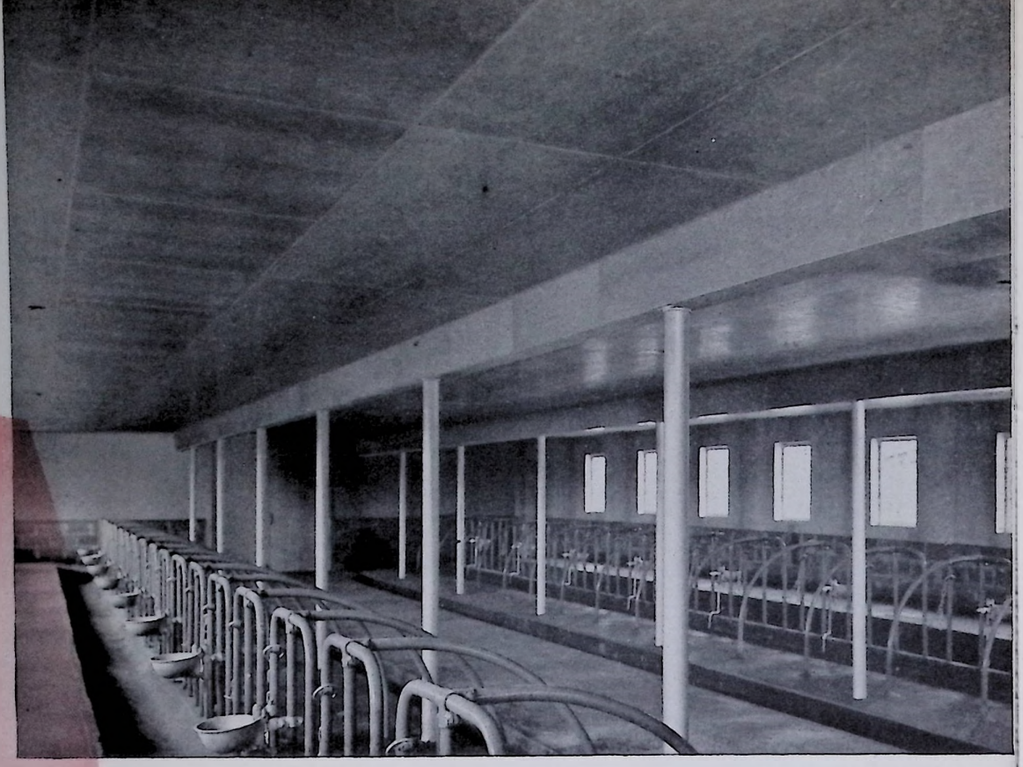


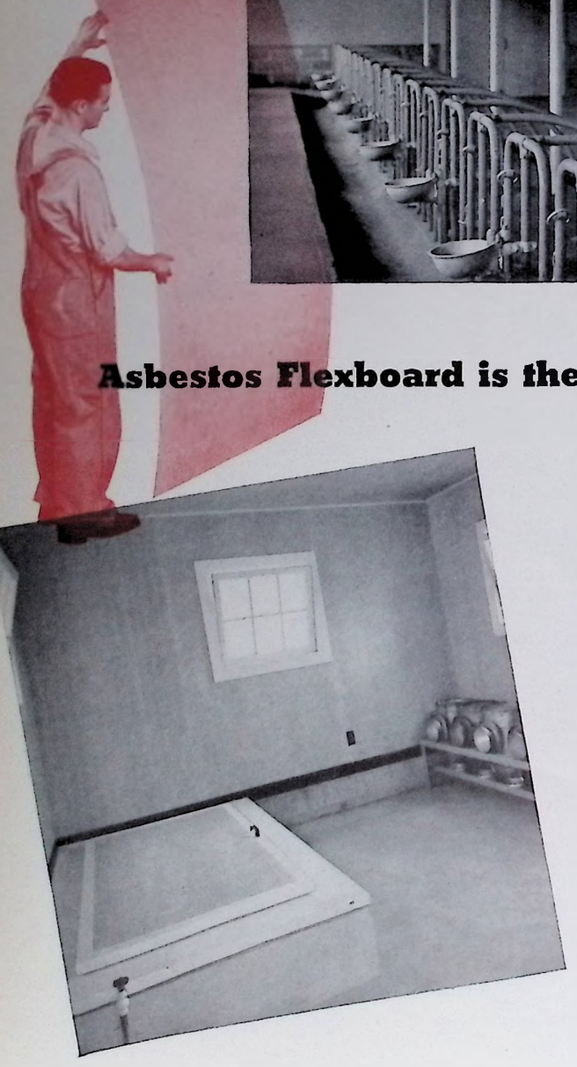
Fireproof



Easy to clean

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Asbestos Flexboard is the answer to sanitation in the dairy barn and milk house

During the past several years, health laws in most states have become more and more stringent. This means constant, time-consuming maintenance, repairs and replacements unless the materials to line the dairy barn and milk house are selected with a view to their sanitary, maintenance-free qualities.

It is for these reasons that Johns-Manville Standard Asbestos Flexboard has had such ready, overwhelming acceptance by dairymen in all parts of the country. In addition, this material has the extremely important additional advantage of being fireproof.

At the top of this page is an illustration of a modern dairy barn completely lined with J-M Asbestos Flexboard. You will note that it is exceptionally attractive and gives an appearance of utmost cleanliness to the entire interior. Shown at the left is a typical milk house with walls and ceiling Flexboard lined.

This clean orderly appearance is always a good advertisement for the milk produced in such a plant. Flexboard can be applied right over the old lining in existing barns, or over the studs and ceiling joists of any new barn.

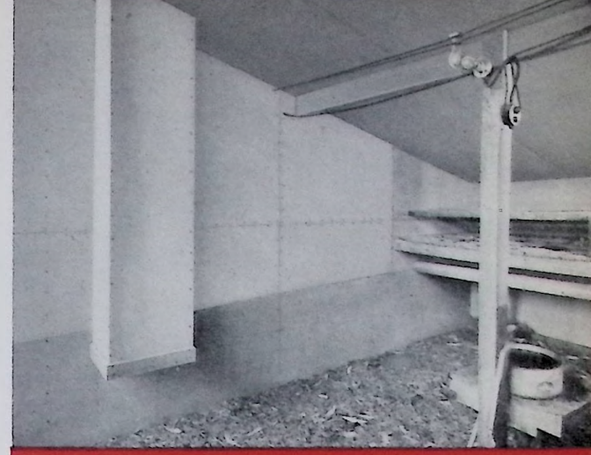
Flexboard has been rigidly tested in hundreds of dairy barns and has proved to be unaffected by the "droppings." It can be easily maintained by hosing-down or scrubbing. Another very desirable protective feature of Flexboard in the dairy barn, and many other types of farm buildings, is the fact that it is rodent-proof. Years of use have proved that rodents will not gnaw through Flexboard and it therefore serves as an effective barrier against this nuisance.

IN POULTRY HOUSES

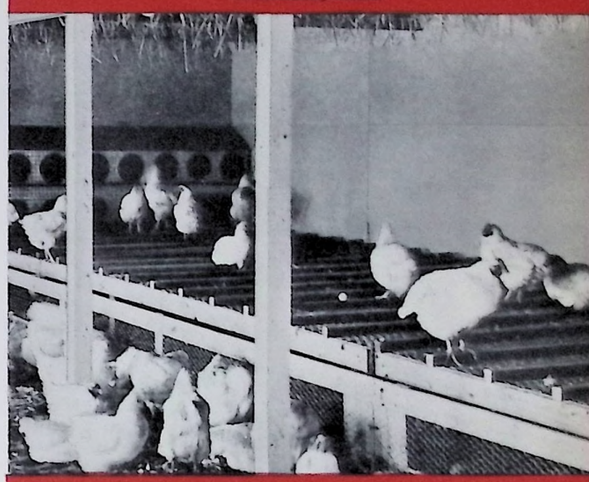
Flexboard Guards Against Pecking and Invading Rodents

Poultrymen, too, have been quick to recognize in J-M Flexboard, a material that solves many of their most perplexing problems. Because Flexboard is fireproof, sanitary, durable, moderate in cost, easy to apply and practically maintenance-free, it is just as ideally suited for poultry houses as it is for dairy barns. And in addition, it is PECK-PROOF, and RODENT-PROOF.

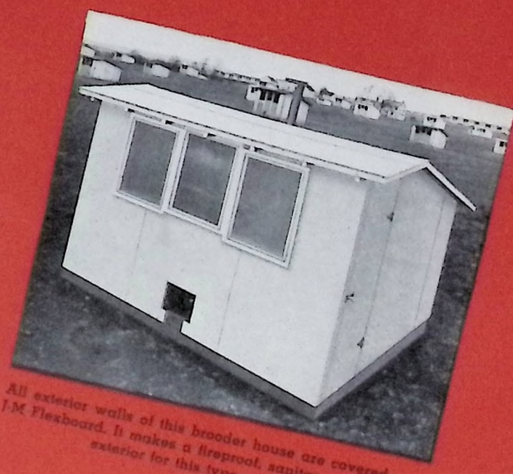
While it is desirable to line the entire interior sidewalls and ceilings for long-lasting sanitation and protection, Flexboard can also be used as a wainscoting to eliminate the pecking problem. Because it is mineral, hard and smooth, chickens will not peck or scar this board. In existing buildings or new structures, it can be used to a height of two feet around the lower walls and around the roosts. This will also assure a rodent-proof house if the Flexboard is applied right down to the base. It not only protects the flock and the building, but means that valuable feed will be protected against loss and destruction by rodents. Wherever insulating board is used on a poultry house, it should have the protection of peck-proof Asbestos Flexboard. It will save innumerable hours of labor in replacing boards gnawed through by rats and pecked by the flock.



This poultry house is completely lined with J-M Insulating Board with Flexboard used as a 2 ft. wainscoting. Note ventilation flue constructed of Insulating Board.



Here Flexboard is also used around the roost area to prevent pecking.

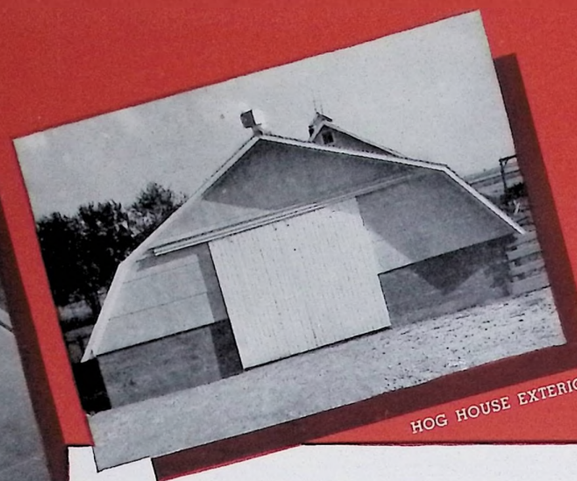


All exterior walls of this brooder house are covered with J-M Flexboard. It makes a fireproof, sanitary, long-lasting exterior for this type of building.

Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 20 of 33
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BUILDING CEILINGS



HOG HOUSE EXTERIORS

Other practical uses for Standard Asbestos Flexboard on the farm

Flexboard is truly one of the most useful materials ever developed for farm buildings. On these pages are illustrated many other practical, money-saving, time-saving uses for this amazing material. It is especially suited to construct the following:

Range Shelters
Partitions
Roadside Stands
Cabins
Lining Garages
Lining Grain Bins
Building Ventilation Flues
Lining the Floor of a Truck
Lining the Machine Shed
Building a Ceiling
Greenhouse bench tops and sides
Lining a Door
Building a Brooder House
Lining a Feed Room
Exterior Siding Material
An Apron Between Foundation Parts
Lining a Pump House
Platform Floor
Fireproof floor under hovers in brooder houses
Outdoor Table Tops
Top of dropping boards

There is no limit to the possible uses of this general utility board in every building on the farm.

