

**BLACKOUT OF
POULTRY HOUSES
AND DAIRY BARN'S**

LEAFLET № 231

BLACKOUT OF POULTRY HOUSES AND DAIRY BARNs

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Blackening-out means that lights must be made invisible to airplanes or ships. Blackouts are ordered only on the authority of the War Department, and regulations with respect thereto may be changed from time to time in keeping with changes in emergency conditions. Every farmer should know the local regulations and be familiar with the alarm system.

The simplest way to blackout buildings is to turn off the lights, and this has been recommended by poultrymen in various coastal States. Normally all changes in the use of the lights should be made gradually, as sudden changes are likely to seriously reduce egg production. Turning off the lights entirely for one or more nights may result in pullets going into a molt. Hence, preparations for blackout should be made as soon as possible by poultrymen in blackout areas who desire to continue lighting. Early morning lights give excellent results and appear to be better adapted for war conditions than any of the other methods of lighting. Evening lights require special equipment for dimming or gradually shutting off the light. In defense areas the use of all-night lighting for laying hens should be discontinued.

Many dairy farmers can shift chore hours or delay work during brief blackouts without harmful effects on production. For those farmers who wish to continue lighting, the suggestions contained in this leaflet should be helpful. The discussion relates mainly to poultry houses and dairy barns since they require relatively more artificial lighting than other farm buildings, but the same principles are applicable to other farm structures.

In blackening out a livestock structure consideration should be given to the fact that livestock must have adequate ventilation for maintenance of health and production and that the moisture given off by the livestock must be removed in order to prevent excessive dampness in the structure and warping and buckling of blackout materials.

Because of the scarcity of many materials, those available on the farm should be utilized to the fullest extent. These include old carpets, blankets, drapes, shades which may be painted or colored, thin box-boards, insulation and wallboards, and old roofing or building paper.

Paints and Surfaces

Many paints satisfactory for blackout purposes are now being distributed by reliable paint manufacturers. Consult your local paint dealer as to their availability. Flat or dull-finish paints only should

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be used because they absorb light, whereas glossy paints reflect light. The addition of turpentine to glossy paints will reduce the glossiness. It is wise to paint a small sample and let it dry thoroughly in order to make sure that it has a dull finish. Black, dark brown, olive drab, green, and other dense, dull colors may be used. Oil paints using carbon black or lampblack as the principal pigments generally cost \$1.75 to \$2.00 a gallon. Cold-water paints and calcimines with a casein base are suitable only for interiors. The casein-base paints are difficult to obtain at the present time. Table 1 gives coverages of paints on various surfaces.

If commercial paints are not available, home-made paint can be prepared by mixing chimney or stove soot in linseed oil. Sufficient turpentine should be added to prevent glossiness and a small amount of japan drier will hasten the drying. Trial batches should be mixed and tested to assure good results.

TABLE 1.—Area of various types of surfaces covered by 1 gallon of paint or other coating material

| Coating materials | Character of surface | Surface covered by 1 gallon | | |
|-------------------------------------|-------------------------------|-----------------------------|---------|---------|
| | | 1 coat | 2 coats | 3 coats |
| | | Sq. ft. | Sq. ft. | Sq. ft. |
| Oil paint (flat finish)..... | Smooth wood or wallboard..... | 500 | 275 | 200 |
| | Plaster..... | 400 | 225 | 160 |
| | Hard brick..... | 350 | 200 | 150 |
| | Soft brick..... | 300 | 175 | 125 |
| | Smooth cement..... | 300 | 175 | 125 |
| | Rough cement (stucco)..... | 150 | 75 | — |
| Cold-water paint (5 pounds powder). | Smooth..... | 300 | — | — |
| Calcimine (5 pounds powder)... | Plaster..... | 400 | — | — |
| Portland cement and water (tinted). | Rough..... | 100 | — | — |

The absorption and reflection of light are greatly dependent on whether the texture of the surface is smooth, rough, dull, or glossy and its color light or dark. Rough surfaces such as a rough red-brick wall will reflect far less light than a smooth light-gray concrete wall.

