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HOUSEHOLD SERIES

BLACKOUT
FOR
YOUR HOME

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BLACKOUT FOR YOUR HOME

BLACKOUT is perhaps the most useful weapon of passive defence available to the whole civilian population. Blackout is a preventive measure and prevention is always better than cure. Effective Blackout is not only an obstacle to the enemy raider; it also assists the armed forces in dealing with the enemy and, in addition, it affords a marked degree of protection to those who live or work in the blacked out areas.

Efficient Blackout depends mainly on two things: a complete understanding of its purpose and how it may be accomplished; and whole-hearted, public-spirited co-operation on the part of every individual in the community.

This being the case, the purpose of this booklet is to give a working knowledge of the "why" and "how" of Blackout for homes. The details of the blackout problem will vary with the size and type of homes, with the conditions in the particular community and with the proximity of the community to the likely points of enemy action. For these reasons, all that can be done here is to outline the purposes of the Blackout, to indicate what must be accomplished, and to suggest some simple means of achieving the desired results. These suggestions, of course, will require adaptation to suit each particular case.

Ottawa
Edmond Cloutier,
Printer to the King's Most Excellent Majesty.

Director of Civil Air Raid Precautions
The Four-Fold Purpose of Blackouts

The first object of a Blackout is to remove the tell-tale pattern of the community which would facilitate the spotting by enemy airmen of targets within it or near it. The second object is to conceal the identity of localities which might be used as sign-posts or direction finders by enemy airmen trying to locate important military or industrial targets.

The third object is to discourage the indiscriminate bombing of cities and towns by enemy airmen, who, having failed to find their assigned targets, would dump their bombs on any town or city rather than carry them back to their bases unused.

The fourth object is one that concerns you and not the enemy. Blackouts reduce to a minimum the traffic on the streets. During a threat of, or actual enemy attack the safest place is indoors. The Blackout tends to keep everyone indoors. Therefore, it is in itself an important safety measure for civilians.

Thoroughness of Blackout Essential

It is almost impossible to achieve total blackout. On clear nights it is not possible wholly to conceal the presence of communities while waterways, paved highways and even railways can be picked out from a great height by the reflected light of the moon or stars. This makes it imperative to prevent the escape of even the smallest amount of light. Blackout measures should wholly blanket all artificial illumination visible from the air and tone down as far as practicable all reflections of natural light, flares, fires, searchlights, etc.

No community or individual can or must be satisfied with a blackout that is less than 100 per cent of possible effectiveness. Even an odd light or reflection here or there will defeat its major purposes.

Blackout a Civilian Responsibility

Blackout is a means of civilian defence. Therefore, it is essentially a civilian responsibility. Everyone is responsible for doing the most thorough job possible on
the property he or she occupies or for which he or she is responsible. Failure to do so endangers not only your own family and your own community but may assist the enemy in locating vital war industries, power plants and other installations.

Your Blackout must be as completely effective as it is practical to make it. Failure is an offence. It is the duty of your Air Raid Warden to report such failure to his superior officers. Stern penalties are provided for those who fail in this important duty.

A Natural Blackout Question

Since electricity is the source of most lighting in the populated centres of Canada, the question naturally arises: "Why not make sure of complete blackout by simply pulling the main switch at the power distribution station?" Such a step would be effective but, unfortunately, is not practical. To cut off the power supply would halt all street cars and trolley busses in their tracks, would stop elevators between floors, would shut down operations in vital industrial plants, would plunge hospitals and public buildings into dangerous darkness. Moreover, to plunge communities into total darkness, perhaps, for hours, would play havoc with civilian morale.

For these reasons Blackout must be accomplished to a large extent by the screening of lights rather than by extinguishing them.

Importance of Planning NOW

Effective blackouts are not achieved by spectacular individual efforts at the beginning of or during an air raid. As a matter of fact, little or nothing can be done to improve a blackout or make it more effective after an air raid has commenced.

Effective blackouts are achieved, more than anything else, by advance planning and preparation and painstaking effort on the part of every person in every community. The essence of the matter is to understand the problem, to plan, to install and to test your blackout preparations now while there is time and opportunity for making needed adjustments.

Your Air Raid Warden will be glad to advise and assist you with your blackout preparations. It is your immediate responsibility to co-operate fully with him and to do a thorough blackout job. Don't delay. To do so may involve serious or even fatal results not only to yourself and your family but to your community as a whole.