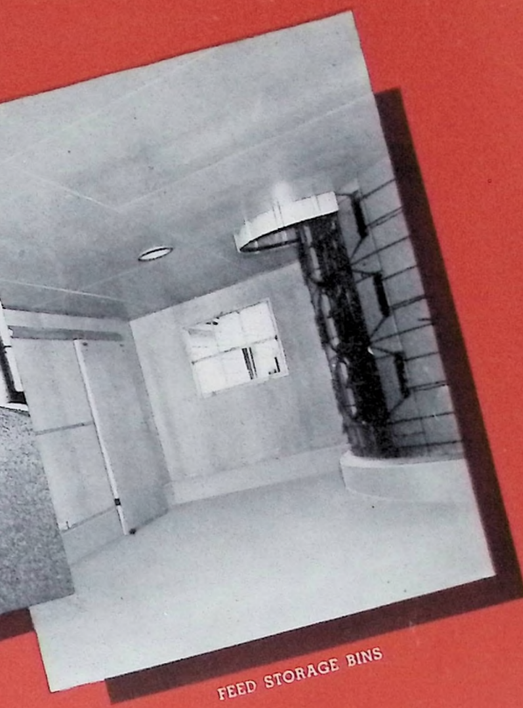




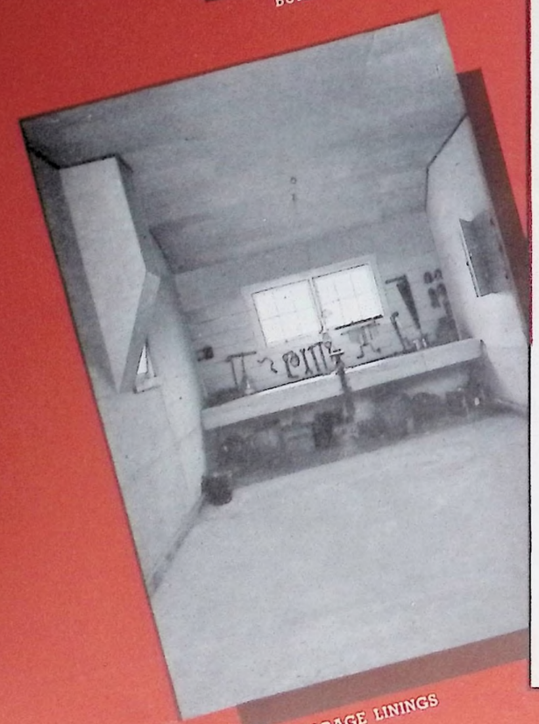
RANGE SHELTERS



GRAIN BINS



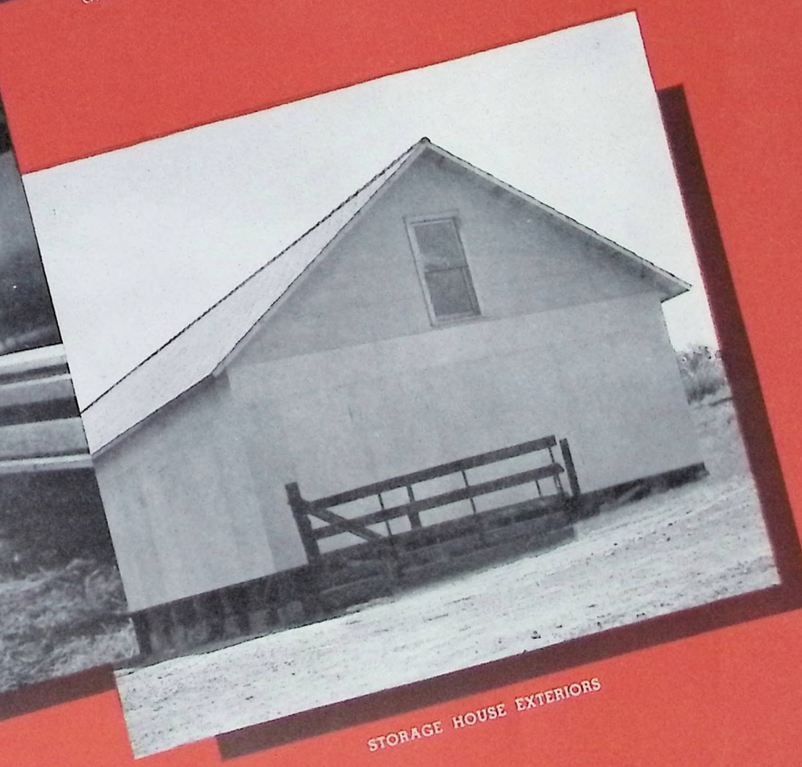
FEED STORAGE BINS



GARAGE LININGS



VENTILATOR FLUES



STORAGE HOUSE EXTERIORS

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Suggestions for the maintenance and care of the Farm Home

★With so much thought being given in recent years to the scientific planning and maintenance of farm buildings, it is surprising that the farm home has not come in for a greater share of attention. Perhaps this is because the average farmer, busy with a hundred and one important problems of production and animal husbandry, never seems to find quite enough time — or money — to provide for his own living comfort, convenience and enjoyment ● Fortunately, this matter of keeping up the farm home no longer needs to be one of those tasks that are forever being "put off until tomorrow." For in recent years, so many advancements have been made in the field of home building materials, that any farmhouse, no matter how badly in need of repair, can be made just as comfortable, as livable and as attractive as the smartest new home. And at surprisingly little cost! Modern mass production methods, plus the ingenuity of the building materials research laboratories in devising time and money-saving application methods have seen to that! ● If your farm home is one of those which need "fixing up" you will find much of interest in the suggestions on the following pages. Your Johns-Manville dealer will be glad to tell you how little these improvements cost and to give you the benefit of his advice and experience in putting the ideas to practical use.

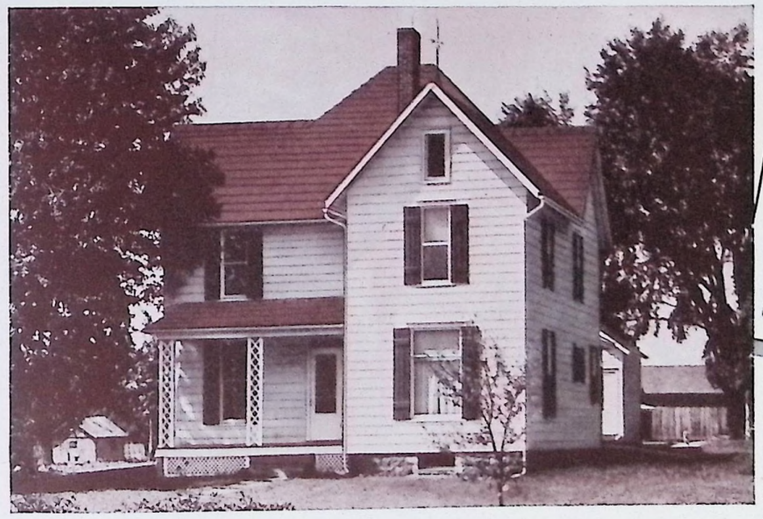
★ Two modern building materials that are important to the maintenance and repair of farm homes—J-M American Colonial Asbestos Roofing Shingles (upper left) and J-M Asbestos Siding Shingles (lower right).

Two interesting examples of middle-aged farmhouses made new

How easily a farmhouse that is badly in need of exterior repairs can be made as attractive in appearance as the smartest new home is indicated by the "before and after" pictures below. Typical of thousands of old and middle-aged farm homes throughout the country, these photographic case histories show how even a house that is definitely "run down" can be given a new lease on life with the help of modern building materials that are low in cost and easy to apply.

Note particularly that few structural changes were made in effecting these amazing transformations. In both cases, two Johns-Manville materials offered a practical solution to the major problem involved —that of renewing the old roofs and sidewalls. These materials, J-M Asbestos Roofing Shingles and J-M Asbestos Siding Shingles, were applied directly over the old surfaces to provide an attractive fireproof, rotproof armor that will never need preservative treatment and will endure as long as the houses themselves.

Further interesting information about these economical Johns-Manville Asbestos Shingles, together with illustrations of the attractive colors and textures in which they are available, may be found on pages 20 and 21.





Once run-down and neglected, the farmhouse above was brought up-to-date by the application of J-M Asbestos Roofing and Siding Shingles. No structural changes were required in restoring this home to its original attractive and inviting appearance.

When time and weather had taken their toll of the old farmhouse below, the owner quickly transformed it into a modern, livable, charming home with a fireproof maintenance-free exterior of Johns-Manville Asbestos Roofing and Siding Shingles.





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How to "fix up" an extra room in wasted attic space



How J-M Lightning Joint Conceals Nail-heads—The upper view shows how nails are driven through the tongue into the framing or furring. The lower view shows how the adjacent panel fits snugly into the groove and is held in place without further nailing.

Every farm family that needs additional living space either for itself, for a tenant farmer, or for hired help will be interested to learn that today, the average attic can be made into a useful extra room at surprisingly low cost. This has been made possible through the recent development of pre-decorated, pre-fabricated wall and ceiling materials which come in big units that cover large areas quickly and which are ready for use as soon as applied.

One of the newest and most versatile of these materials is Johns-Manville Insulating Board, an all-wood product of unusual beauty and decorative appeal. In addition to its many pre-finished panels and planks, it offers an exclusive advantage in that no ugly nail heads need mar the beauty of your walls and ceilings. This is made possible by the famous J-M Lightning Joint which completely conceals the nails used in application. (See diagram at left.)

The attractive attic room illustrated below is typical of what you can do with J-M Insulating Board in an average attic. In building this room, 1″ x 2″ wood furring strips were first applied to the rafters and wall studs in order to provide a suitable nailing surface. Then decorative planks of J-M Insulating Board in ivory colored finish were applied. (The material also comes in White, Graytone and Rose-tan.) As soon as this was done, the room was ready for use. No paint, no fuss or muss. And because of the insulating qualities of this J-M material, the new room will be comfortable summer and winter.

If you have a large attic, you may be able to convert it into a sizable apartment of several rooms. Many farmers have used this idea to good advantage by renting out the rooms and applying the income towards the maintenance of the home.



Building an attic room with J-M Planks is simply a matter of applying the units over furring strips which have been nailed to the studs and rafters.





Solving the problems of cracked plaster ceilings



One of the most exasperating conditions which practically every home owner has had to face is the problem of cracked, unsightly ceilings. Heretofore, there has been no satisfactory remedy, except plaster patching or a complete re-plastering job. But now, Johns-Manville Insulating Board products have made the solution to the problem simple and extremely economical. Furnished in pre-designed units specially made for ceiling application, these materials make it possible to cover large areas in a remarkably short time and at less cost than for a re-plastering job.

As shown at the upper left, the units are applied on wood furring strips which are nailed through the old plaster to the ceiling joists. This furnishes a secure nailing base.

New walls for old

Almost everyone who lives in an "old" house has one or two rooms in which the plaster on the walls has cracked or fallen away, giving the room a shabby, run-down look. Home owners who are considering "fixing-up" such a room will be interested to learn how easily and economically it can be done with decorative panels or planks of J-M Insulating Board. And they will be particularly pleased at the way these materials transform the appearance of the room, giving it a modern note that is altogether different and refreshing.

Usually, it is not even necessary for the furniture to be moved out while the work is going on. The units are simply applied to wood furring strips which are nailed over the old plaster walls. The room is then immediately ready for use. In addition to their decorative value, Johns-Manville Decorative Panels and Planks provide a generous measure of insulation against heat and cold.



