

Extension Economist, Home Management
BONNIE GOODMAN

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BETTER LIGHTING FOR THE FARM HOME

Did you ever think of what a terrible world this would be without light? Imagine yourself living in a cavern hundreds of feet beneath the ground without any type of lighting. It is then we realize the importance of lighting, and that there could be very little progress made in the world without its aid. In the beginning of time the world was made, and the creator, realizing the necessity for light, gave to the world an adequate supply. The form of light supplied for the world was the natural lighting furnished by the sun, which gives ample lighting during the daytime, but no form of lighting was supplied for seeing at night.

The creator of light either expected that man's work be finished at the end of the day, or left to him the task of discovering artificial light. Since civilization advanced to the extent that man's work could not be completed during the day, human beings began working to discover an artificial light for using at night. By hammering on a rock at night it was found that a spark of light was produced which would burn articles it touched. After this discovery people began making rapid improvement in the development of lighting for the home.

One of the first types of lighting used by man for seeing at night was a torch produced by the burning of a pine knot which had been dipped in pitch. In the early days, primitive man discovered methods of making candles for lighting purposes. This method of lighting was an improvement over the torch, and candlemaking became one of the new industries. Since candles were expensive to make, "grease lamps or Betty lamps" were commonly used. For the wick a twisted rag or reed and whale oil was placed in the lamps. Camphine, a by-product of turpentine, was next used as fuel in lamps; then it was later discarded for kerosene, when it was discovered.

When kerosene was first produced, man found that it would give a light for seeing at night by placing the kerosene in bottles, then inserting a long piece of heavy cloth in the bottle with the end hanging outside, and lighting the cloth. This type of lighting produced a brighter light than a candle. By using the bottle torch light, some one discovered how to make wicks, chimneys, and lamps as used in many homes today. There has been much improvement made in the types of kerosene lamps found on the market today in comparison with the first kerosene lamps used. Some of the earlier kerosene lamps were made of tin with a small round wick, and were not equipped with a chimney. Now, a very nice lamp made of glass, or metal equipped with mantles, large circular wicks, frosted globes and light-colored, well-designed shades can be found on the market.

Other types of lights used in homes are carbide and gasoline. Of course, the electric light is the nearest to an ideal type used for lighting the home at present.

LIGHTING AS AN IMPORTANT FACTOR IN THE HOME

The importance of good lighting cannot be overestimated. Light is necessary every minute of our time except while asleep. During the winter months when the days are short, artificial lighting is often used eight to 10 hours per day between five o'clock in the afternoon and seven o'clock in the morning. Many homes have so few doors and windows that it is necessary to use artificial lighting during the day when the weather is cloudy.

Light, as well as the eye and some object in view is essential to seeing. One cannot see without light, and the sense of sight is the most needed of the five senses. There is such a close relation between good eyesight and good lighting that its value must not be overlooked. Good lighting is the secret of long-continued good eyesight in both adults and children. It is not possible to change the eyes, which have been harmed by poor lighting except to correct them with eye glasses, but lighting can be changed to prevent further development of poor eyesight. Improvements can be made in lighting to make seeing easier, and to relieve strain on the eyes caused by poor lighting.

One of the greatest needs in the farm home is better lighting, because recent studies show that the average home has very poor lighting. When electric lights are not available, it is now possible to have a fairly good light from a gasoline or kerosene lamp.

The kind of lighting provided in the home greatly affects the well-being of the whole family; therefore, the family should provide the best lighting that is available.

One of the reasons primitive man had good eyesight was because he spent most of his time outside the house where plenty of light was supplied by the sun, and very little of his work was done close-up; therefore no strain upon his eyes was necessary because he realized there was no artificial light for seeing how to work at night.

CHARACTERISTICS OF GOOD LIGHTING FOR THE HOME

There are certain characteristics of good lighting in the home which it would be well to consider, if the home is to be properly lighted. First, the absence of glare from the light is very important;

second, it is necessary that light be of good quality; and third, the light should be properly placed.

In order to prevent glare from lights it is very essential that all lights be shaded, whether electric, kerosene or gasoline lamps are used. Bulbs of electric lamps, flames of both kerosene and gasoline lights should not be exposed beneath the shade if the lighting is to be the best quality.

All light should be shaded if it is to be restful. The bare sunlight is glaring, but when shaded by a cloud it ceases to be so glaring. The most restful sunlight is in the shade of a tree or in the shadow of a building, and in like manner, all light from lamps should be shaded.

The quality of lighting is just as important as the quantity of light. The best quality of light is soft and mellow. For example, electricity and gasoline give a bright glaring light, which must be softened with a shade, a frosted bulb or some type of protector. The shades of heavier materials produce a better quality of light by reducing the amount of glare. There should not be any harsh shadows on the work when the hand is held between the light and the work. Frosted or diffusing glass bowls and shades will soften shadows and produce a good quality of light in the home.

The placement of lamps is very important in producing the best lighting. Lamps that are badly placed may destroy the harmonious quiet effect that prevailed before the light was turned on, thus giving a poor effect in home lighting. The angle and the height of a light is an important factor in good lighting. Lamps should be placed so that the light falls upon the work rather than upon the person. All lamps should be placed to one side rather than directly in front of or at the back of a person. It is usually suggested that light come from the left shoulder.

There should be a lamp placed beside every spot where people read, sew, or do other close-up work. It is suggested that a lamp be placed beside each easy chair, at the end of the davenport, at the writing desk, at the sewing machine and at the head of each bed.

AMOUNT OF LIGHT NEEDED IN THE HOME

There should not only be enough light in every room for seeing, but there should be ample lighting for doing various tasks in the home. It is generally agreed that two types of lighting are needed to make a room comfortable for seeing and close-up work; that is, general and localized. General light is usually in the form of a

ceiling fixture which is indirect and throws light over the entire room. It should be used for occasions when a uniform light is needed in all parts of the room. There are many types of lamps and fixtures on the market that will diffuse light, and throw it over the room without revealing the source. Localized or direct light is produced in the form of table lights, floor lamps or wall lights at the place where they are needed for work. Two or three lamps distributed throughout a room can be moved to the place where they are needed.

Each kind of work needs different amounts of light. All light is measured in footcandles. A footcandle of light is the amount of light a candle gives one foot away from the candle. Most people sit farther than a foot away from the light. For example, if 20 footcandles of light were supplied at one foot for reading and a person sat two feet away from the lamp, he may have only 4.5 footcandles of light, and would have to quadruple the amount of light needed. This may be done by using a larger watt bulb or two kerosene lamps in place of one. There is a light meter for testing the amount of light given off by the various light fixtures and bulbs. By placing the meter at two or five feet away from the light one can know whether there are 10 or 20 footcandles of light at a certain distance from the lamp. The bulbs may be changed if electric lights are used, and one can know whether a 50-watt bulb will give 15 footcandles of light or whether a 150-watt bulb will give 50 footcandles of light. By using the meter, it is possible to tell whether or not the light is suitable for reading, sewing or kitchen work.

In testing sunlight it has been found that the sun furnishes 8,000 to 10,000 footcandles of light, which is adequate for seeing and for work done outside the house. In fact it is often too much light when a person is directly in the sunlight. It may be necessary on a bright, sunshiny day to shade the eyes from the glare by wearing shaded glasses.

There are 500 to 1,000 footcandles of light under the shade of a tree. This amount of light is sufficient for any type of work. In fact, it is too much light for some types of work, such as reading or handwork

It has been found through different studies made that the average home using poor kerosene light has from one to three footcandle of light or as much light as three candles would give one foot away.

The following table gives the amount of light produced by different watt bulbs at certain distances from the lamp or lighting fixture.