Methods

Five methods may be used in various combinations to comply with blackout regulations: (1) Turn off the lights entirely; (2) dim the light so as to decrease the distance it may be seen, thereby reducing the illumination available for reflection; (3) when lights must be used, shade them properly and direct the rays toward the working areas; (4) install light locks at exterior entrances that must be used frequently (5) use effective light stops or intervening material such as cloths, paper, boards, paint, etc., which will prevent transmission of light.

If the first method is used, a switch controlling all lights which are to be shut off should be located at some point easily accessible, preferably near the main entrance. In the second method, dimming the lights can be accomplished best by using lower wattage lamps. Even with lower light intensities, the lamps should be shaded and directed toward the working or feeding areas, as suggested by the third method. By bringing the light forward and directing its rays toward the interior walls so that the area commonly used will be lighted, most of

the rays falling on windows or other openings will be decreased. The lights should also be no higher than necessary to give satisfactory service. In dairy barns with cows facing in, the lights can be placed about 6 inches below the window sill or about 3 feet above the floor and a lower-than-normal wattage lamp used. In stables with cows facing out, the size of the lamp can be reduced and a shade used. A large tin can with a hole cut in the top and placed over the bulb will help.

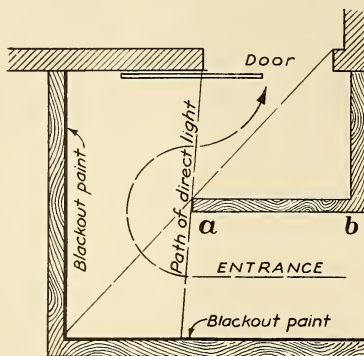


FIGURE 1.—Floor plan of light-locked entrance for milk house or barn.

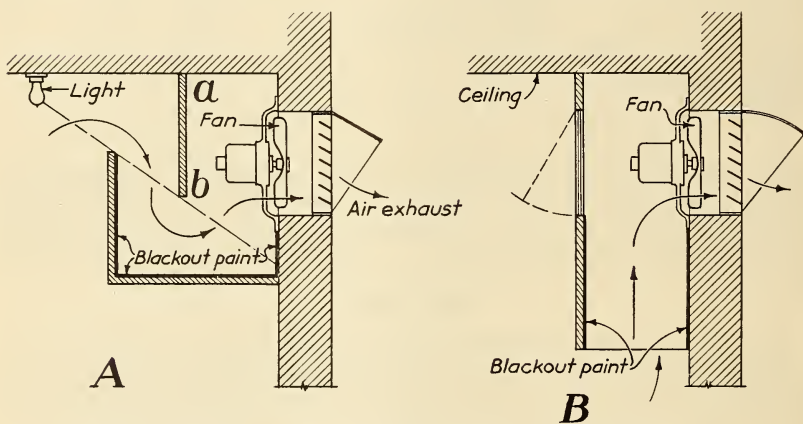


FIGURE 2.—Two suggestions for light locks on ventilating fans.

Light Locks and Baffles

The application of the fourth principle, that of light locks, is particularly useful for entrances and for excluding light from ventilating windows or outlets. Figures 1 and 2 illustrate light locks for entrances and fan housings. The partition, *a-b*, must extend far enough that no direct rays of light can pass through. The application of blackout paint or the use of materials with nonreflecting surfaces in the lock is essential to prevent reflection of light to the outside. Another effective light lock for entrances is a vestibule, which may be

easily constructed either within or on the outside of the building. Curtains or doors may be hung at the vestibule entrance. Sufficient space should be allowed to permit passage of men or trucks beyond one door before opening the next one.

The principle of the light lock can be easily applied to removable or hinged ventilating screens, three types of which are illustrated in figure 3. These removable screens permit full use of windows during daylight hours, but they must be fitted tightly or black cloth or paper gaskets used to prevent light leakage around the frame.

Figure 4 gives suggestions for light baffles for windows where ventilation is desired. Figure 5 illustrates methods of blacking out a roof ventilator. The baffle should be sufficiently wide to prevent direct light passing up the ventilator shaft *a* shown in figure 5, *A*, *B*.