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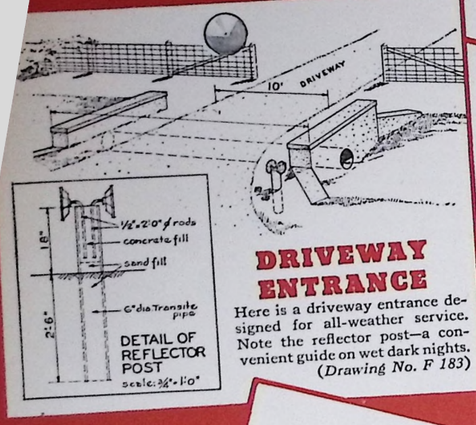
Helpful suggestions for the garden and farmhouse yard

Probably you have always wanted some of the improvements suggested on these two pages but never quite knew how to build them. If that's the case, these drawings will help you because they are carefully prepared with necessary detail and dimensions. Blueprints in larger, easy-to-read scale are available free, (except the drawing of the Spring House, which contains elevations, plans and details in addition to the section illustrated, and is furnished at 50¢ per copy). Order through your Johns-Manville Dealer, referring to drawing number and name.



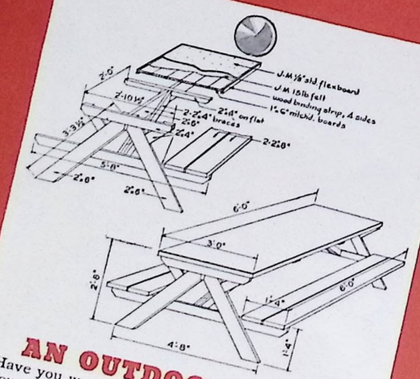
A BRICK WALK

A brick walk, built of new or used bricks, will help make your garden attractive. Notice the proper mixes of cement for the foundation and setting bed. (*Drawing No. F 181*)



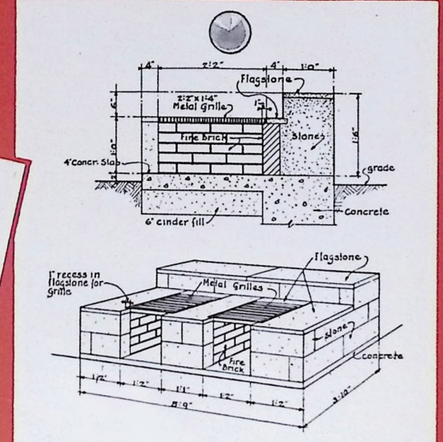
DRIVEWAY ENTRANCE

Here is a driveway entrance designed for all-weather service. Note the reflector post—a convenient guide on wet dark nights. (*Drawing No. F 183*)



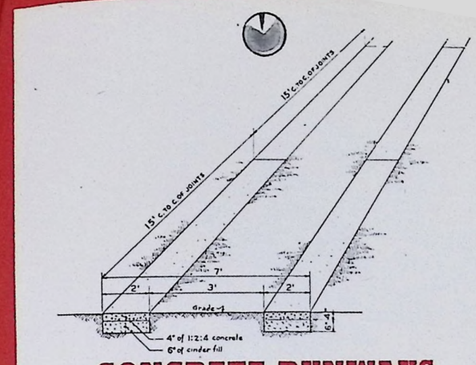
AN OUTDOOR TABLE

Have you wanted a sturdy lawn table for use with your outdoor fireplace? This one is particularly serviceable because of its top of Asbestos Flexboard. Summer showers and sun will not make the top unsightly. (*Drawing No. F 180*)



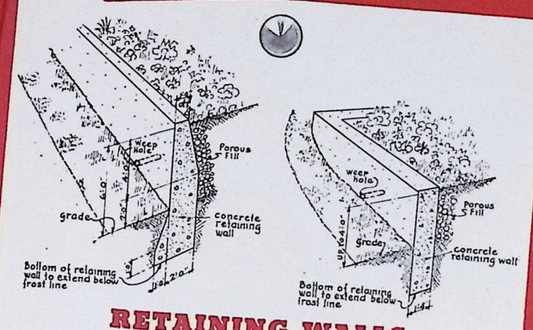
AN OUTDOOR FIREPLACE

This outdoor fireplace is simple to build and you will find it enjoyable for outdoor dinners. The two compartment arrangement permits you to broil on one side and make live coals on the other—no waiting between steaks! The fire brick provides steady heat and prevents cracking of the walls. (*Drawing No. F 182*)



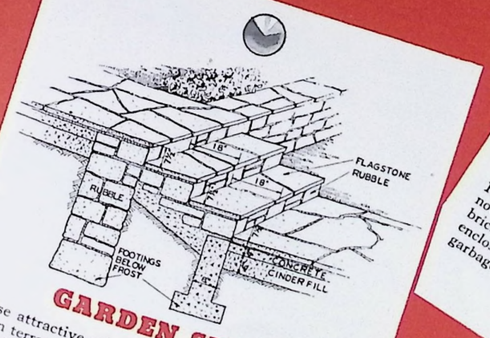
CONCRETE RUNWAYS

Concrete runways make good drives, provided they are built right and are not too narrow. The suggestions shown in this drawing indicate the correct dimensions for good design and are well worth following. (*Drawing No. F 185*)



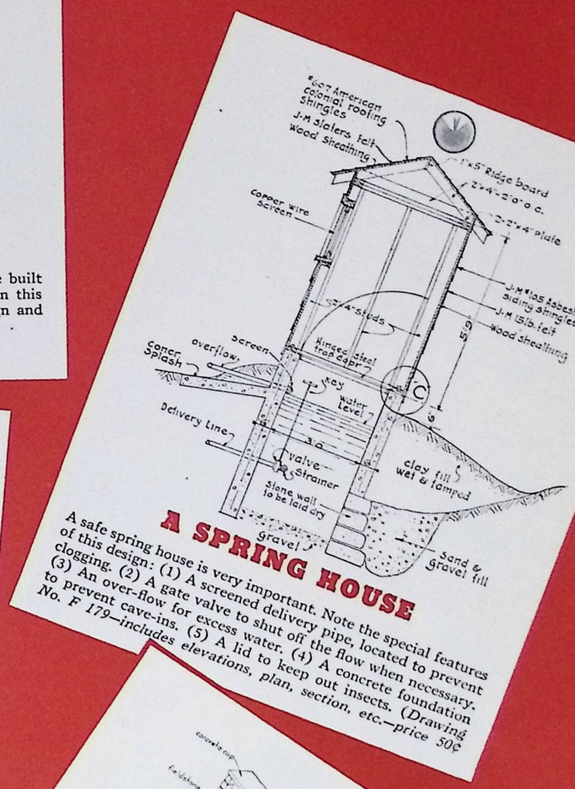
RETAINING WALLS

Have your retaining walls caved in? These two designs for various heights will help prevent trouble in the future. Note particularly that the bottom of the wall should extend below the frost line. (*Drawing No. F 184*)



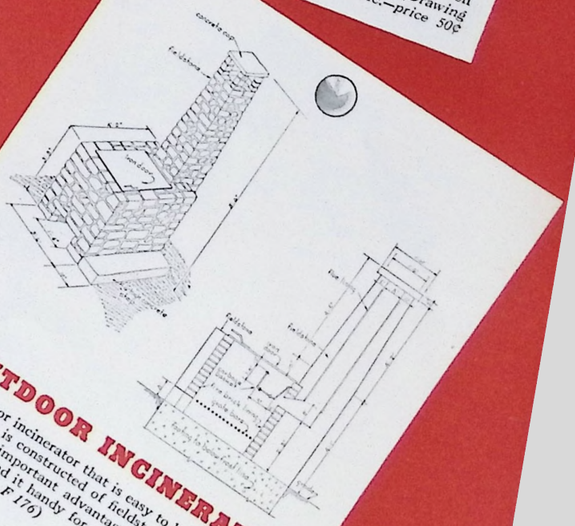
GARDEN STEPS

These attractive stone steps are designed for use between terraces in a garden. They are easy to build and will add much to the beauty of your grounds. Following the instructions on the drawing has the additional advantage of providing permanent construction unaffected by frost. (*Drawing No. F 177*)



A SPRING HOUSE

A safe spring house is very important. Note the special features of this design: (1) A screened delivery pipe, located to prevent clogging. (2) A gate valve to shut off the flow when necessary. (3) An over-flow for excess water. (4) A concrete foundation to prevent cave-ins. (5) A lid to keep out insects. (*Drawing No. F 179—includes elevations, plan, section, etc.—price 50¢*



AN OUTDOOR INCINERATOR

Here is an outdoor incinerator that is easy to build and that is not an eyesore. It is constructed of fieldstone lined with fire-brick and has the important advantage of being completely enclosed. You will find it handy for the disposal of paper and garbage. (*Drawing No. F 176*)

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Ideas for "fixing up" bathrooms and kitchens



Many home owners find that of all the rooms in their house, it is most difficult to keep the bathroom and kitchen looking well. The reason for this, of course, is that these two rooms are daily subjected to conditions of moisture, heat and even steam which are particularly hard on ordinary building materials.

If you face this problem in your farm home, you will be intrigued with the story on this and the following page. Through scientific research, a new lovely, colorful building material has now been developed which will withstand these severe moisture conditions and can be applied right over the old walls and ceilings.



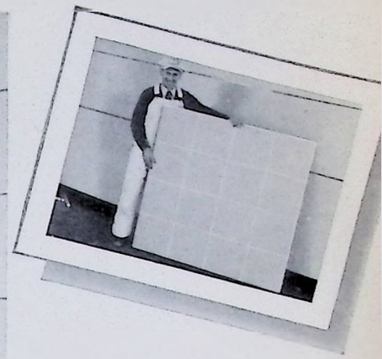
PRESENTING DE LUXE ASBESTOS FLEXBOARD

This new building material is called DeLuxe Asbestos Flexboard. It consists of a base sheet of asbestos fibres and cement on which a special finish is "baked" to provide a mirror-like, satin smooth surface in beautiful colors. Each sheet covers a large area and is easily applied with ordinary

This modern kitchen shows one of the many attractive ways of using DeLuxe Flexboard. Yellow sheets of the streamlined pattern were used on the upper walls, green sheets in the plain pattern were used below. Cabinets were painted to match.







New bathrooms for old—The attractive, sparkling-clean bathroom shown at the left was the result of a few new fixtures and covering the old walls with J-M DeLuxe Asbestos Flexboard.

EASY TO CLEAN

The smooth, hard, polished surface of DeLuxe Asbestos Flexboard possesses a double advantage. It stays clean longer and cleans readily when cleaning is necessary. Its spick and span appearance is easily maintained by an occasional wiping.

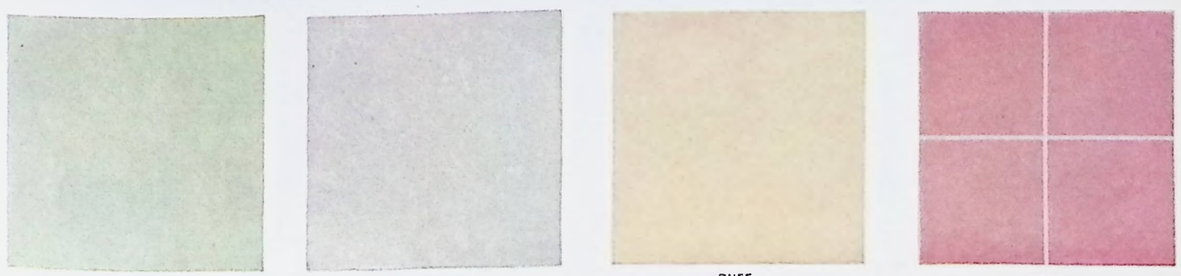


carpenter's tools. And in addition to its beauty and ability to resist moisture, it is easy to clean, contains nothing to rot or decay, and is fireproof.

DeLuxe Flexboard comes in three styles all of which are shown in the bathroom above. The lower walls are blue Flexboard in the plain unscored pattern. The upper walls are white Flexboard in the interesting streamline pattern. The wall around the recessed tub, matching the blue of the lower walls, is the Block pattern of DeLuxe Flexboard with units scored into 12″ squares. These three styles of DeLuxe Flexboard are available in eight colors—white, ivory, yellow, peach, blue, green, red and black.