Type of Fixture and Size of Bulb	No.	No.
	Footcandles 36" from Bulb	Footcandles 24" from Bulb
Table lamp, 60-watt bulb	5-10	-----
Direct Bedside Wall Lamp, 75-watt bulb ...	10-20	-----
Bedside Lamp—Glass Bowl, 100-watt bulb ...	10-20	-----
Table or Floor Lamp, 100-watt bulb	10-15	40-45
I. E. S. Table or Floor Lamp, 100-watt bulb ..	10-15	40-45
Table or Floor Lamp, 150-watt bulb	15-20	50-55
Three Light Fixture, 300-watt bulb	25-30	45-55
Wall Lamp, 100-watt bulb	10-15	40-45

A 200-watt bulb placed in a good indirect ceiling fixture in a room 12 x 12 feet with an eight and one-half foot ceiling will produce 10 to 50 footcandles of light.

It has been recommended by the Illuminating Engineering Society that the following amounts of light be supplied for doing various house-hold tasks:

RECOMMENDED LIGHTING INTENSITIES FOR THE HOME

Reading—	Footcandles
Prolonged periods with fine type	20-50
Ordinary reading	10-20
Sewing—	
Fine needlework on dark goods	100 or more
Prolonged average sewing	50-100
Prolonged sewing on light goods	20-50
Ordinary sewing on light goods	10-20
Writing (Ordinary)	10-20
Card Playing	5-10
Children's Study Table	20-50
Dining Room (when used for ordinary reading or writing)	10-20
Kitchen—	
General	5-10
Local at work counters and sink	10-20
Bedroom—General	2- 5
Bedroom light	10-20
Dresser (vanity and dressing table mirrors)	10-30
Sewing machine	20-50
Bathroom mirror	10-30
Children's playroom—	
General	5-10
Local	10-20
Stairways and stair landings	2- 5
Workbench	10-30
Ironing machine, ironing board and laundry	10-20

The general level of lighting in a room should be at least one-tenth of that of the working area. If a person is reading and 20 footcandle of light is shining on the book, then two footcandle of light should be available in all other parts of the room at the same level as the book or at the level of the eyes of the reader.

CHOOSING ELECTRIC LAMPS AND LIGHT FIXTURES

In choosing lighting fixtures, the first principle to consider is the amount and the type of light given out. There are many light fixtures on the market that appeal to the eye, and add a decorative note to the room, but provide very poor light.

Selection of Good Designs Some of the designs of lamps and other lighting fixtures found on the market today are very poor. The selection of a lamp or other lighting fixtures should depend upon the size and the type of furnishings with which it will be used, as many designs are too elaborate. Designs in light fixtures should be simple, inconspicuous, and easily cleaned. It is difficult to clean elaborate designs, and a dirty lamp produces a poor light.

The lamp should not only be of good design, but there should be harmony in the shape of the base with relation to the shade. For example, a square lamp base would need a square shade, while a round lamp base would require a round shade, if good design prevailed.

Balance is just as important as harmony in the selection of lighting fixtures. The base of the lamp should be heavy enough that it does not tilt over easily, and the shade should not be top heavy.

The proportion of the shade should be in keeping with the proportion of the base of the lamp; that is, a large shade would not look well with a small base. It is very important that the shade come down over the base to cover the bulb or the flame of the lamp.

Very little design is needed on a lamp shade or a lamp base, and if a design is used, it should be similar in both the shade and the base. About all the decoration needed on a lamp shade is one or more line designs in some harmonizing color around the top and bottom edge. Designs, as bunches of flowers, pictures of people or landscapes, should never be used on lamp shades as they shut out part of the light needed in the room.

Lamp shades are made of parchment paper, glass and fitted cloth. A shade trimmed with artificial flowers, ribbon, fringe and frills is neither beautiful nor practical; it is a dust catcher which

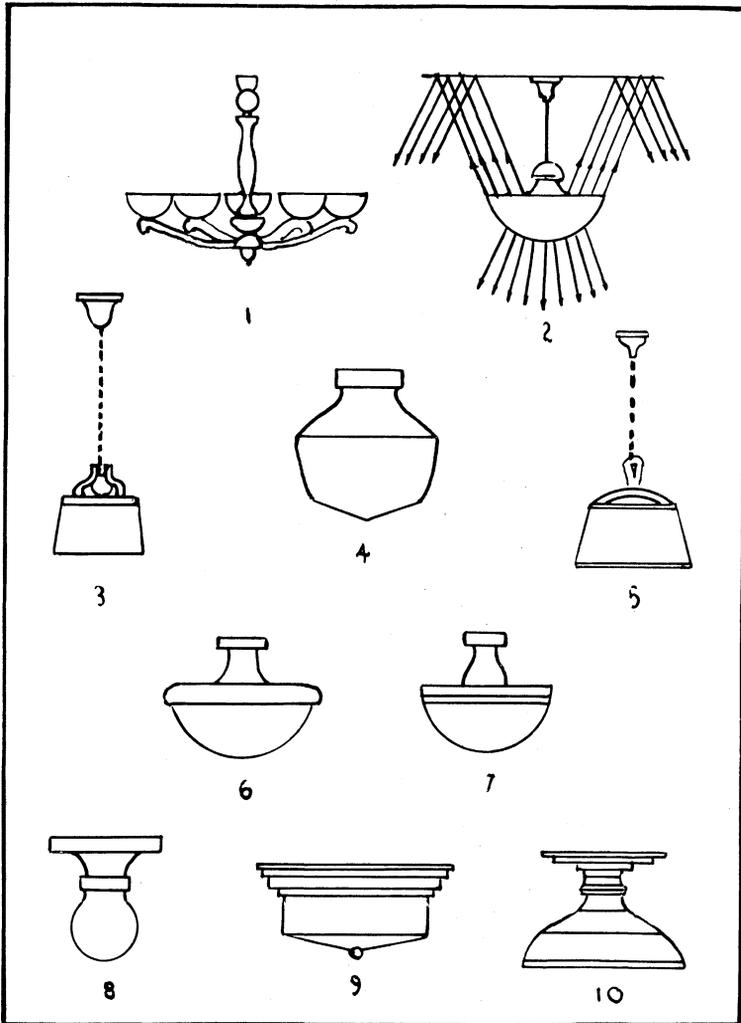


Fig. 1.—Suitable Ceiling Electric Fixtures for Various Rooms of the House.

- 1. Living Room
- 2. Indirect Overhead Lighting
- 3. Dining Room
- 4. Kitchen
- 5. Breakfast Room

- 6. Bedroom
- 7. Bathroom
- 8. Closet
- 9. Hall and Porch
- 10. Basement and Attic

cannot be easily cleaned. White opaque or frosted glass is easily cleaned and gives much light. A lamp shade should have a light-colored lining, and a diffusing bowl to give the best lighting.

Color in Relation to Light: Color is an important factor to consider when choosing lamps and light fixtures. It is usually recommended that all lamp shades have warm colors, such as ivory, cream, pale yellow, buff, pastel shades of tan, peach, apricot and amber.

Dark colors should never be used in lamp shades, bulbs or chimneys because a dark color absorbs light. In this case it would be necessary to use more lamps, or bulbs with a higher wattage.

The color of lamps and lighting fixtures should harmonize with the general color scheme of the room. A bright orange base lamp should never be used in a room where the predominating color is rose or pink. Light colored walls, ceiling and woodwork reflect more light than dark colors.

Choosing Lamps to Fit the Homes Lamps and light fixtures, to be beautiful and useful, must fit the home in which they are placed. Metals as brass, copper and silver should be used only in very elegantly furnished homes. Pewter, aluminum and tin found in so many kerosene and gasoline lamps on the market are suitable for the less expensively furnished home. Pottery, heavy glass and wood are appropriate for lamps used in the average home with comfortable furnishings.

Parchment paper and coarse cloth shades are better adapted to use in the average home than shades made of silk and metals.

Figure 1 shows a group of well designed ceiling light fixtures suitable for various rooms of the house. Number 2 in Figure 1 shows how light can be indirectly reflected from the light colored ceiling.

Figure 2 is a group of portable electric lamps with good design. These types of lamps may be moved from place to place as needed.

Figure 3 gives a group of suitable wall fixtures for the home. Wall lighting fixtures for the home are designed to direct light upward or downward at the place where it is needed.