Two Distinct Blackout Problems

The problem of "blacking out" your home will vary considerably according to where you live.

In areas where Blackout or partial Blackout is in effect every night from sundown to sunrise, it will be necessary to plan to blackout practically the whole of your residence. Then you may enjoy the full use of your home in spite of the Blackout. This is important for when, for safety, you must stay indoors for extended periods, the free and unrestricted use of your home and its comforts does much to overcome monotony and nerve strain and to keep up morale.

On the other hand, if you live in an area where a Blackout is required only when there is threat of an enemy air raid, your problem is much more simple. Under such circumstances, you need only screen the
windows of the room you have selected as your Refuge Room and you can blackout the rest of the house by simply turning off the lights.

**Blackout Materials**

In planning your Blackout you must consider not only ways but means. In other words, you must consider not only how you can most effectively blackout your home but what you will use to achieve the desired result. With the vast majority, the question of cost will be a serious consideration and may well be the factor that determines what system of blackout is to be adopted.

It is neither wise nor necessary for you to rush out and buy a lot of new material for your blackout if you have material on hand that can be adapted for the purpose. Not only will it be expensive to do so but the looms and machinery that it takes to produce the material—to say nothing of the material itself—are needed for our war effort. Remember it does not matter what material you use so long as it serves your purpose efficiently. Improvise with what you have, insofar as you can. The best blackouts will often cost the least.

When you are working out your blackout plans take stock of what material you may have on hand and make use of it. Look through your attic, your cellar, your closets and all the other places where you have stored away odds and ends and see what you can find in the way of usable materials now going to waste. Look through your back kitchen, your garage, your garden tool-house, your sheds and around your property for odd bits of lumber, building board, roofing material, metal sheeting and the like with which you can build screens or frames for blackout screens, window blind battens, baffle boards and blackout window ventilators.

Probably the most common method of blacking out is to use curtains or blinds. The draperies you are using or the old portieres or curtains you have consigned to the attic or storeroom may be suitable with a little alteration. Any material that shuts out light will do. It should be black or some dark colour. If it is not it can be dyed. Old bedspreads, blankets, quilts, carpets, rugs and heavy piece goods like velvet or damask are some of the household materials suggested for possible use. To test their suitability hold them up in front of a strong light. If no pin-points of light can be seen through them they will be satisfactory for blackout purposes.

**Outside Lights**

In some parts of Canada, Blackout regulations prohibit all exterior lights, excepting street lights, from sundown to sunrise. If you do not live in one of the areas in which such regulations are in effect, your first step towards the effective blacking out of your home is to make sure that all outside lights can be turned out immediately. This includes all lights on gates, porches, garages, summer houses, greenhouses and out-buildings as well as those used to illuminate driveways and lanes. In the case of large homes, which have a number of such lights, it is advisable to arrange the wiring so that all can be extinguished by pulling one control switch. This is especially necessary if some of the lights are located so that they cannot be seen readily from the house. Lest the switch be forgotten, it is wise to arrange to have a “pilot” or signal light in your Refuge Room which will give immediate warning should any light be left on.
Even when such special precautions are not necessary, great care must be taken to check all outside lights immediately a Blackout signal is given.

**Your Refuge Room Window**

Whether you plan to screen all the windows in your home or only those in the Refuge Room will depend upon whether you must blackout every night or only when attack threatens. In either case, the Refuge Room windows require special attention.

These windows must be screened not only to prevent the escape of light but also to afford protection against the shattering of the glass by nearby bomb explosions. It is wise also to provide for making this window gas-proof in the event such necessity should arise.

To meet these requirements effectively a complete window screen is recommended. The diagrams on the opposite page indicate a simple method for the construction of such a screen.

The first step is to build a light but sturdy frame large enough to cover the whole window and to extend at least eight inches beyond the glass all around. If practical, the frame should fit around the edge of the window woodwork and snugly against the wall alongside. This assures that no light will escape around the edges and also make gas-proofing a much simpler matter.

The screen frame should be covered with light wood (seven-eighths inch wood is best), building board, metal sheeting, heavy cardboard or some such material and then fitted with screw eyes and hooks by which it can be quickly put in position and held securely. Should the glass be shattered, such a screen will protect the
occupants of the Refuge Room against flying glass and also will protect against inclement weather if the glass is broken.

The subject of ventilation in your Refuge Room is dealt with in a later section.