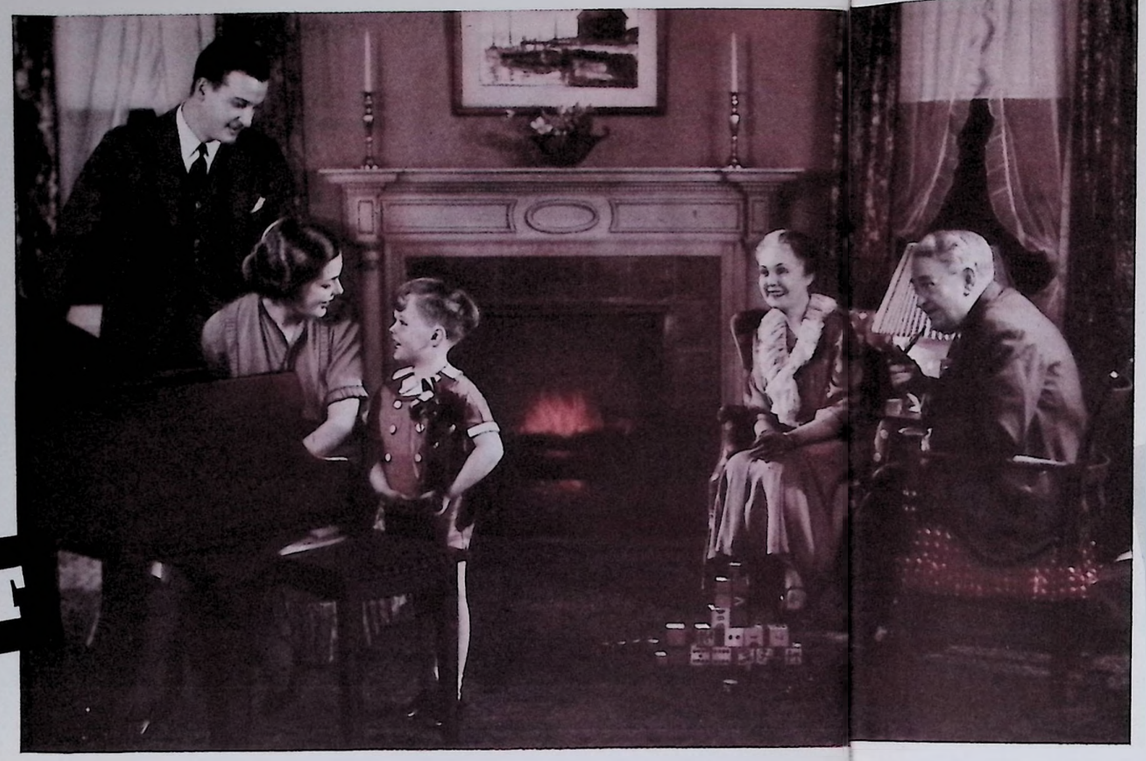
ANOTHER MATERIAL FOR BATHROOM AND KITCHEN WALLS

Illustrated below is J-M Decorative Asbestos Flexboard. It is also highly recommended for use as an inexpensive interior wall finish. Available in five attractive colors. Decorative Flexboard is an integrally colored asbestos cement sheet with a natural mottled appearance that is both attractive and different. It is available in plain design or tile design, scored into four inch squares. Its highly polished surface can be cleaned with a damp cloth. Lower in price than DeLuxe Asbestos Flexboard, it is especially recommended for those who plan to do over bathrooms and kitchens on a limited budget.



GREEN LIGHT GRAY BUFF ROSE

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COMFORT

The story of Rock Wool Home Insulation . . .

AND HOW IT HAS CREATED NEW STANDARDS OF COMFORT IN THE FARM HOME

In no other building on the farm does insulation make a more important contribution than in the farm home. It helps protect the health of the family; it saves fuel; it reduces drafts; it affords additional fire protection; and makes the whole house more livable the year 'round.

Johns-Manville pioneered in the development of Rock Wool Home Insulation for both new and existing homes. Rock Wool, because it is an efficient barrier against the passage of heat and is fireproof and rotproof, has become one of the most widely used insulating materials.

In fact, more than 500,000 American home-owners are today enjoying fuel savings of up to 30% year after year and rooms up to 15° cooler in hottest summer weather as a result of installing Johns-Manville Home Insulation.

Perhaps the best way to illustrate the effectiveness of Rock Wool in bringing comfort to the farm home is to tell you that by actual test, a 4" thickness of Johns-Manville Rock Wool is equal to 11 feet of solid stone in resisting the passage of heat.

That is why J-M Home Insulation so effectively helps keep heat *IN* during the winter, thus effecting fuel savings and reducing drafts; and helps keep heat *OUT* in summer, protecting against the penetration of unbearable summer heat.

Johns-Manville Rock Wool Home Insulation is available in two forms—Super-Felt Batts for easy application in accessible attic spaces and in nodulated form so that it can be blown by a specially developed, pneumatic machine, into inaccessible spaces in existing homes.

READ WHAT ONE FARMER SAYS ABOUT J-M HOME INSULATION

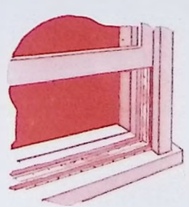
A typical example of what Johns-Manville Rock Wool Home Insulation has contributed to the comfort of thousands of American farm families is contained in the following letter, one of hundreds in our files. It is from John Hildreth of Slater, Iowa, and says: "I have lived on this farm for sixty-eight years. The house was always hard to heat. But not since it was insulated with Johns-Manville Rock Wool. In summer, I like a nap after dinner. I can now sleep real good because it's as much as 20° cooler inside the house. I'm sure glad Mother and I can have this comfort now after working so hard. I hope other farm families will get insulation too, now that the Government wants us to save fuel."



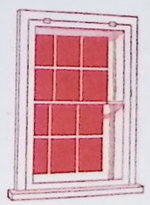
At the right a J-M Super-Felt Batt is being installed between the attic joists over the top floor ceiling. And below are two illustrations showing how J-M nodulated Rock Wool is blown into the sidewalls and roof area of an existing home. After the work is completed there is no outward sign that the house has in any way been disturbed, but what a difference in comfort!!



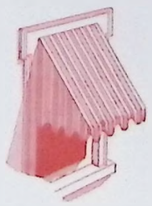
Hints on proper control of temperature and ventilation in an insulated house



After the sun has set and all during the night, windows should be opened to allow the cool air to enter. Then when they are closed in the morning, the cool air is retained, and the penetration of outside heat is retarded by the insulation.



In winter, your insulated house will be even more comfortable when storm windows and storm doors are installed.



In summer, the use of awnings and shades will help to keep the interior of the house cooler, because a certain amount of heat leaks in through the windows, which, of course, are not insulated.

Johns-Manville: The Farm Idea Book (c. 1942)
ACL Doc 21285 · Page 26 of 33
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★ MODERN FARM BUILDINGS WHICH WILL HELP INCREASE PRODUCTION ★ ★

★ In order to insure the maximum return on every dollar spent for a new building the farmer should be thoroughly familiar not only with the very latest in building materials but also with modern building practices and designs.

For these reasons, we have included on the following pages, designs and plans for 10 different kinds of farm buildings which are protected against fire, weather and wear by the modern Johns-Manville building materials described in this book. Each design is the result of careful study by agricultural engineers in cooperation with experienced farmers all over the country. And each has been scientifically planned to take advantage of every possible economy of construction while at the same time providing a building that completely meets the practical requirements of the service for which it is intended.

If you contemplate the erection of a new building, study this section of the Farm Idea Book carefully, then ask your Johns-Manville dealer for the full sized construction drawings. These drawings are available at a moderate charge (see following pages). If your J-M dealer does not have the drawings on hand, he can obtain them for you by writing to Johns-Manville, 22 E. 40th St., New York.

J-M Asbestos Gothic Roof Barn

In many sections of the country, particularly in high wind areas, barns are often designed and built with Gothic Roofs. This type of roof is popular because the haymow space is not broken up by braces and cross-ties and therefore affords maximum hay storage space. While both of these are practical advantages, good appearance is in no way sacrificed, since the Gothic roof barn is attractive, dignified and architecturally graceful.

Through the use of modern asbestos building materials on the exterior, the modern Gothic Roof barn offers the additional advantages of greater weather resistance, low maintenance and protection from communicable fire.

The interior, too, is modern, sanitary and fire protected. J-M Rock Wool Insulation reduces the possibility of sudden and severe temperature changes. It assures more accurate temperature control and helps increase the efficiency of the ventilating system. While there are no unusual features of construction in the J-M Asbestos Gothic Roof barn, it is a more efficient, better protected and a sturdier building because of the use of modern, durable building materials.

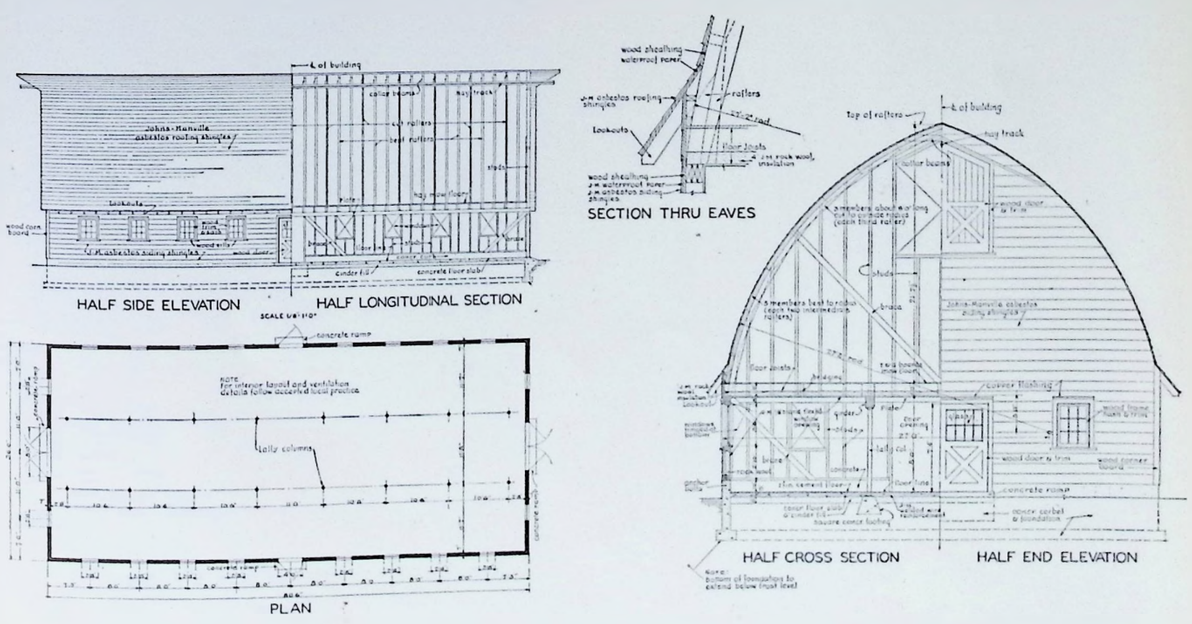
Roof – Fireproof J-M Asbestos Dutch Lap or Hexagonal Shingles.

Siding – Maintenance-free J-M Asbestos Siding Shingles.

Insulation – J-M Rock Wool Batts in ceiling and walls for greater production.

Interior – Easy-to-clean J-M Asbestos Flexboard meets milk-shed requirements.





COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-MANVILLE DEALER FOR $1.00 PER SET (TWO SHEETS IN THIS SET). REFER TO DRAWING No. F-121.

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J-M Asbestos
Gambrel Roof Dairy Barn

Employing time-tested design and framing, the J-M Asbestos Gambrel Roof Dairy barn is an investment in safety and protection against communicable fires, weather and wear, as well as an assurance of economical modern shelter for your dairy herd. The complete exterior of this barn is protected with modern building materials that will not burn, rot, corrode or decay. No preservative treatment is ever required—and they deliver a lifetime of trouble-free service. It is completely lined inside with J-M Standard Asbestos Flexboard to meet the most rigid milk-shed sanitation requirements. J-M Rock Wool Insulation in the walls and between the ceiling joists helps maintain uniform temperatures and guards against wide fluctuations.