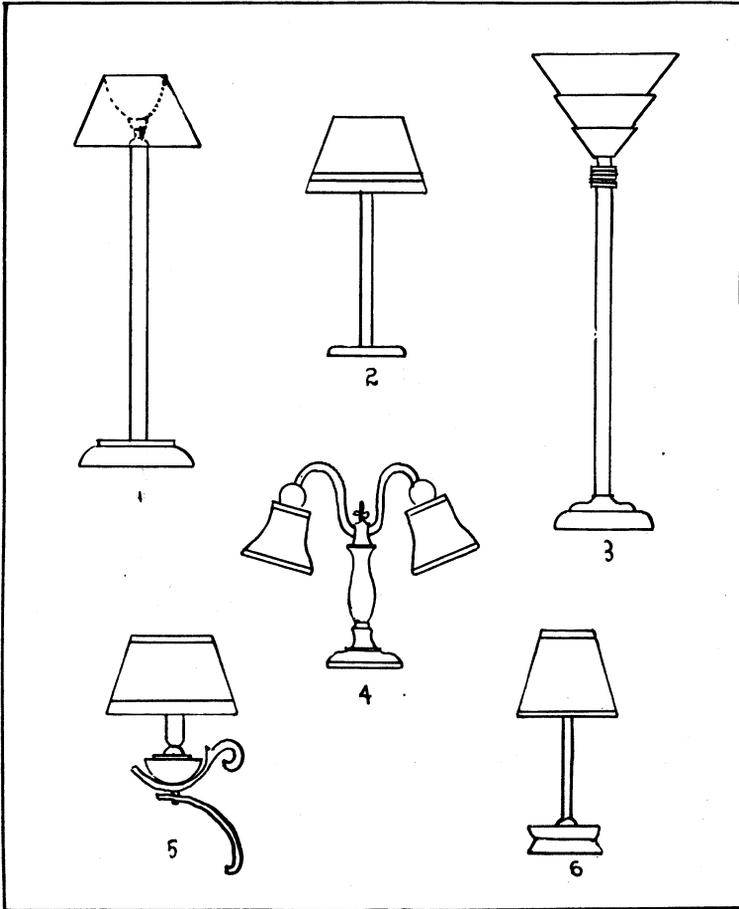


Fig. 2.—Appropriate Portable Electric Lamps for the Home.

(1) I. E. S. floor lamp; (2) table lamp for study or reading; (3) floor lamp—indirect lighting; (4) bedside lamp; (5) pin-up wall lamp; (6) dressing table lamp.

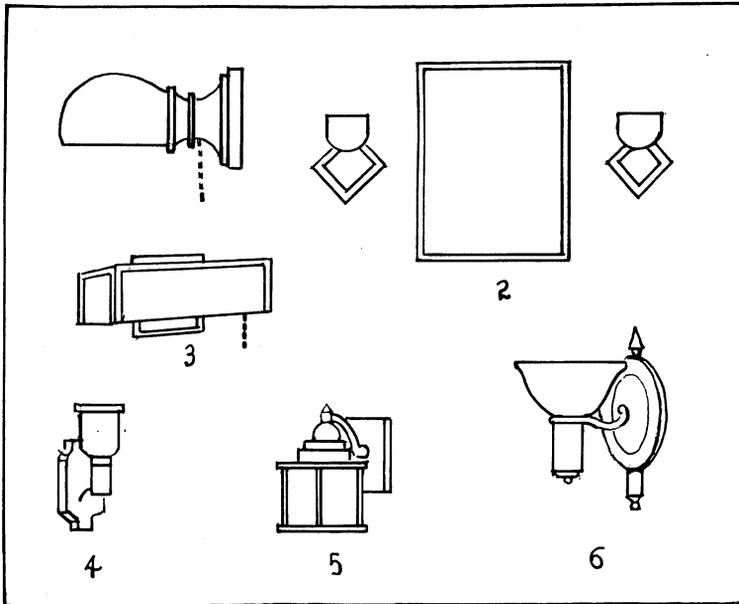


Fig. 3.—Wall Electric Fixtures for Various Purposes.

(1) For placing above kitchen sink or bathroom lavatory; (2) Suitable light fixtures for bathroom mirrors; (3) for using above stove, table and other work surfaces in kitchens; (4) proper lighting fixture for placing above mantel shelf; (5) appropriate lighting fixture to be placed on each side of front entrances; (6) a lighting fixture suitable for placing on each side of dressing table.

SELECTION OF KEROSENE AND GASOLINE LAMPS FOR THE HOME

There are many farm homes that do not have electricity. It is the duty of every home to provide adequate lighting for various tasks to be done in the home, whether it is reading, sewing, or home study by the children.

Since kerosene and gasoline lamps do not produce as good lighting as electric lamps, it is more necessary to select lamps that will give the best possible lighting.

Choosing Good Design in Kerosene or Gasoline Lamps: It is just as important to select kerosene and gasoline lamps with good design as electric lamps. The same principles of design hold true in the selection of kerosene lamps as in the selection of electric lamps. There should be good balance and proportion between the lamp shade and the base. The shade should not be top heavy and the base should not be so small that it is easily turned over.

Shades for kerosene and gasoline lamps are made of parchment paper and white opaque glass. The cream colored parchment paper with a white inside lining will produce the best lighting effect. The shade should be wide enough to come down over the chimney to cover the flame; otherwise there will be a glare from the light.

Shades for kerosene and gasoline lamps must be made on a wire frame that will fit over the chimney in order to keep the shade from getting too warm. A shade with a small design around the edges gives a better light than a shade with much design which excludes light.

The bowl or base of kerosene and gasoline lamps is made of copper, brass, aluminum, chromium plate, glass and tin. Choose the type of bowl that fits well with the furnishings in the room where the lamp will be used. For example, a brass or aluminum bowl is more appropriate for use in the living room than a plain glass lamp filled with dirty oil. Glass bowl lamps are found in many attractive designs for table, wall, ceiling, and floor lamps.

Selection of Chimneys, Wicks, Mantles and Burners Lamp chimneys should be well shaped, plain in design and fit tightly upon the burners. A chimney that is loose is more or less a fire hazard. A lamp with a round wick that fits tightly around a large burner gives a better light than the small flat wick in a small burner. Lamps with a mantle usually give a better light than other type burners. Discard a mantle that has broken places as it gives poor light. Burners are made of tin, brass or copper. Choose a burner that fits tightly into the bowl of the lamp, is durable, and easily cleaned.

Care of Lamps: Dirty lamps produce poor lighting. Dust on lamp shades excludes light; therefore, they should be cleaned often. It is well to clean lamp chimneys after each use.

One of the best methods for cleaning a kerosene lamp burner is to remove it from the lamp, wash with warm soapy water, scrub with steel wool, rinse and dry well. If a copper or brass burner becomes very dirty, it may be cleaned by placing it in a super-saturated solution of salt and vinegar which has been heated to the boiling point. Hold burner under hot solution and polish until bright; rinse and dry well.

Wicks should be trimmed evenly every few days and changed as often as necessary. Wicks may be removed from burners, washed in warm soapy water and soaked in hot soda water until grease and dirt are removed. Dry the wicks thoroughly before using.

To clean the bowl of kerosene lamps, empty the oil and wash the bowl well with hot soapy water, rinse and turn upside down to dry. Oil or gasoline should be strained through a fine mesh cloth when putting it into a lamp if the best lighting is obtained.