How to protect your Refuge Room against bomb blast and fragments is dealt with in another booklet in this series entitled: “Make Your Home Your Air Raid Shelter.” However, one thing should be emphasized here. Do not depend upon the application of strips of adhesive paper to the glass as means of preventing shattering. Experience has proven that this is wholly unreliable and only sets up a false sense of security.

**Fan-lights, Small Windows, Etc.**

Almost every house has a few windows or glazed openings that are more decorative than useful. Fan-lights or transoms over doors, small windows in the attic, glazed ventilation outlets over passage-ways, small stained glass windows and small windows opening on narrow laneways between buildings are usually quite unessential because even in daytime they admit very little light. It is wise to blackout such windows permanently.

Perhaps the most simple and inexpensive way to blackout such windows is to cover them with black paint. Another is to paste heavy black paper or some opaque material over the glass. Generally speaking, neither is recommended because if the glass is shattered by the blast of a bomb there is nothing to prevent the escape of light.

A much better method is either to remove the glass and replace it with a panel of ply-wood, building board, heavy cardboard or some such material or to tack such a panel on the inside of the window frame in such a manner that no light can escape. If the glass is not removed, such a panel will afford protection against flying glass fragments, will maintain your blackout and will afford protection against the weather even if the glass is shattered.

The panels may be covered by your ordinary curtains or be stained to match the woodwork and so be made quite inconspicuous.

**Glass in Doors**

The glass in doors should be covered with similar panels except that it is preferable to use thumb buttons, hooks and eyelets (or some other simple device) to attach them to the door so that they can be removed when not required for blackout purposes. They must be kept always close to the door to which they belong so that they can be placed in position easily and quickly when the need arises.

**Blackout of Windows**

If circumstances make it necessary or you decide that it is advisable to blackout your home by screening all, or a number of the windows instead of simply turning off the lights, it is important that you should make a careful survey to determine the simplest, most practical and least expensive method to make them absolutely lightproof. The method chosen must be one that will enable you to adjust your blackout screens easily and quickly because your Blackout must be completed within a few minutes after the signal has been given and you won't have much time to spend on each window.
There is no one best way to achieve blackouts by screening. The method most suited to your particular needs will depend not only upon the number of windows but their size, type and location as well as upon how they are already equipped and what materials you may have on hand that can be utilized for blackout purposes.

In the following notes a number of different methods of blacking out windows are outlined. According to individual circumstances and conditions, each has its advantages and disadvantages. The information given, however, will suggest to you the method which, in your case, is most practical.

**Paint:**

The simplest, cheapest and quickest method of light obscuration is the painting of glazed surfaces. A dark, heavy asphalt paint or other paint made for outside use, can be applied quickly with a brush or spray at a material cost of less than five cents per square yard. Paint, however, must be considered only as a temporary emergency measure, since the glass may be broken by a bomb blast or splinters, in which case light would escape. Moreover, paint will prevent the admission of light at all times (which might prove a great disadvantage in normal times) and affords no protection from splinters and flying glass.

**Adhesives:**

Windows may be effectively blacked out by affixing opaque paper, cardboard or fabric to the glass with adhesives. The use of adhesives of this type will prevent broken glass from flying about the room if the window is shattered by a bomb explosion but will afford little or no protection against bomb splinters. Moreover, this method of screening is only practical where permanent blackout is feasible.

**Shutters:**

During the summer many Canadian homes have windows equipped with shutters of the slatted type. A few have some windows equipped with solid wooden shutters. Such shutters, if they fit closely, will be very useful for blackout purposes. Heavy cardboard or some opaque material tacked on the inner side or the use of a screen, blind or curtains, such as described later, will ensure proper obscuration. Alone, they are not much good for blackout purposes, but they are valuable adjuncts to other forms of blackout screening.

**Venetian Blinds:**

Are not of much use for blackout purposes because, as a rule, they do not extend beyond the glass sufficiently to prevent light leakage around the edges. However, if used in conjunction with properly opaque curtains, blinds or screens of light-weight material, they will afford protection against flying glass.

**Roller Blinds:**

Though, themselves, usually of little value for blackout purposes, roller blinds that are thoroughly light-proof, or can be made so by the application of dark paint on the side next the glass, can be adapted readily for light obscuration in the manner described here:

Baffle boards of light wood, about six inches in width and long enough to extend from the roller (at the top
of the window) to well below the bottom of the glass or window sill should be attached to the wood moulding on either side of the window in such a manner that they form channels in which the sides of the blind may ride freely up and down and, at the same time, cover the edges of the blind to prevent any possible leakage of light. If the blind itself is not long enough to reach well below the bottom of the glass, when pulled down, it will be necessary to install a similar baffle at the bottom of the window. Also, if the roller is not installed well above the top of the glass, it may be necessary to install a valance to cover it and prevent the leakage of light at the top.