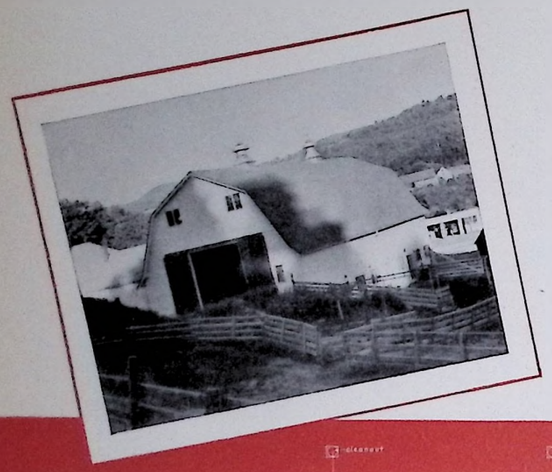
This structure, measuring 40′-6″ by 34′ overall, is designed to house 18 head.

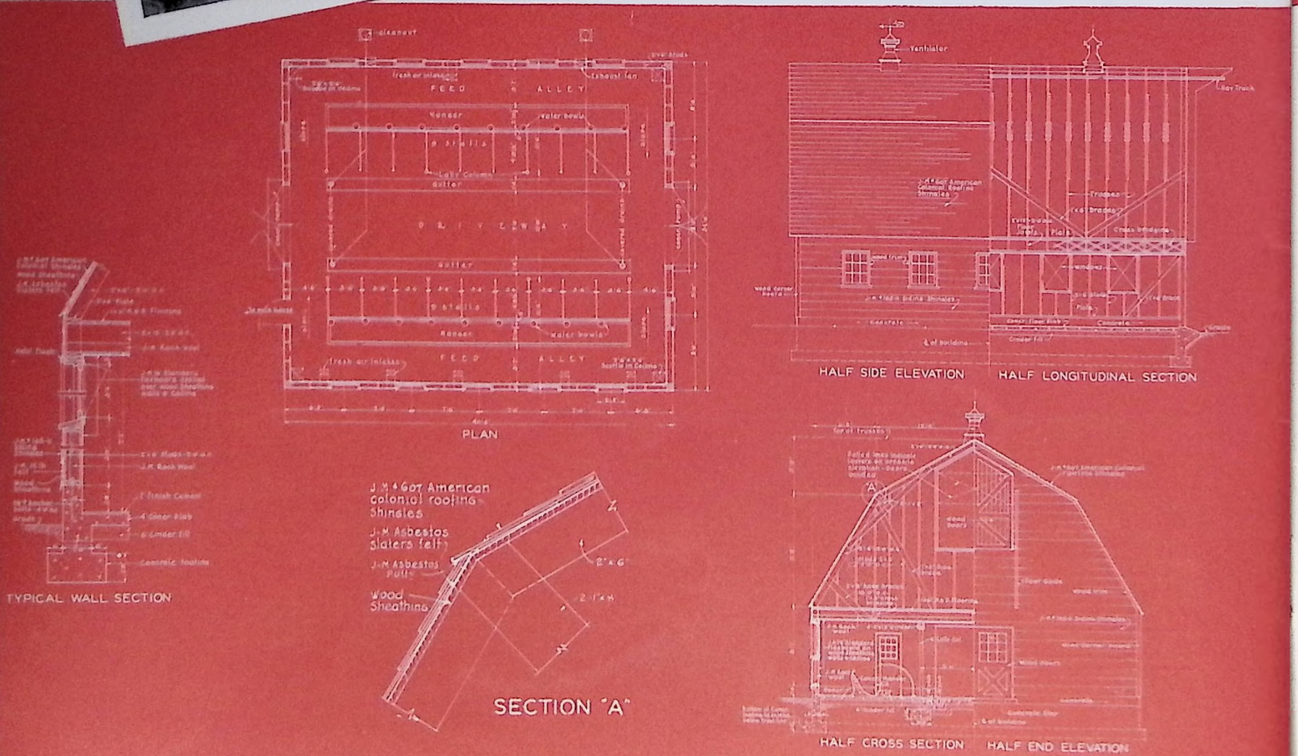
Roof — Fireproof Asbestos J-M Roofing Shingles.

Siding — Maintenance-free J-M Asbestos Siding Shingles.

Interior — J-M Standard Asbestos Flexboard on interior walls and ceiling.

Insulation — J-M Rock Wool Insulation in walls and over ceiling.





COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-MANVILLE DEALER FOR $.50 PER SET (ONE SHEET). REFER TO DRAWING No. F-171.

J-M One-Story
Asbestos Dairy Barn

Recognized agricultural engineers maintain that storing hay in a cow barn is not desirable since such practice adds to the fire menace. With modern developments in feeding and ensilage, the one-story barn is extremely popular among progressive dairy farm operators. The one-story barn illustrated here, further reduces the ever-present threat of destruction by fire because it is completely protected with asbestos building materials inside and out. Despite the many advantages of the one-story J-M Asbestos Barn, its cost is well within reach of what the average farmer considers a reasonable price for a fireproof, modern barn.

This one-story J-M Asbestos Dairy Barn and 20′ x 10′ feed room connecting with a silo, is designed for 30 fresh cows. An eight foot driveway runs the entire 61′ length of the building. Cows face outward and a 4′-5″ wide alley runs along both side walls for convenience in feed handling. The clear span makes for better summer ventilation. Gutters, placing of water bowls, drains and cleanouts are planned for easy operation. Construction Drawings are flexible and can readily be adapted to provide space for the exact number of stalls you require for your dairy herd.

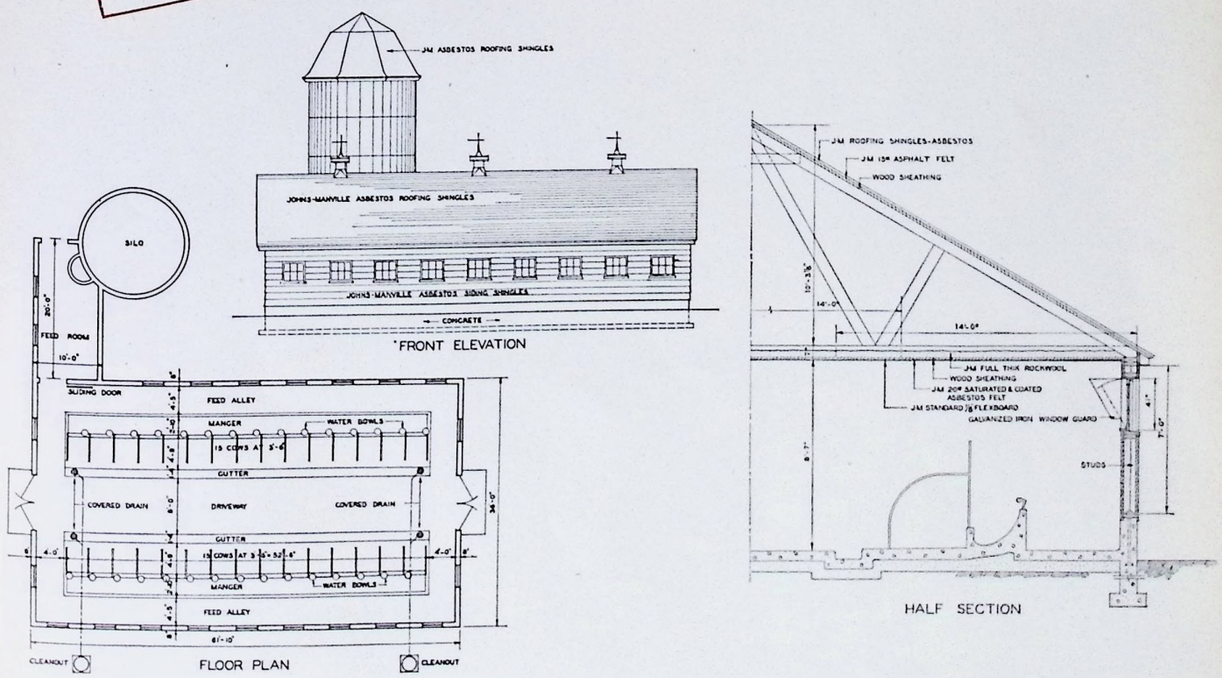
Roof — Fireproof J-M Asbestos Roofing Shingles.

Siding — Maintenance-free, J-M Asbestos Siding Shingles.

Interior — Completely lined with J-M Asbestos Flexboard on walls and ceiling.

Insulation — For peak production the year 'round and reliable temperature control—J-M Rock Wool Insulation in walls and over ceiling.





COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-MANVILLE DEALER FOR $1.00 PER SET (TWO SHEETS IN THIS SET). REFER TO DRAWINGS Nos. F-150B and 152.

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J-M Dual Purpose Asbestos Barn



Although termed the Dual-Purpose Asbestos Barn, this simple, flexible building designed by agricultural engineers can actually serve dozens of housing and storage purposes.

The plans and arrangements of the dual purpose barn are such that it has a place on every farm in need of additional storage or production facilities. It can take the place of a whole series of small scattered out-buildings which are costly to build and maintain. And when and if agricultural conditions change, this barn can readily be converted to practically any use, without a single important change of the exterior.

Here is simplicity of construction utilizing an inexpensive type of trussing and even native poles can be used. Hay piled on the ground eliminates the need for heavy supporting joists and the hay storage area extends from the ground to the roof.

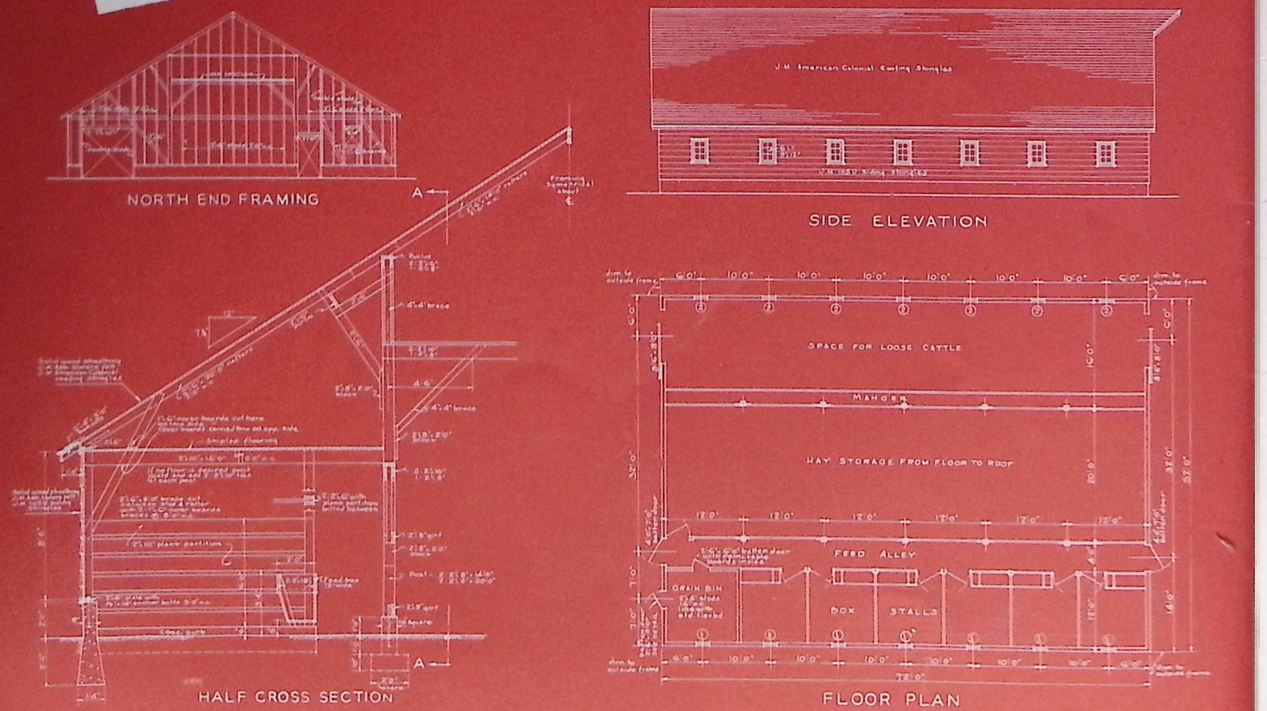
As shown here, five stalls are planned for horses and one whole side is reserved for loose cattle. A small grain bin occupies one corner. And even long after the structure is erected it can be converted readily into a multiple poultry house, a hay barn, a dairy barn, a horse barn or a shelter for any other purpose without expensive alterations.