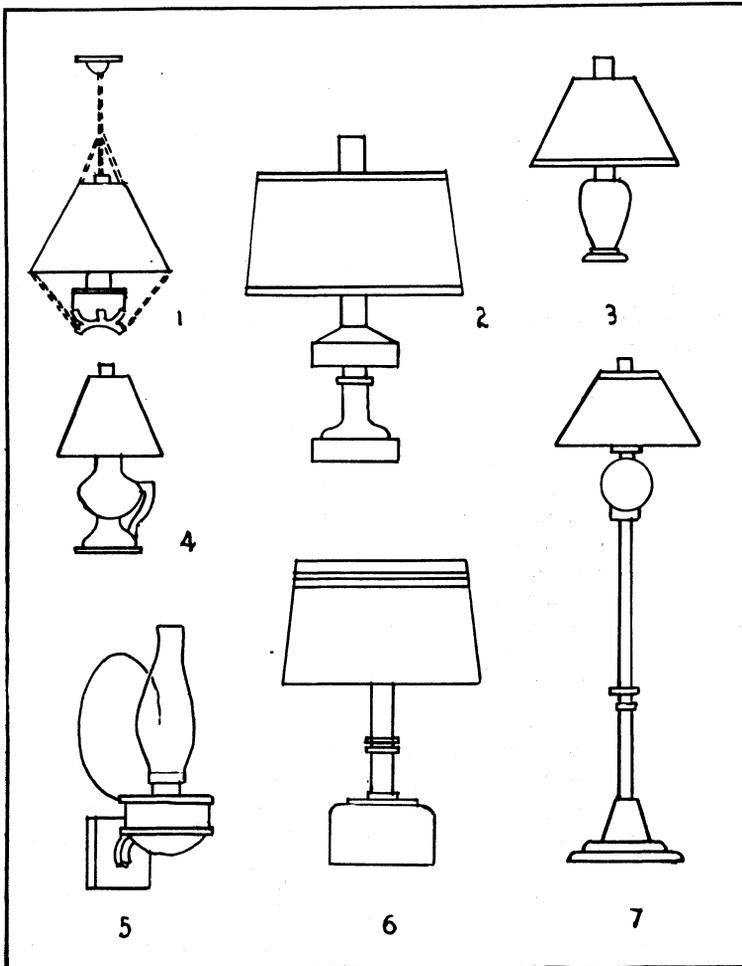


Fig. 4.—Appropriate Kerosene and Gasoline Lamps for the Home.

Figure 4 shows appropriate kerosene and gasoline lamps for the home.

- (1) Ceiling lamp for the dining room;
- (2) table lamp for study;
- (3) table lamp for reading;
- (4) bedside table lamp with handle;
- (5) wall lamp for kitchen and bathroom;
- (6) gasoline table lamp;
- (7) floor lamp.

Figure 5, Number 2, shows the picture of a well designed kerosene table and floor lamp properly placed for the best lighting. If these two lamps did not give sufficient light, a ceiling kerosene lamp similar to the one pictured in Figure 6, number 2, might be used in the living room.

Figure 6, number 2, shows how a dining room may be lighted with a kerosene ceiling lamp placed above the dining table. If additional light is needed, a table lamp may be placed on the buffet. Candles are often used on the buffet or table when more lighting is needed.

Figure 7, number 2, gives a picture of kerosene wall lamps properly placed in the kitchen for the best lighting effect.

Figure 8, number 2, is the picture of a bedside kerosene table lamp with a good shade and a similar type lamp to be used at the dressing table.

Figure 9, number 2, shows a kerosene lamp fastened to the wall by the mirror in the bathroom. This lamp would probably furnish as much light as would be needed in the bathroom.

Providing Adequate Lighting for the Various Rooms of the House

The kind of lighting used in the various rooms of the house depends upon the kind of work done there. If a new house is being built, the type and location of lights should be very carefully planned to meet the needs of the family, because the initial cost of installation is less than when lights are added later.

The location of a lighting unit is of the utmost importance. In the past, the common type of lighting used was a single electric light placed in the center of the ceiling in each room or a lamp placed on a table in one corner of the room. With this type of lighting, the person is usually working in his own shadow while sitting in any part of the room.

Living Room

The living room is the one room in the house where the most prolonged and visual tasks are performed. More different activities are carried on in the living room than perhaps any other room in the house. This room is used as a place for entertaining friends, for reading, for listening to the radio, engaging in conversation, and as a place for the family to play as well as a place for relaxation between working hours.

Types of Lighting Needed: A central semi-indirect lighting on the ceiling in the living room is perhaps best for lighting purposes

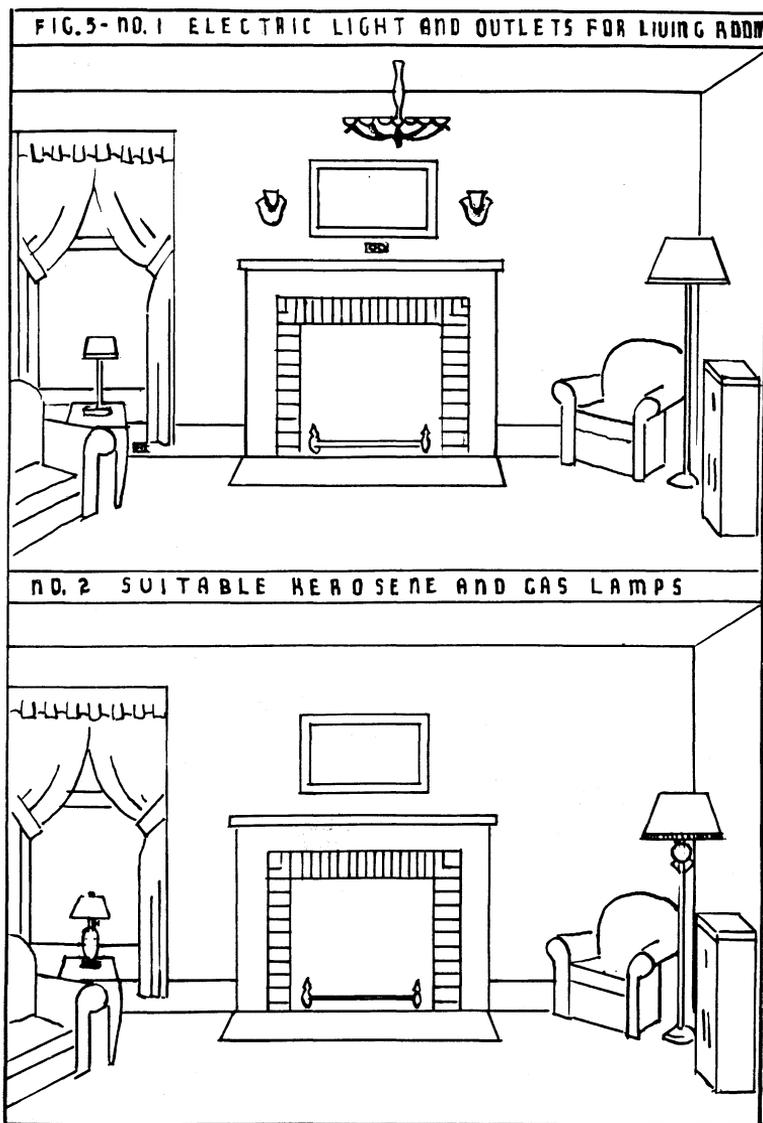


Figure 5

when a general lighting effect is needed. This should not be the only type of lighting available in the living room, because the central lighting is not suitable for reading or other close-up work.

Floor lamps may be used to an advantage for reading, hand-work or conversation. If all members of the family work in the living room at night, plenty of light should be provided for each member, whether it be kerosene or an electric light. One large floor lamp of the I. E. S. type will often provide enough light for two or more people, probably the father reading the newspaper and the mother making quilts. An I. E. S. lamp is one that has been made according to certain specifications as to height, size, shape, type of shade, bulb protector, etc. as recommended by the Illuminating Engineering Society. Figure 2, number 1 shows the picture of an I. E. S. floor lamp. These types of lamps are equipped with a white diffusing bowl which fits under the bulb and diffuses light to all parts of the room.

Table lamps are convenient for study, radio, music or conversation. Table lamps are also made according to I. E. S. specifications. These lamps not only give light at the place where it is needed, but they throw considerable light upwards for general lighting purposes. Table and floor lamps of the I. E. S. type give about 40 to 45 footcandles of light at a distance of 24 inches from the bulb, or 10 to 15 footcandles of light 36 inches away. Both table and floor lamps should use at least 100-watt bulbs with one socket or 60-watt bulbs if equipped with two or three sockets. Figure 2, number 2, shows the picture of a well designed table lamp.