The sketch on the opposite page illustrates this method and shows how to install the baffle boards.

**Curtains:**

Probably the most common method of blacking out windows and one which, in many cases, is the most easy to arrange, is by the use of heavy curtains or drapes. At first glance this would seem to be a most simple method but there are certain difficulties that must be overcome. First of all, the curtains or drapes must be absolutely lightproof or be made so; secondly, the rod upon which the curtains are supported must be well above the top of the window opening and must extend well beyond it on both sides; thirdly, if the curtain is in two pieces, they must overlap well in the centre or be provided with fasteners to keep the centre tightly closed.

Curtains or drapes used for blackout purposes must be at least four inches above the window opening and
extend to at least six inches below the sill. They must extend at least six inches beyond the window opening on either side.

If the curtains or draperies you intend using are damask, velvet, brocade or some other heavy material and are lined—you need only to rip out the pinch pleats at the top and baste in a dark lining of sateen, percale, silesia or some such material. Unlined curtains or draperies should be treated the same way, but the lining basted in should be of heavier dark material. Any material that shuts out light will do.

**Special Blinds:**

Quite efficient blackout blinds can be made of heavy black paper, tar paper, oilcloth or any other opaque material which you may have on hand or which you can secure readily. This method is illustrated by the sketches on the next page.

Cut two strips of one-inch square wood to a length two feet six inches longer than the width of the glass in your window. In each end of each strip bore a small hole through which the cords, as shown in the sketch, are to be attached. Fold one end of your blackout material two or three times around one wood strip and the other end of the material around the other strip (see sketch). The material must be at least sixteen inches wider than the glass so as to extend eight inches on either side. Stout cords attached through the holes in the ends of the wood strips are fastened to screw hooks above and below the window as shown in the sketch. The tension on these cords holds the blackout screen tightly to the window frame.
If desired, one of the wood strips can be attached permanently to the frame above the window. When the shade is not required it can be rolled up from the bottom and held in place at the top of the window by a couple of strong tapes, as shown in the sketch. These tapes should be tied in bow knots so that they can be released quickly and easily when required, thus allowing the shade to unroll and cover the window.

**Framed Screens:**

Screens such as recommended for the Refuge Room window will achieve the desired blackout results, protect against glass shattering and afford some measure of protection against splinters. This type of screen is more effective than the others described but also more expensive. It takes more time to adjust when a Blackout goes into effect and when not in use is not as convenient to store as other types. It is advisable, however, to consider providing such framed screens for some of the more important and more exposed windows other than in the Refuge Room. Any opaque material may be used for covering as complete protection against shattering need only be planned for the Refuge Room where you and your family will remain during an actual attack.

**Protecting Windows Against Shattering**

Reference has been made to the advantages of screens of plywood, wallboard and other such materials as a protection against injury from glass shattered by bomb blast. However, generally speaking, this type of screen is too expensive for use throughout the house. When any of the other methods of screening are adopted it is
necessary to take steps to protect against the flying glass hazard. This is not only to prevent injury but also, because a blasted window will probably destroy your blackout screen and light will escape from the shattered window.

There are several tested methods of preventing windows from being shattered by blast at all but close range. These are described in detail in another of this series of A.R.P. booklets, entitled: "The Protection of Windows and Glazings."

**What To Do About Skylights**

If your home has a skylight you must provide a screen for it, using whichever method described for window screening best suits the conditions.

If the skylight is not essential for light or air, the permanent screen method suggested for fanlights, etc., is recommended. This provides thorough blackout and protection against shattered glass. Once installed, it requires no adjusting each time there is a Blackout.

If the permanent complete screen is not desirable, consider building a hinged frame—in one or two sections—which can be opened and closed from the floor by means of rope and pulleys. This frame should be built and covered with opaque material in the manner described on page 11. Curtains, heavy enough to obscure light and arranged so that they can be readily drawn across the skylight, may offer a simple and effective solution.