Roof — Fireproof J-M Asbestos Roofing Shingles or fire resistant Asphalt Shingles.

Siding — Maintenance-free, J-M Asbestos Siding Shingles.

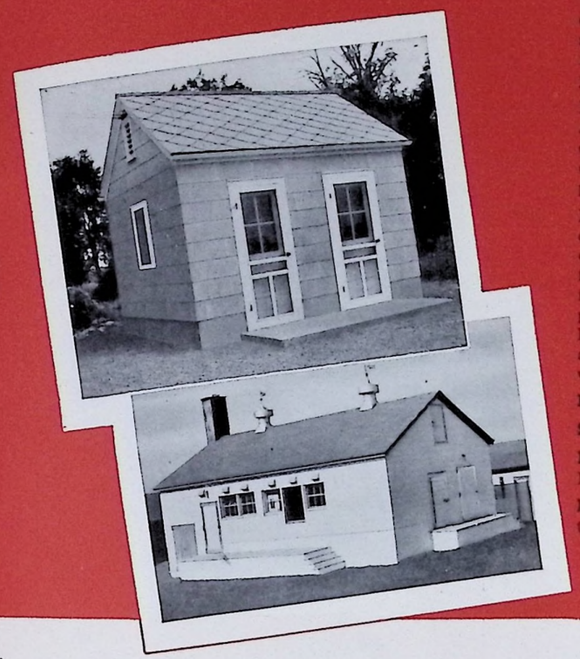
Insulation — J-M Ful-thik Rock Wool Batts in stall and pen sections.

Grain Bin — Safely lined with rodent-proof, sanitary J-M Asbestos Flexboard.



COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-MANVILLE DEALER FOR $1.50 PER SET (THREE SHEETS IN THIS SET). REFER TO DRAWING No. F-172.

J-M Asbestos Milk Houses



Because milk absorbs odors and is easily contaminated, state health authorities generally insist that milk be processed and stored in separate structures away from the barn itself.

To assure sanitation and at the same time reduce maintenance expense and labor to a minimum, Johns-Manville has designed special, low cost Asbestos Milk Houses and bulk Milk Processing Houses based on facts and proved design gained through years of practical experience.

For farm-size bulk trade or small retail operation, the J-M Asbestos Milk House not only meets requirements but its clean orderly appearance serves as a valuable advertisement to your customers of the important safeguards you take with your products in their behalf.

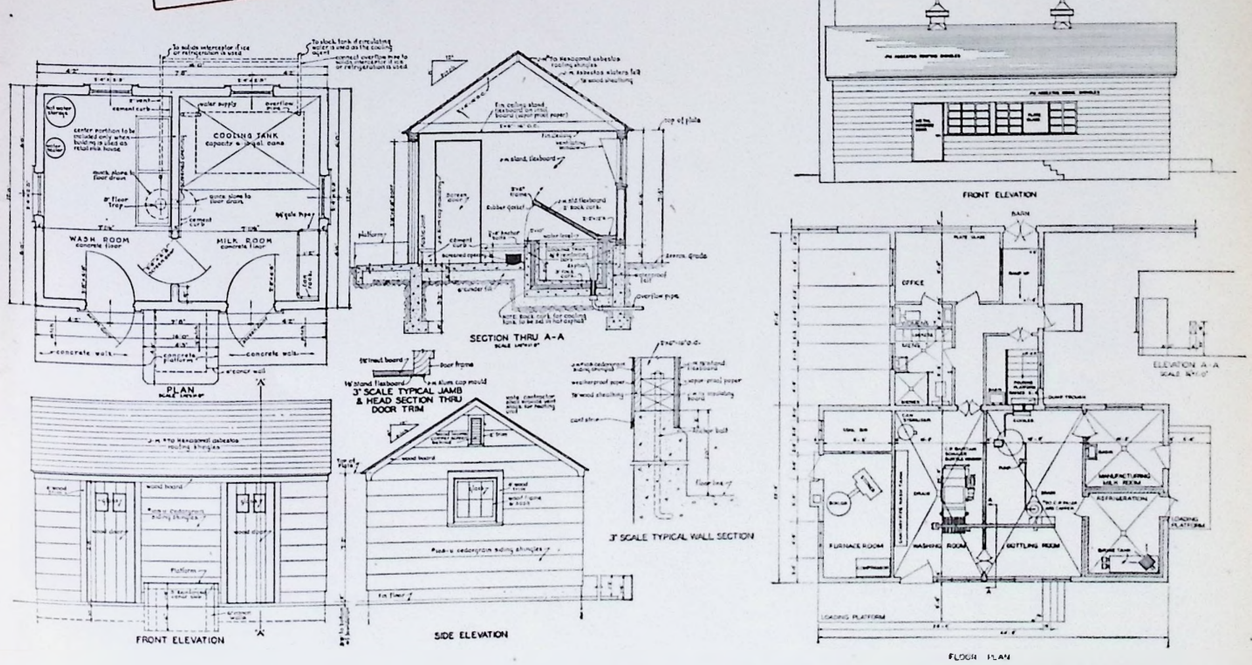
In the larger J-M Milk Processing and Bottling Building, the entire floor layout is planned to insure efficient, economical operation. Ample space is provided for refrigeration, manufacturing, washing and bottling with individual rooms reserved for each step in the process. Construction Drawings give complete details for laying out mechanical equipment and power lines. Concrete platforms on two sides eliminate loading delays and simplify deliveries to and from the building. This building will accommodate the output from 40 to 120 cows.

Roof — Fireproof J-M Colonial Asbestos Roofing Shingles.

Siding — Maintenance-free, J-M Asbestos Siding Shingles.

Interior — Lined with sanitary, easy-to-clean J-M Asbestos Flexboard.

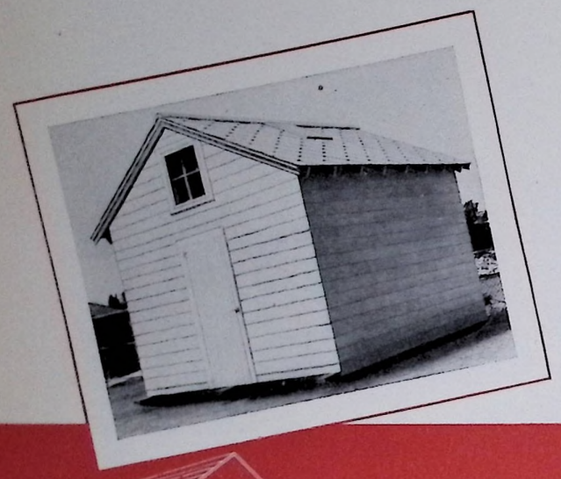
Insulation — J-M Rock Wool Insulation installed in all exterior walls and over the ceiling.



Complete Construction Drawings to erect these buildings may be obtained from your Johns-Manville Dealer. Plans for Small Milk House (Drawing No. F-106) are 50c per set (one sheet). Drawings for the larger Processing House are $1.00 for set of two sheets, Nos. F-151A and F-151B. Two additional sheets, one showing Mechanical layout (F-151C); and another showing a Screened Porch Addition (F-151D) are $.50 each sheet.

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J-M Asbestos Granary



Johns-Manville has adapted Department of Agriculture Granary construction plans to the use of asbestos building materials. These J-M Asbestos Granaries have all the advantages farmers have long sought in this type of building—protection against fire, against rodents, against wind, against moisture. Simple and economical to erect, the J-M Granary delivers a lifetime of service while the cost of upkeep is practically nothing.

Inside, J-M Asbestos Flexboard is used to line the floor of the bins. Its smooth, hard, dry surface provides effective protection against damage or loss caused by rodents. Outside, the J-M Asbestos Siding and J-M Roofing provide protection against fire and weather.

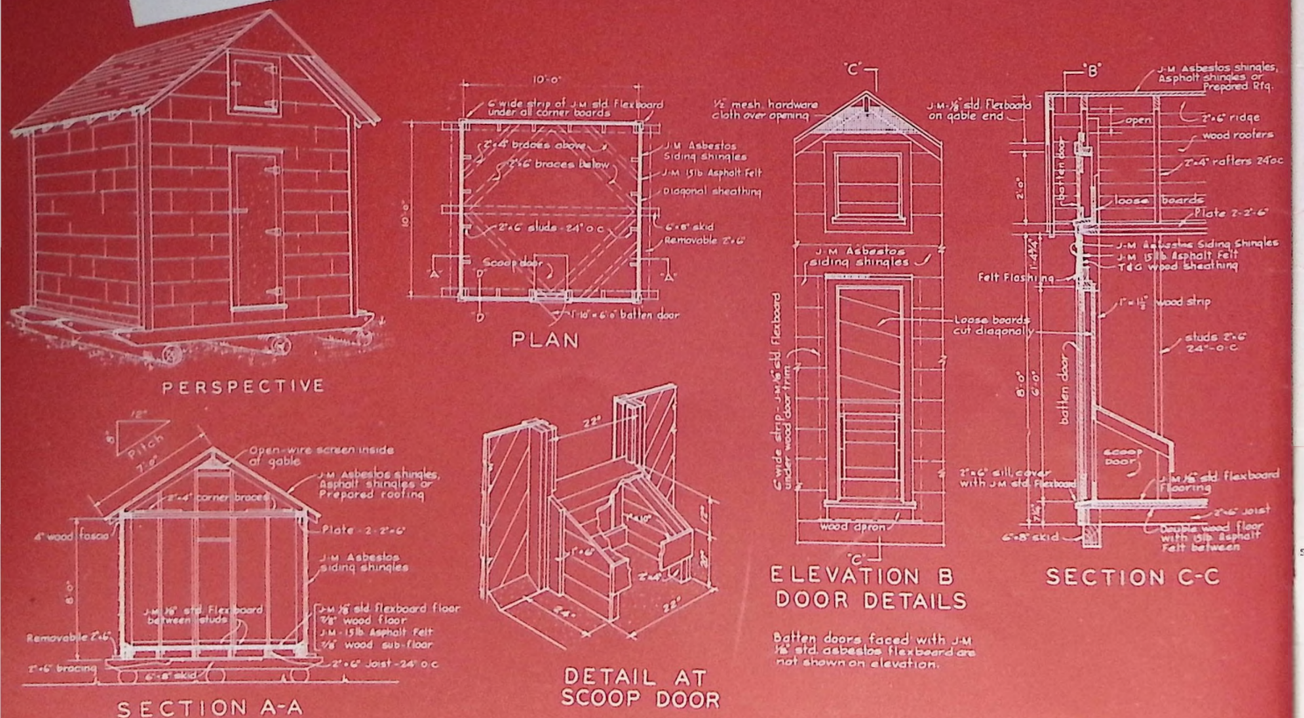
J-M Asbestos Granaries are available in a number of standard sizes for which complete plans and construction details are available. These sizes are — 500 bushels (illustrated) 1000 bushels, 1680 bushels (40 tons) 6400 bushels and 10,000 bushels. Your local Johns-Manville Dealer will be glad to give you detailed information on any of these low cost Asbestos Granaries.

All these granaries can be easily converted to other farm uses, with minimum expense and trouble.