Wall lights may be used in the living room, but should not be depended upon to give much light. If wall brackets are used, they should be protected with a shade, or a colored bulb should be used to soften the effect of the light and prevent a glare. Kerosene lamps may be attached to the wall with well designed metal brackets.

The best light for a piano in the living room is one that fits on the base of the music rack or one that fits on top of the piano and throws the light down on the music. A floor lamp is often used for this purpose.

Lighting Outlets Recommended: The square living room requires one ceiling outlet with about 150-watt bulb and two outlets if the length is more than one and one-half times the width. Place wall outlets for wall lamps as desired. Figure 3, number 6, shows a wall bracket suitable for wall lighting in the living room.

Switch Control Location: It is usually better to use two three-way switches than one switch. Place one of the switches at the door leading outside, and one at the door leading to the dining room. Place switches on lock side of door about 40 inches from the floor.

Convenience Outlets Suggested: Have double convenience outlets placed conveniently for floor and table lamps. Double convenience outlets should be placed about 12 feet apart and should never be placed in the middle of a wall or where electric wire cords cannot be placed into the receptacle without moving furniture. Convenience outlets are usually placed in the baseboard of the wall. One double convenience outlet should be placed in the top of the mantel shelf for plugging in the cord of an electric clock or decorative lights. A radio ground and aerial connection in conjunction with a convenience outlet should be provided in all rooms where the radio is likely to be used. Figure 5, number 1, shows electric lights and outlets for the living room.

Dining Room

In many homes the dining room serves almost as many purposes as the living room. The lighting for this room should be planned according to the activities carried on there.

Types of Lighting Needed: A center ceiling light is satisfactory for general dining room lighting. A light fixture should be chosen which will throw the light down on the table. The center light should be located directly over the dining table, but should not be glaring upon the food. Dining room lighting fixtures should be hung so the light will not fall directly into the faces of the people sitting at the table. Most dining room fixtures are suspended from the ceiling by a chain or a rod. When hanging the light fixture, it is well to sit at the table and have the fixture attached to the ceiling low enough that the light will not shine in the face. The light should fall on the table, and below the level of the eyes of people sitting at the table. Center ceiling dining room lighting fixtures are usually hung about two feet above the table.

In many farm homes children study at the dining table. If this is the case, more light will be needed than for eating a meal. Dining room lighting fixtures are now on the market that can be turned on dim, medium, or bright as needed. This type of light fixture will supply adequate lighting for sewing, reading and study. If it is not possible to have this type of lighting fixture, a portable table or floor lamp may serve the purpose. When children study in the dining room, at least a 200-watt bulb in the ceiling lamp will be needed to provide 15 to 25 footcandles of light at the edge of the table where the child is studying. Side or wall lights may be used above the buffet or serving table if desired. Figure 1, number 3, shows a suitable design of a center lighting fixture for the dining room.

Lighting Outlets Recommended: It is well to have one ceiling outlet, and one other outlet if wall lights are used.

Switch Control Location: There should be two three-way

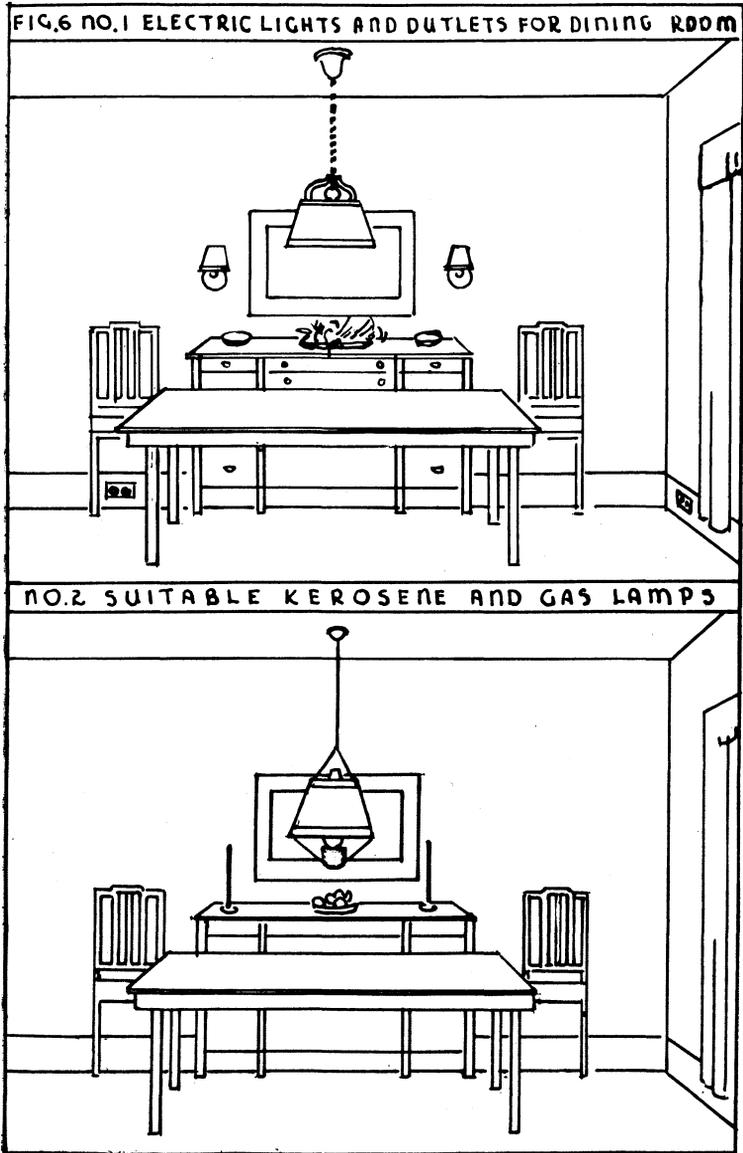


Figure 6

switch controls in the dining room. One switch should be placed at the door leading into the kitchen and one at the door leading into the living room or bedroom. Most switch controls are convenient when placed about 40 inches above the floor.

Convenience Outlets Suggested: One double convenience outlet placed near the dining room table is very convenient for attaching small electrical appliances such as toasters, percolators and waffle irons that are to be used at the table. One double outlet convenience placed near the buffet for plugging in electric fans or portable lamps is recommended. Figure 6 shows electric lights and outlets for the dining room.

Breakfast Room

The breakfast room should have a shaded light. It is now possible to obtain an indirect shade which is inexpensive and gives good light.

Type of Lighting Needed: About the same type of lighting would be needed for the breakfast room as for the dining room. If the breakfast table is small and located near the wall, a pin-up lamp may be used. It should be placed so the light falls on the table instead of the eyes of the persons sitting around the table. Figure 1, number 5, shows the picture of a light fixture suitable for the breakfast room.

Lighting outlets, switch controls and convenience outlets should be placed in the same way as those for the dining room.

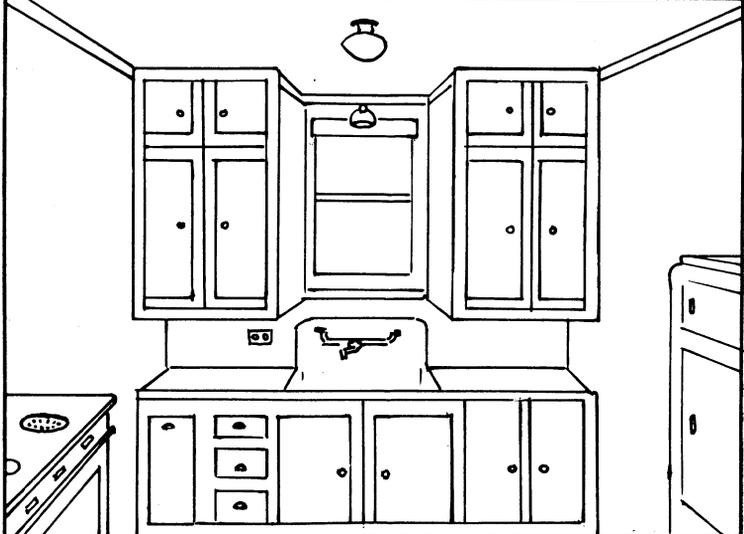
Kitchen

The kitchen should be one of the best lighted rooms of the house since it is the woman's workshop. Good lighting helps to make this room a bright and cheerful place in which to work. It is not easy to do a good job of cooking in a dark, gloomy room.