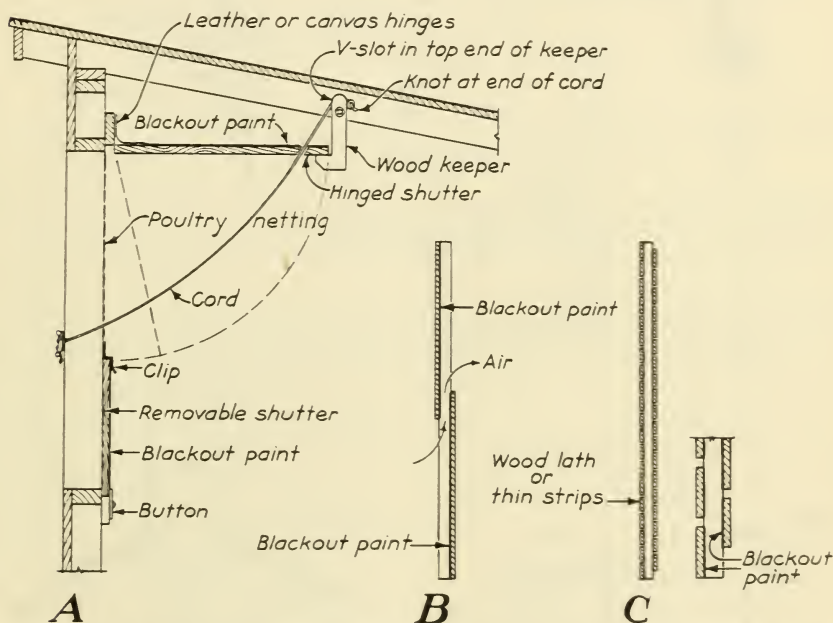


FIGURE 3.—A, Hinged blackout screen which may be closed from the outside and removable ventilating shutter for poultry houses. B, removable slatted screen; C, a removable blackout ventilating screen;

The fifth method of blacking out is generally used when ventilation is not needed. Materials such as drapes, shades, or paint can be used in such a manner as to completely cut off all light rays and usually all ventilation. Figure 6 gives suggestions for blackout shades of this type. Any materials used must stand a considerable amount of handling and must be waterproof for exterior installations. Protection against damage by wind must also be considered. Cracks in boards or around door and window frames may be sealed with strips of roofing, building paper, or battens or may be calked with wet newspapers. Stops of wood or roofing paper may be used around doors.

Painting is the quickest way of providing permanent blackout for windows. In milkhouses and similar locations, where protection

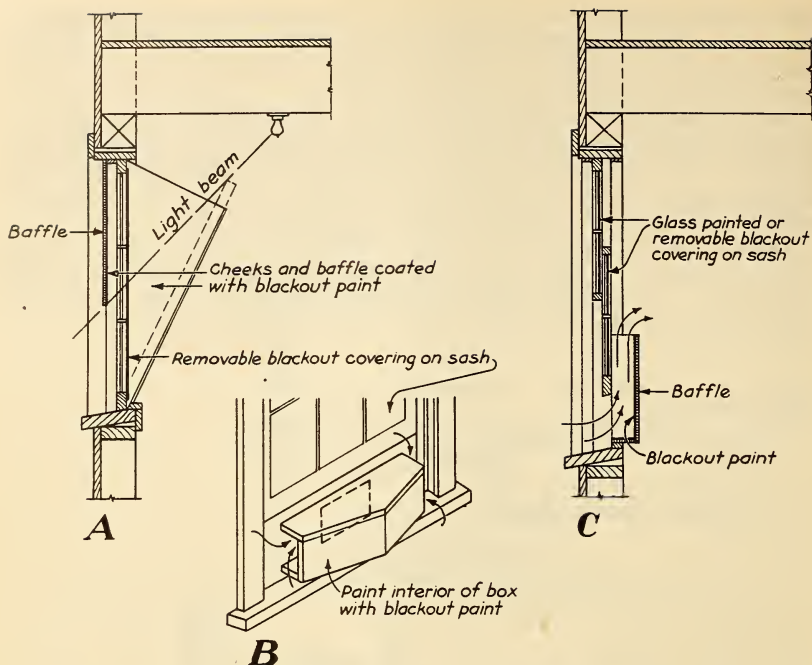


FIGURE 4.—Suggestions for blacking out windows in dairy barns. A, For tilt-in windows; B, for double-hung sash; C, removable ventilating light lock.