Roof — Fireproof J-M Asbestos Shingles — durable, attractive J-M Asphalt Shingles, or J-M Roll Roofing.

Siding — Maintenance-free, J-M Asbestos Siding Shingles.

Interior — Double wood floor covered with rodent-proof J-M Asbestos Flexboard.



Complete Construction Drawings to erect the Asbestos Granaries, listed below, may be obtained from your J-M Dealer. 500 Bushels—Drawing No. F-162, $.50 . . . 1,000 Bu.—Drawing No. F-163, $.50 . . . 1,680 Bu.—Drawing No. F-164, $.50 . . . 6,400 Bu.—Drawing No. F-165, $.50 . . . 10,000 Bu.—Drawing No. F-167 (two sheets), $1.00

Prefabricated
J-M Brooder House



Keeping chicks warm, dry and healthy during their first few critical months is a job best performed by a carefully engineered building designed for just that purpose.

The J-M Brooder House — snug in all weather, low in cost and employing time-tested features — is the ideal shelter to assure lower mortality and better broods.

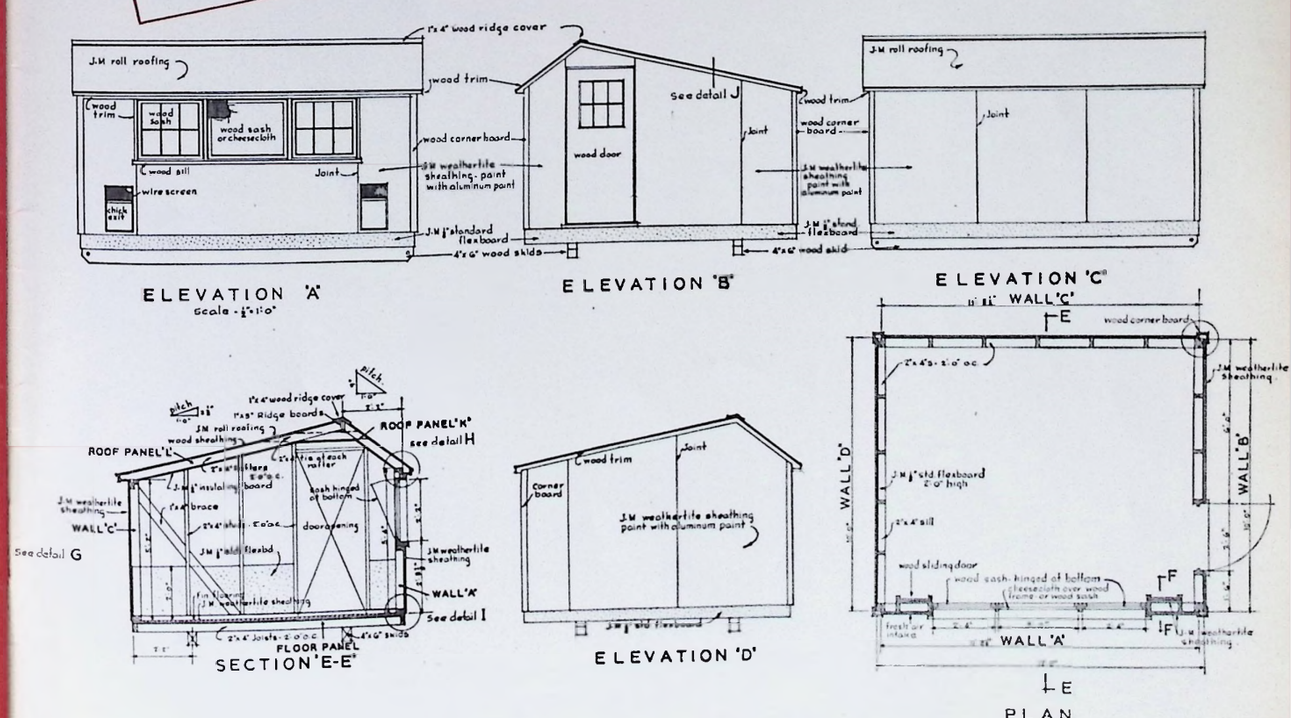
J-M Dealers are equipped to prefabricate these brooder houses in their yards and truck them to the farm either as a completed building or in seven separate panels which comprise the walls, roof and floor, that are quickly assembled at the site.

The use of J-M Weathertite Sheathing finished with aluminum paint for all exterior walls of the brooder is a feature which helps keep cost to a minimum, insures adequate insulation, yet does not sacrifice appearance, durability or weather protection. Ventilation is carefully handled, and readily adaptable to all climatic conditions. The ceiling of J-M Insulating Board lends added protection against heat and cold and helps provide reliable temperature control. A strip of J-M Asbestos Flexboard along the outside base protects against rodents gnawing through from the outside while another strip of Flexboard around the base of the interior provides a peck-proof wainscoting from the floor to a height of 2 feet.

Roof — Colorful, long-lasting J-M Asbestos or Asphalt Roll Roofing or J-M White Top.

Siding — J-M Weathertite Sheathing — a structural insulation with special water and weather resistant qualities.

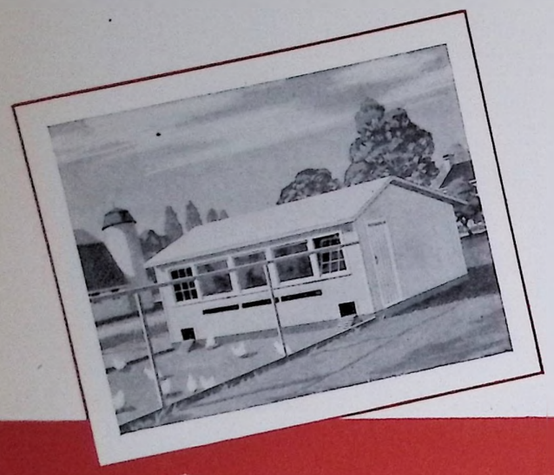
Interior — Wainscot of peck-proof, rodent-proof J-M Asbestos Flexboard. Ceiling of J-M Insulating Board.



COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-MANVILLE DEALER FOR $1.00 PER SET (TWO SHEETS). REFER TO DRAWING No. F-173.

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J-M Laying House



This J-M Laying House provides a durable, sanitary, insulated shelter for a flock of one hundred heavy birds, or one hundred twenty-five leghorns. In winter it protects against wide fluctuations of temperature that cause excessive mortality, and serious drops in egg production. In summer, it effectively protects against the penetrating rays of the sun thus keeping flock losses to a minimum.

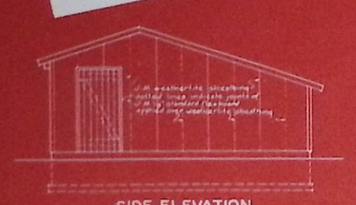
Plans for this laying house offer alternate specifications for either a temporary or permanent structure. J-M Standard Asbestos Flexboard applied over J-M Weathertite Sheathing is specified for the permanent laying house — but the alternate specification of J-M Weathertite Sheathing alone (coated with aluminum paint) affords a shelter that will stand the rigors of the weather for a considerable period without maintenance. However the additional cost of J-M Asbestos Flexboard is repaid many times in added years of protection and freedom from maintenance expense.

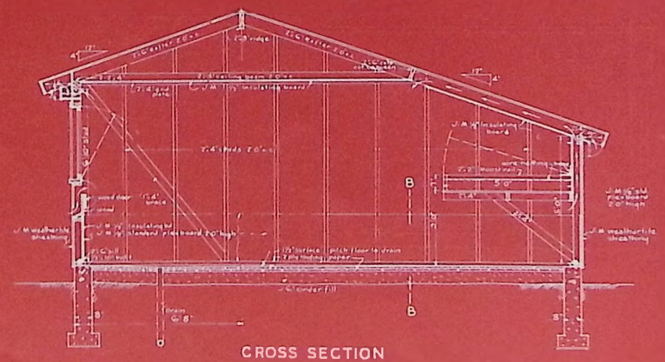
A 24" strip of ⅛" Flexboard serves as a peck-proof wainscot above the floor line. Every inch of floor space is flooded with sunlight entering through extensive sash area — an important sanitation and health measure.

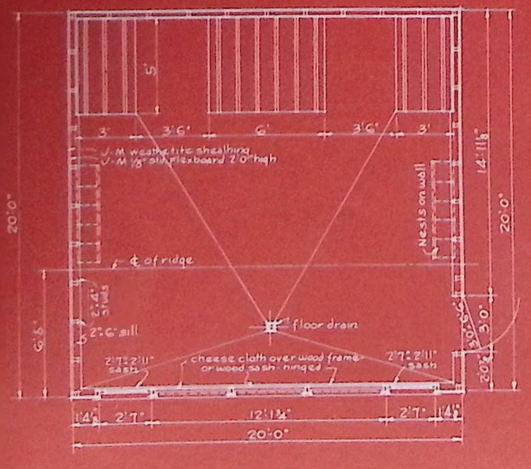
Roof — Heat reflecting, fireproof J-M Asbestos White Top Roll Roofing.

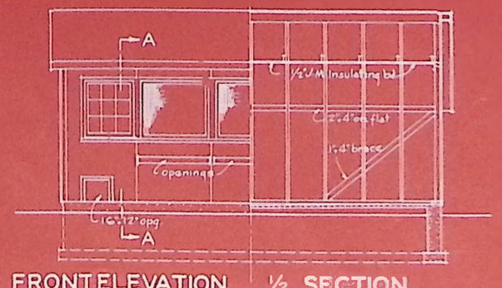
Siding — J-M Asbestos Flexboard over J-M Weathertite Sheathing for permanence, fire protection, low maintenance.

Interior — Ceiling of ½" J-M Insulating Board helps keep heat in during winter, out in summer. Two-foot wainscot of peck-proof, rodent-proof J-M Standard Asbestos Flexboard.









COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-

J-M Asbestos Machine Shed

A national census recently taken showed that there is at least $2500 worth of agricultural machinery on the average successful American Farm. This is a sizable investment — one that should be properly protected and maintained.

A well-planned, conveniently located machine shed is an investment that pays big dividends each year of its life. Nothing contributes more to rapid depreciation of equipment than exposure to the weather which quickly takes its toll in rot, warping and rust.

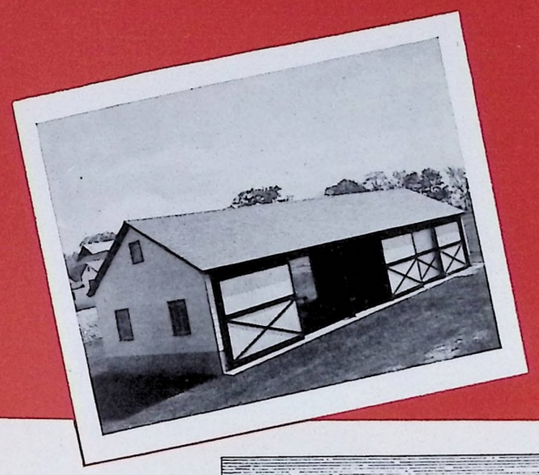
This Asbestos Machine Shed, developed by Johns-Manville, offers all the advantages of neat appearance, long life, low maintenance and fire protection. The long, low building reduces wind resistance and the numerous doors across the front make it possible to store or remove large equipment without the need for moving other pieces. Additions to this structure can be made economically at any time, with a minimum of changes and without sacrificing appearance in any way.

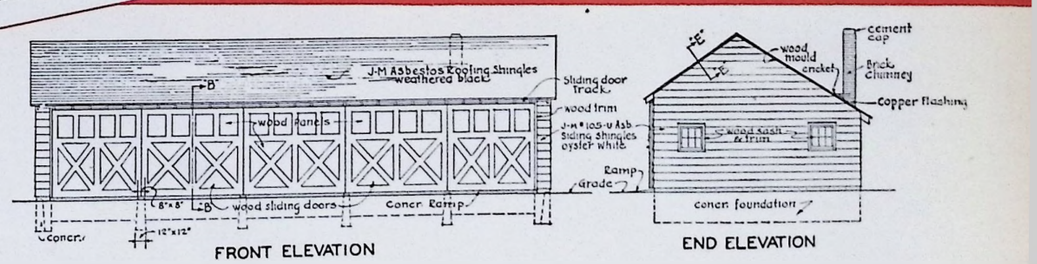
Note that one end of this building is planned as a workshop with provisions for a bench, forge and hoist block. This workshop is partitioned off from the rest of the shed.