Type of Lighting Needed: The type of lighting needed in the kitchen will vary with the size and kinds of tasks done in the kitchen. It is very necessary that light in the kitchen be well diffused, so a person will not have to work in a shadow. Light is diffused by using a translucent glass which is found in suitable inexpensive light fixtures. Figure 1, number 4, is recommended for the best kitchen lighting. A 100- or 150-watt bulb should be enclosed to produce adequate lighting. If a person desires to distinguish colors, a clear blue daylight bulb may be used. Never use a frosted bulb in this type of globe as it excludes light.

Every kitchen needs an overhead light. Additional lighting is needed above the sink and above the stove, but it is advisable to use small units. It is well to use the type of glass reflector that throws the light downward on the work rather than in the eyes of the worker. Figure 3, number 1, shows the type of light fixture suit-

FIG.7 NO.1 ELECTRIC LIGHTS AND OUTLET FOR KITCHEN



NO.2 SUITABLE KEROSENE AND GAS LAMPS

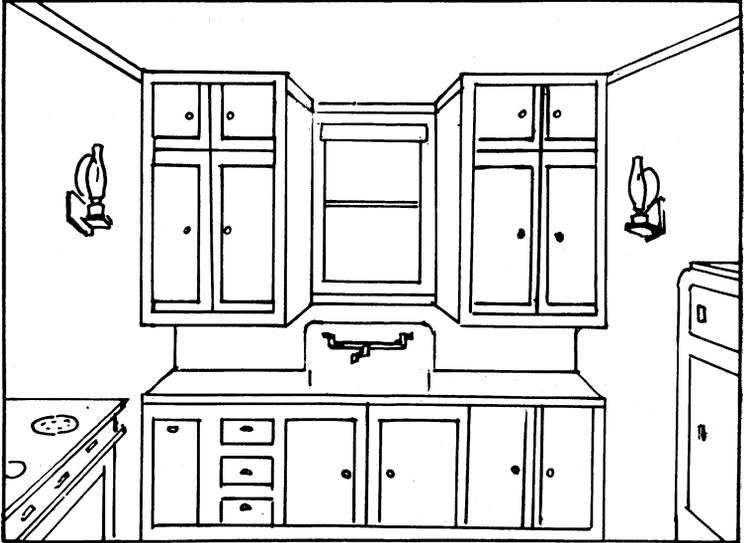


Figure 7

able for placing over the kitchen sink. Number 3, in figure 3, is a picture of an appropriate design of a light to be placed above the stove or cabinet working surface. Both ceiling and wall fixtures should be light in color, probably white. If bracket fixtures are used above working surfaces, a 60-watt frosted bulb should be inserted in each.

Pin-up wall lamps are sometimes used above the sink, kitchen table or stove.

Lighting Outlets Recommended: An outlet for a central lighting fixture in the kitchen is needed. A wall lighting outlet is needed for a fixture above the sink and stove.

Switch Control Location: It is well to have two three-way switches in the kitchen; one located at the door leading outside and one at the door leading into the other part of the house. The wall light fixture located above the sink and stove may be controlled by a pull chain.

Convenience Outlet Suggested: The kitchen should have a double convenience outlet about four feet high near the sink and working surface or cabinet to plug in small appliances such as electric mixers, broilers and ovens. If the electrical refrigerator is placed in the kitchen, a double outlet or receptacle should be placed in the wall near the refrigerator. This should be in a convenient and well protected place. The refrigerator should be placed near the dining room door away from the stove.

When ironing is done in the kitchen, the outlet should be placed at the right of the ironing board 36 to 42 inches from the floor so the cord will not be in the operator's way and so she will not work in a shadow.

All equipment circuits should be separate from the light circuit. Figure 7 shows electric lights and outlets for the kitchen.

Bedrooms

It is just as important to have good lighting in the bedroom as in any other room of the house. The bedroom should have adequate lighting for all phases of work carried on there.

Type of Lighting Needed: A central ceiling light in the bedroom is needed, but it alone is a very poor type of lighting, because it does not furnish light where most needed. An overhead light should always be shaded to prevent glare in the eyes of the person in bed. A ceiling light of the indirect type or a single frosted globe fixture is recommended for the bedroom. At least 60 or 75-watt bulbs should be used to provide proper lighting for dressing. This

wattage will give 5 to 10 footcandles of light. Figure 1, number 6, gives a picture of the correct indirect type of lighting fixture for bedrooms.

Since a central light always places one in a shadow when standing at the dresser, it is best to have additional lighting at this center. The best type of lighting at the dresser or dressing table is a fixture placed on each side of the dresser a little above the height of the person using the dresser with about five or six feet of space between the lights. One light above the top of the dresser is often used instead of two on each side. Figure 3, number 6, is a suitable type of light for each side of the dresser.

Sometimes a pair of decorative lamps on the dressing table are preferred to lights on the wall. The lights should always fall on the person rather than on the mirror. Figure 2, number 6, is a suitable lamp for placing on the dressing table, if wall lights are not used.

If there is a writing desk in the bedroom, a table lamp would be needed. When a sewing machine is used in the bedroom, a floor lamp or a pin-up wall lamp will often provide the necessary light. It is now possible to purchase a machine equipped with an electric light, which throws the light directly on the work. In this case, no other light would be needed at the machine.

It is very convenient to have a small light on a table at the head of the bed or on the wall near the bed. If the light at the bed is used for reading, it should be slightly to one side and above the head of the person sitting up in a good reading position. A person should not read when lying down as it is injurious to the eyes. The shade used on the bedside lamp should be wide enough that it will throw the light directly on the reading material and not on the face of the reader.

A table lamp placed on the end table at the bedside should be wide enough to provide light over the bed. Figure 2, number 4, is an appropriate lamp to use at the bedside table.

Lighting Outlets Recommended: One ceiling outlet will be needed in the bedroom. Two would be needed in a bedroom having an excess of 300 square feet.

Switch Control Location: Ceiling outlets should be controlled by a small switch placed near the door. It is well to have one light in the room controlled from the bed so a person has light when arising. A switch placed in the parents' bedroom at the door leading outside to the yard is very convenient to turn on a light in the yard at night. In one of the bedrooms it is convenient to have a master switch to light the entire house in case of an emergency.