Special attention must be given to the danger of shattered glass. A shattered skylight will shower the room below with dangerous glass fragments which will easily break through either paper or the ordinary roller shade or curtains. If such materials are used it is neces-

sary to provide above the blackout screen a wire netting guard the mesh of which is not larger than half an inch. This guard, once put in place, can be left as a permanent fixture.

Skylights, unless suitably dealt with, will reflect moonlight, light from enemy flares and glare from nearby fires so that it can be easily seen from a great height.

If the roof on which the skylight is located is not too difficult of access it is most desirable to provide some quickly adjustable screen outside the glass.

A coat of good dull black paint on the outside of the skylight glass is the surest means of solving the reflection problem but, of course, it very definitely shuts out most of the light.

**Ventilation During Blackouts**

This is an important subject, for it is never wise to have your home cut off from a supply of fresh air for long periods at a time.

The most simple method of letting air in without letting light out is by the use of a blackout ventilation box, such as illustrated on the next page. The box is really a tunnel passing from the room to the outdoors. One-third of each end is open to allow the passage of air. In the centre is a partition, also leaving one-third open, but placed opposite the openings in the ends so as to prevent the escape of light. The air will flow around the partition. Light, unless reflected, travels only in a straight line. Reflection within the box is overcome by painting the whole inside with a dull black paint.

When used in a double sash window, which slides up and down, the box is placed on the lower sill and
the window brought down tightly on top of it to hold it firmly in place. The window above the box and the space around the box must be well screened. A heavy dark cloth attached closely around the box and around the window frame will serve admirably.

The ventilation box is more difficult to adjust to windows of the hinged type and it is recommended, therefore, that you choose the double sash type windows for your ventilation during blackouts.

At least two windows, on opposite sides of the house, should be fitted with ventilation boxes. Arranged as indicated in the sketch, they can be easily and quickly placed in position when needed.

**Emergency Lighting Arrangements**

It is not necessary, or desirable, to cut off the electric current at the main switch during a Blackout. But if an attack begins or is clearly imminent, it is advisable that the switch should be pulled. Should the house be wrecked by a bomb explosion or should fire occur, broken "live wires" add a serious and unnecessary danger.

Against the possibility that you may decide to pull your main switch or that power service may be cut off, it is wise to provide suitable emergency lighting facilities.

Good dependable flashlights are the best. They consume no oxygen from the air.

Candles furnish a lot of light for the air they use and are useful if used in safe and steady receptacles.

Hurricane lamps and other closed type lanterns, furnish good light and, with proper care, are safe. The ordinary oil lamp is not recommended on account of
the fire risk. Such lamps are easily upset in time of excitement, especially if you are not accustomed to handling them.

According to your facilities, provide suitable emergency lighting of the safest available type.

**Blackout Preparations Outside the House**

The proper place to be during a Blackout is indoors. Nevertheless, it is wise to do a little preparatory work outside the house in order to assist those who may be forced to be outdoors.

White paint or whitewash should be applied to gates and gate posts. White stones or posts should mark the line of footpaths or driveways. It is wise to apply white paint to the handrails of outside steps and to mark the edge of each step with white. A spot of white on the door handle, bell and keyhole will be useful.

There are several good luminous paints on the market. These, though more expensive than ordinary paint, are excellent for Blackout marking.

In addition to the above provisions, it is important to keep the surroundings of your house tidy and to leave nothing lying around that someone may trip over in the dark. Children’s toys, bicycles, garden tools and the like must be kept out of harm’s way. Look over the outside of your premises carefully with Blackout in mind. Remove everything that might be a danger to those moving about in the darkness or might prove a hindrance to the fire fighters should your home take fire.

**Indoors in a Blackout**

Only some situation of real urgency should prompt you to leave your home during a Blackout. To travel about in the darkness is to invite injury. Stay at home.
BLACKOUT CHECKING LIST

1. Are all outside lights arranged so that they can be quickly extinguished?

2. Is your Refuge Room window screened for both Blackout and protection against flying glass?

3. Are all fanlights and small windows well blacked out?

4. What about the skylight?

5. Has every window in the house been properly screened and thoroughly inspected from the outside after dark?

6. Have you provided for proper ventilation during a Blackout?

7. Have you done a good white marking job on the outside of your home?

8. Have you plans made to spend Blackout evenings pleasantly and profitably within your own home?

9. Have you provided for emergency lighting?

10. Have you provided a suitable place to keep your pets and your car during a Blackout?

11. Are you and your Air Raid Warden fully satisfied with your Blackout arrangements?
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O.H.M.S.