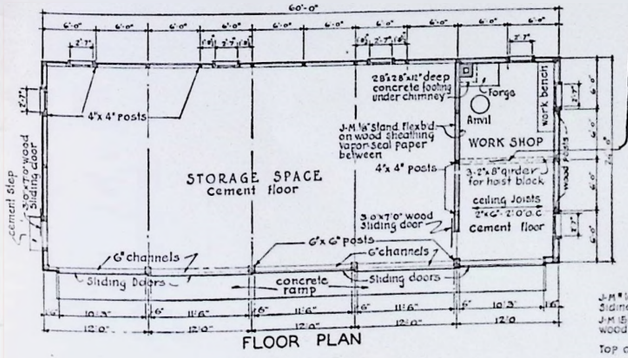
Roof — Fireproof J-M Asbestos Roofing Shingles or fire resistant J-M Asphalt Shingles.

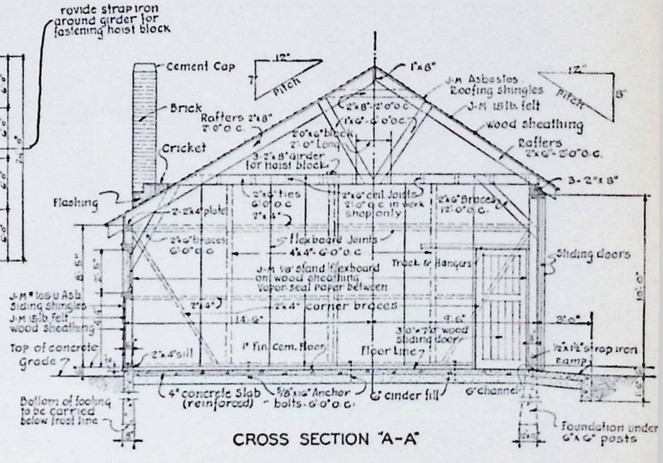
Siding — Maintenance-free, J-M Asbestos Siding Shingles.

Workshop — J-M Asbestos Flexboard on walls and ceiling provides additional fire protection.









COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-MANVILLE DEALER FOR $.50 PER SET (ONE SHEET). REFER TO DRAWING No. F-148.

61

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J-M Asbestos Hog House



It is an acknowledged fact today that a hog house that is warm, dry and well ventilated throughout all seasons of the year is essential to successful farrowing, raising and fattening. Such well planned hog houses that protect against adverse weather conditions — particularly during farrowing periods — need not be high in cost.

The Johns-Manville Asbestos Hog House was engineered to specifications that assure the protection so important to adequate pork production and profits. Asbestos Roofing Shingles and Asbestos Flexboard on exterior wall surfaces afford the desired all-weather safety, low maintenance, good appearance and fire protection. By utilizing Asbestos Flexboard as a lining for interior walls and ceiling, the inside has the same degree of fire protection as the exterior. And in addition, it can easily be washed down to maintain cleanliness. When Corrugated Transite is used in the pens, it eliminates the need for frequent replacements usually necessary because of damage done by sows and by moisture that causes quick-rot.

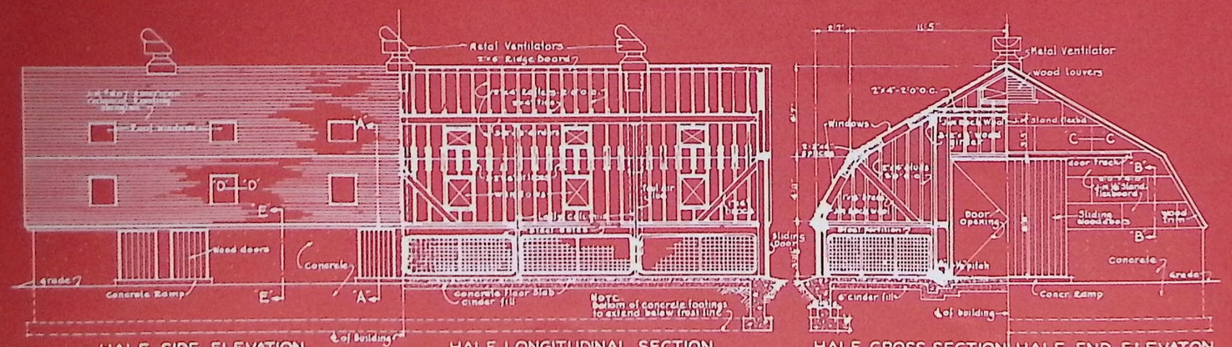
J-M Super-Felt Rock Wool Insulation placed in the walls and under the roof helps keep heat in during the winter, out in summer and makes it easier to control inside temperatures the year round.

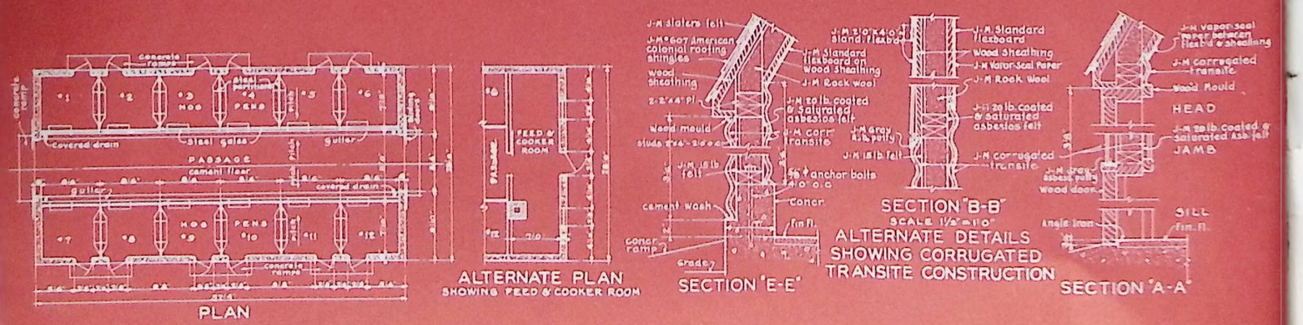
Roof — Fireproof Asbestos J-M Roofing Shingles.

Siding — J-M Standard Asbestos Flexboard strips with 2" laps.

Insulation — J-M Rock Wool Insulation Batts in walls and roof.

Interior — Completely lined with J-M Standard Asbestos Flexboard.





COMPLETE CONSTRUCTION DRAWINGS TO ERECT THIS BUILDING MAY BE OBTAINED FROM YOUR JOHNS-



Your building materials dealer can render you a valuable, new, Housing Guild service!

Today, when it is so important for you to keep your buildings in good condition in order to insure the maximum production of food for our war program, you will find the services of your Johns-Manville building materials dealer more valuable to you than ever before. His knowledge of materials and building practices, based on long experience, qualify him to be your consultant on any problems in connection with the maintenance and repair of your buildings. Furthermore, he can give you information regarding the types of new construction and improvements which are permitted under wartime conditions and he can tell you what materials are available for doing the work.

Through membership in the National Housing Guild, sponsored by Johns-Manville, J-M Dealers in cities, towns and villages throughout the country are today rendering a modern "one-stop" service. They have been specially trained to assist you in practically every building need, relieving you of all burdensome details and delivering your job as a complete "package" at a predetermined price, with everything included. This Housing Guild service costs you nothing and, in fact, will save you money by assuring you a quality job at the right price.

Whatever your building problem may be, your J-M Dealer will gladly talk it over with you. He is identified by the blue and yellow hanging sign illustrated above, or by the circular Housing Guild insignia in blue and gold.

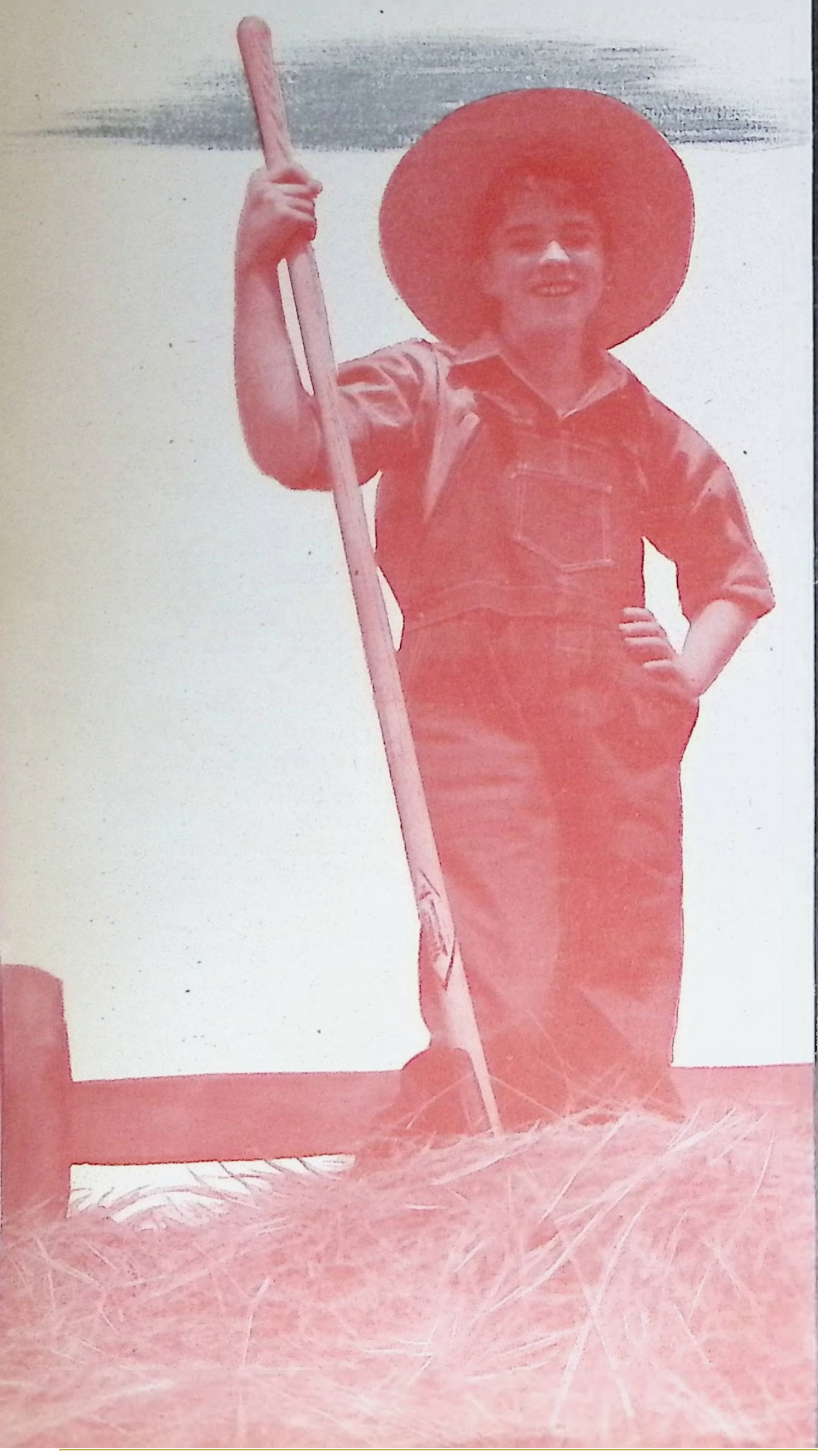
If you do not know who the J-M Dealer is in your vicinity, write to the nearest Johns-Manville office as shown on the back cover of this book.



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