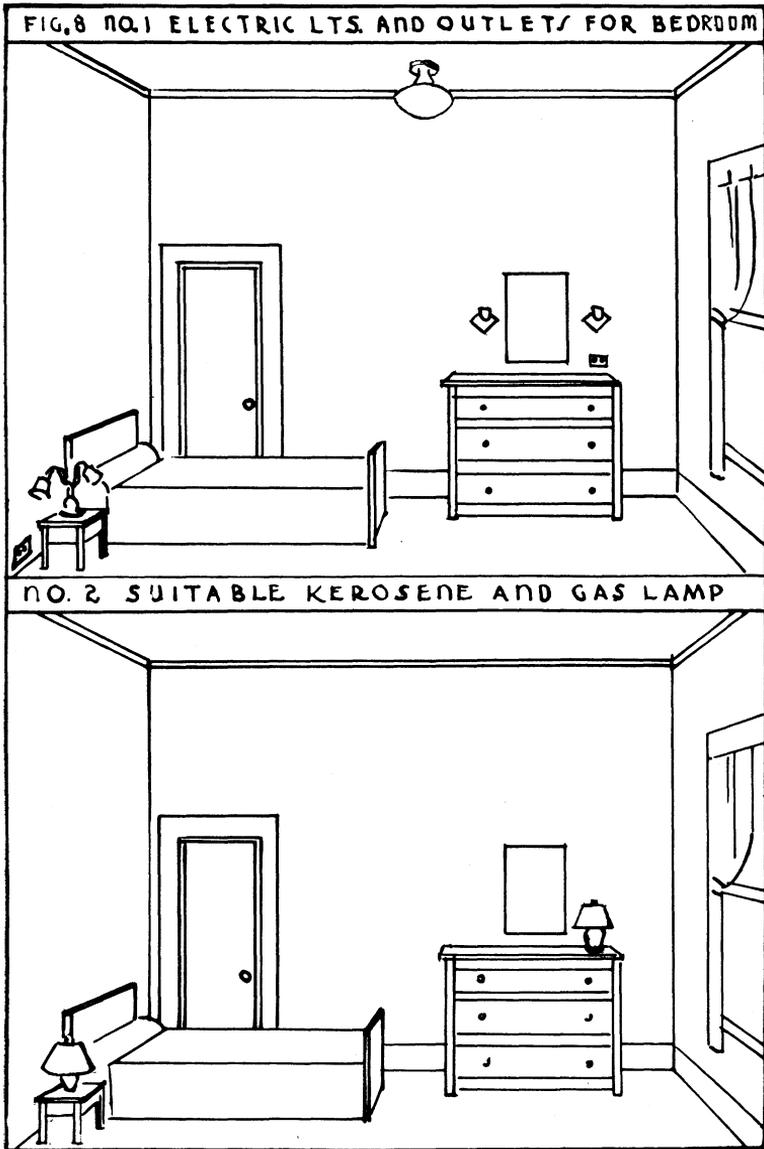


Figure 8

Convenience Outlets Suggested: A double convenience outlet near the bed is highly desirable for plugging in reading lamps, electric hot pads, and electric fans. A double convenience outlet placed near the dresser for plugging in electric curling irons, dresser lamps, etc., is a convenience. A double convenience outlet should also be placed near the table and machine. Figure 8 shows electric lights and outlets for the bedroom.

Closets

It is very necessary that a light be placed in all closets that are as much as three feet or more in depth.

Type of Lighting Needed: The lighting fixture in a closet may be placed in the center of the ceiling or inside and above the closet door. This light does not need a shade unless the closet is also used as a dressing room. Figure 1, number 8, shows the picture of ceiling fixtures suitable for the closet. A 25 to 40-watt bulb will furnish plenty of lighting for the average size closet.

Lighting Outlet Recommended: Only one lighting outlet is needed in a closet.

Switch Control Location: The switch is convenient when located either on the inside or outside of the closet door. Convenience outlets are not needed in closets.

Bathroom

Many times the bathroom is the most poorly lighted room in the house. It is just as necessary to have good lighting in the bathroom as in other rooms of the house.

Type of Lighting Needed: A bathroom can be satisfactorily lighted by using a small ceiling fixture similar to the one used in the center of the kitchen. Figure 1, number 7, shows the type of fixture suitable for the bathroom ceiling light. This type of ceiling fixture made of white translucent glass equipped with a 60 or 75-watt bulb gives the quality of light desired in a bathroom.

Besides the ceiling light used in the bathroom, a light is needed at the mirror. These lights should be placed to throw light upon the person standing in front of the mirror rather than upon the mirror itself. The brackets on each side of the mirror should be 60 to 66 inches from the floor and 30 inches apart so the light will be the correct height for the person using the mirror. Figure 3, number 2, shows suitable light fixtures and correct placement for the bathroom mirror. Use a 40 or 50-watt bulb in each fixture for the best lighting.

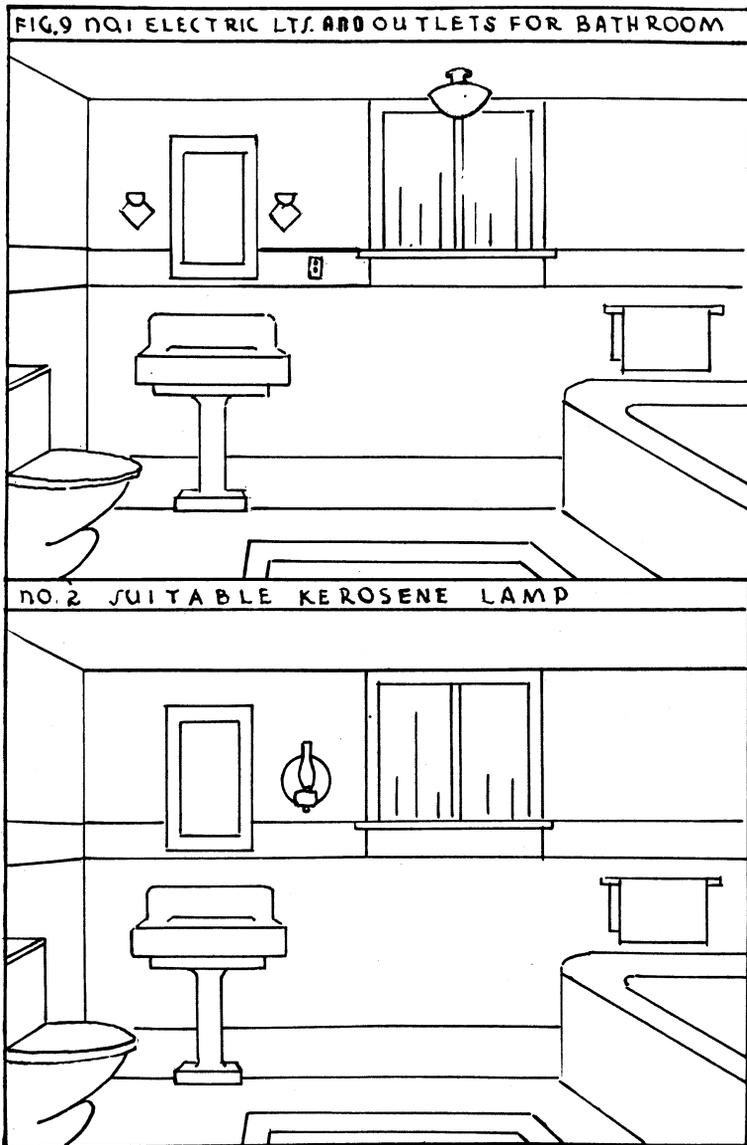


Figure 9

Lighting Outlets Recommended: A ceiling outlet in the center of the bathroom will be needed. There should also be wall outlets for lights on each side of the mirror.

Switch Control Location: The central fixture should be controlled by a switch located at the door and far enough away from the bath tub, shower or lavatory that it cannot be reached while a person is in the water in order to prevent shocks.

The wall brackets on each side of the mirror should be controlled by a single switch. If an electric heater will be used it should be controlled by a wall switch located near the door.

Convenience Outlets Suggested: It is well to place a double convenience outlet near the bathroom mirror for attaching electric razors, curling irons, etc. This outlet should be placed three and one-half feet from the floor. Figure 9, number 1, shows the electric lights and outlets for the bathroom.

Halls, Stairways, and Attics

Halls should be adequately lighted for use in passing from one room into another. Both halls on first and second floors of two story buildings should be well lighted.

Lights should be placed so they will light the stairway to prevent accidents.

Even though a person does not enter the attic very often, it is usually the darkest room in the house and should be well lighted.

Type of Lighting Needed: Not a great deal of light is needed in the hall unless some type of work is done there. In a long hall it may be necessary to have two ceiling lights, one in each end. One ceiling light should be placed so it lights the entire stairway. Usually a 40- or 60-watt bulb will furnish enough light unless the hall is unusually large. If the hall has a very high ceiling, use a 100-watt bulb in a lantern or pendant-type fixture.

Lighting Outlets Recommended: One lighting outlet for the ceiling light in each hall and the attic is usually satisfactory.

Switch Control Location: Three-way switches, which turn the light on the second floor hall while on the first floor hall and vice versa, are most desirable.