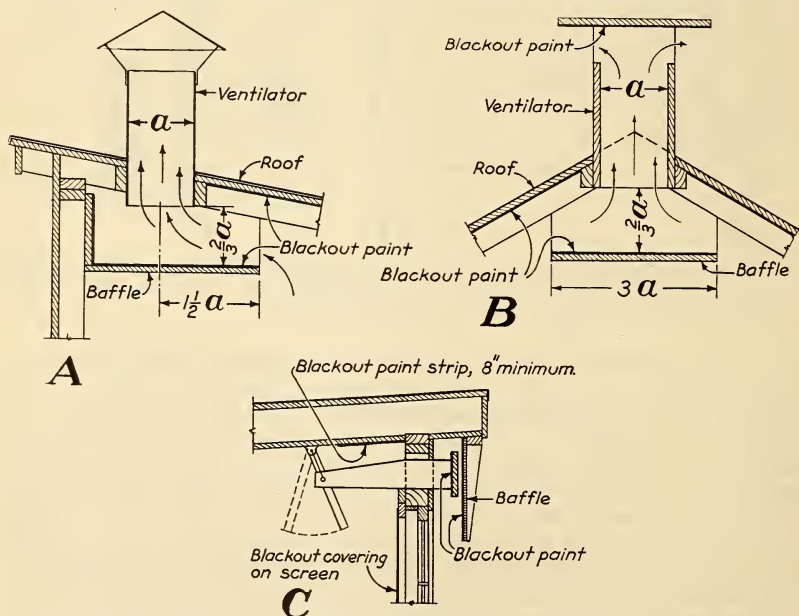


FIGURE 5.—Light locks for poultry-house ventilators. A and B, Light-baffle for roof ventilators; C, light baffle for slot type of ventilation.

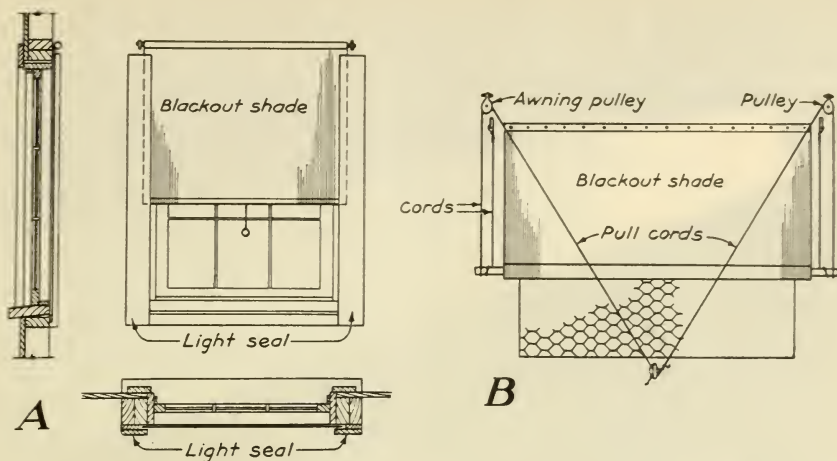


FIGURE 6.—Blackout curtains for poultry houses or dairy barns. A, Blackout shade on spring roller with edge seal of light; B, roll curtain of canvas or reinforced paper with rope and awning pulleys.

against splintering of glass is desirable, strong paper, paper reinforced with fiber, or cloth may be fastened to the glass with an adhesive made by adding 5 percent glycerine or molasses to an ordinary flour paste.

In planning for blackout installations, it should be emphasized that permanent blacking out by painting or with fixed shutters is not advisable for all lighting and ventilation openings in a livestock structure. The blackout methods used should provide for the entrance of adequate sunlight and ventilation. For short periods, restriction of ventilation to one-third or one-half normal amounts may be practiced without serious results. It is well to keep in mind that windows in unoccupied pens or stalls may be blacked out with paint or fixed blinds. Areas in excess of 4 square feet of glass per cow may likewise be blacked out permanently.

Chore routes from house to barn or poultry house may be marked or outlined by means of whitewashed or painted posts or rocks. Luminous paints, which can usually be secured from local paint dealers, may also be used.