In one story houses with a long hall that has doors more than 10 feet apart, it is well to use three-way switches so the hall may be lighted when entering either door.

At the foot of the attic stairs, there should be a switch to control the light for the stairway.

No convenience outlets would be needed in halls and attics.

Porches and Entrances

A well lighted porch or entrance to a house signifies warmth and welcome. It also may prevent accidents when arriving home on a dark night.

Type of Lighting Needed: The kind of lighting needed on the porch depends upon the size and use of the porch. A porch light should always be shaded to prevent a glare. The type of fixture used will depend upon the place it is used. Sometimes porches are lighted with a center ceiling fixture similar to number 9 in Figure 1. Often porches are lighted with a single light over the door or two bracket lights on each side of the door. The light fixture on a porch should be simple in design and rustproof. It should also be closed to keep out insects and dust. All porch lights should be located so that the approach to the door, and the person approaching are visible.

If there is a back porch or service porch in the house, there should be one central ceiling light.

An entrance to the house without a porch should be as well lighted as a porch. Attractive lantern-type fixtures similar to number 5 in Figure 3 are very satisfactory when placed on each side of the entrance door. A 40- or 50-watt bulb will give ample light for entrances.

Lighting Outlets Recommended: One lighting outlet each will be needed for the porch and the entrance or both.

Switch Control Location: It is usually best to have the switch placed inside the living room or hall at the door leading to the porch. If the service porch has a light, it should be controlled by a switch inside the door leading to the porch.

Convenience Outlets Suggested: The number of convenience outlets will be determined by the activities that take place on the porch. If a porch is used as an outdoor living room, it should be equipped with outlets for reading, sewing, etc. When table or floor lamps are to be used on the porch, double convenience outlets should be placed accordingly.

Basements, Laundry Rooms and Cellars

Basements, laundry rooms and cellars usually have dark-colored walls, floor and ceilings. Since dark colors reflect small amounts of light, it is very necessary that these rooms be well lighted.

Type of Lighting Needed: White porcelain reflectors, as shown in Figure 1, number 10, with white linings to reflect light downward on the work are recommended. If the basement is divided into rooms, a light from 100- to 150-watt bulbs is needed for the best

lighting results. Be sure that a stairway leading to the basement is well lighted.

Lighting Outlets Recommended: The basement or laundry room should have one lighting outlet for each 150 square feet of floor space or for each separate room.

Switch Control Location: The central ceiling light in the basement should be controlled by a switch placed at the head of the stairs. It is well to have a small pilot light in the kitchen which gives warning that a light has been left on in the basement or in another part of the house.

Convenience Outlets Suggested: Double convenience outlets should be placed near the washing machine in the laundry room. If ironing is done in the laundry room or basement, a double convenience outlet will be needed near the ironing board.

Results of Poor Lighting

The bright sunlight or the glare from an uncovered light bulb causes the eyes to partly close, thus diminishing the size of the pupil of the eye and resulting in eye strain. A room which has dark portions and bright spots of light rather than a uniform lightness causes the eye to constantly change and produces a strain on them.

Poor lighting, not only injures the eyes, but it increases fatigue, causes headaches, affects the nervous system, detracts attention, and causes the eye to function more slowly.

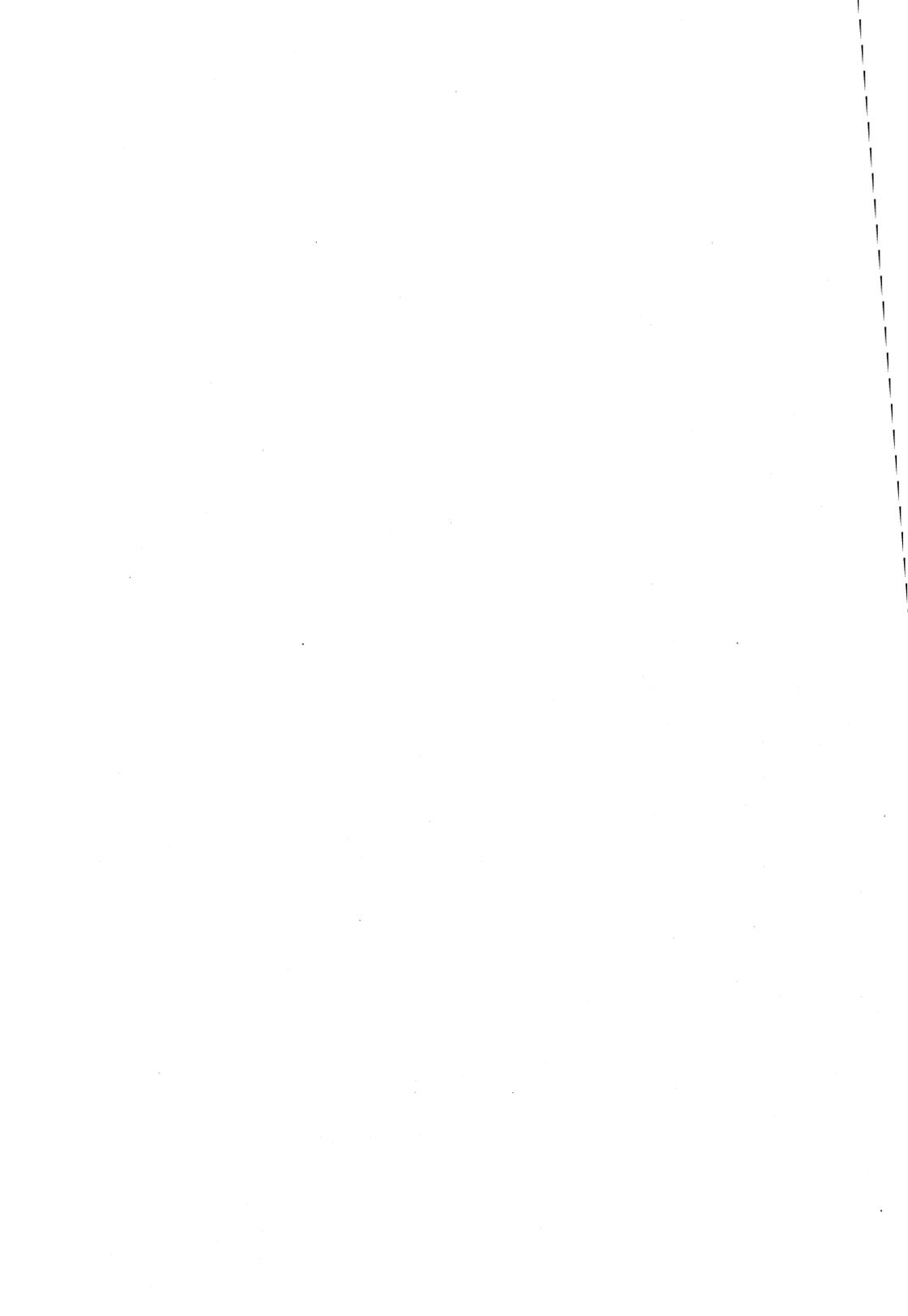
It is known that lighting definitely affects human efficiency, resources and behavior. It is also known that seeing uses up a large amount of nervous energy, and affects the rate of the heart beat.

Most people are born with good eyesight. Eye defects develop through abuse of the eyes. If proper care of the eyes is taken in early life, much of the defective vision can be prevented by having good lighting in the home.

Three percent of infants are born nearsighted; 24 percent of high school graduates are nearsighted; 48 percent of the people between the ages of 30 to 40 have defective vision and 95 percent of all people age 60 and above have poor eyesight.

The farmer has the advantage of many office, factory workers and homemakers by using his eyes for working outside where there is plenty of light, at least during the day. He looks at large objects at a distance in a light that varies from 300 to 10,000 footcandles while the average person working indoors looks at fine print with 3 to 10 footcandles of light available. As a result, fewer farmers have defective eyesight than any other class of people having similar occupations.

Since the farmer's wife and children work in poorly lighted homes, it is very urgent that lighting in the farm home of today be improved.



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