OBSERVATIONS OF LIGHT ON TEXTURE AND PATTERN IN SELECTED INTERIORS AND SOME IMPLICATIONS FOR HOME USE

By

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CHAPTER ONE

INTRODUCTION

Background to the Problem

Man has had light in his home since prehistoric times, and he has indeed made progress in the control and use of it. Electricity is available and used by most people in this country today; however, it is not the only source of man-made light for the home. Natural light is also present in most homes. The problem of how to use both sources of light in the home is most important.

In considering total lighting in a home, one might say there are two primary sources, sunlight and man-made light. But even these two categories do not take in all the sources of lighting for the home. When one studies some of the characteristics of light, he learns that light is diffused, absorbed, and/or reflected according to the surface upon which it falls. Thus, in this sense, every object in the home is a secondary light source.[1] To draw the problem to an even finer point, the color, size, shape, texture, and pattern of an object will affect how it diffuses, absorbes, or reflects light. So every selection the homemaker makes in furnishing her home is a choice in home lighting. It is not suggested that all things be built, bought, or placed only because of the way they are affected by light. It would be a movement forward if light would be included as just one of the things to be considered.

Need for the Study

As the title, Observations of Light on Texture and Pattern in Selected Interiors and Some Implications for Home Use, suggests, this thesis is not an attempt to give any formulas for solving the problems of home lighting. Each home, because of its location, size, content, and construction, presents a new problem to be solved. It is hoped rather from this thesis that the observations made in the selected homes might serve as a guide for those who are interested in making observations in order to plan or improve lighting in their own home. Although only pattern and texture are being considered in this study, perhaps from observations of these two elements the homemaker might become aware of all the elements present in her home and of how lighting influences the appearance of everything in her home. The lighting in a home is important because, first, it influences the activities of the family, and second, has a bearing on the health of the eyes of each member of the family. Light serves as an aid to home safety; it helps to make the home a more pleasant place for living.

Very often the homemaker does not get to plan the lighting for her home; perhaps from this study she can gather ideas on how she could change her existing home lighting, or see some methods of planning lighting for a new home. Whether one is changing lighting or planning for a new home, the patterns and textures used in a home do not remain the same. When changing these, one might consider the effect the change will have on the total lighting scheme. Even if all the things in the home are to remain the same, the mere changing of the arrangement of the furnishings can make a change in the lighting.[2]

There has been considerable study done by industries in the lighting

trade--Sylvania, Westinghouse, General Electric--concerning the use of their products. Most of these publications deal with lighting for a given area or for specific effects. One might wish to incorporate several of the ideas from these companies into the total lighting plan. But little published information concerning light in relation to texture and pattern in the home is to be found; and a need for observations of light on these two elements certainly does exist.

Scope of the Study

The thesis topic has been limited to Observations of Light on Texture and Pattern in Selected Interiors and Some Implications for Home Use. It would be well to remember that texture and pattern are not the only elements found in the home. Another limitation set by the title is that the study is concerned with selected home interiors. The general ideas from the observations in the four selected homes should have application for other homes; but the observations have specifically been limited to the living room, dining room, and one bedroom in each of the homes. In order that the day observations be as constant as possible, they were made at the same time on similar clear days, for the time of day and weather conditions can make a major difference in natural light.[3] Observations were also made in each of the homes at night.

The purpose in observing the homes was to see light, texture, and pattern as they were used in an actual home situation. Distance from a light source to an object, as well as the total of objects in a room, makes a considerable difference in the amount and appearance of light; so actual rooms present the most practical way of observing these elements and of seeing how they relate to one another. The houses were observed just as they were, with no changes in the light fixtures or in the furniture

arrangements. The same equipment was taken into each of the homes to make a comparison of how the light in each home affected the objects.

A light meter, four samples of floor coverings, and two samples of wall coverings were used. The light meter was used to make a comparison of the different amounts of light present in the homes at the time of the observations. The samples were used to reinforce the study of texture and pattern and to study how light will influence their appearance differently in various interiors. To clarify the study, floor plans of the rooms observed in the homes, together with furniture arrangement and lighting fixture placement, have been included in the thesis; also samples of the four floor coverings and two wall coverings have been included. A glossary of lighting terms used in the thesis appears at the end of the text.

FOOTNOTES

[1]William Kunerth, A Text Book of Illumination (New York, 1929), p. 127.

[2]Louis Weinberg, Color in Everyday Life (New York, 1940), p. 11.

[3]Ralph M. Evans, An Introduction to Color (New York, 1948), p. 25.

CHAPTER II

TEXTURE AND PATTERN

Textures in the Home

All surfaces have texture. It is one of the elements of design very much related to the sense of touch. An object is often identified by its texture, or in other words, by the characteristic roughness or smoothness of its surface. Every object seems to have a feel all its own. Also our sense of touch responds to its density, or specific gravity. For example, a cotton ball and a marble may be approximately the same size, yet our sense of touch tells us that the density of the two items is very different. When one sees an object, he associates it with its feel even if he is not at that time touching it; when one sees a cotton ball, he expects it to be soft, because of past experience, because cotton is normally soft. A discussion of the importance of the sense of touch is found in Art Today:

> Of the five plastic elements, texture deals most directly with the sense of touch. The surface of an object produces tactile sensations when we touch it: these are called tactile values. Tactile value is best appreciated when an object is actually felt with the hands.[1]

Since all objects have texture, one is not faced with the question of whether to have textures in the home. Instead, the questions are these: Why is texture important? How does one use texture in home decorating? Texture is important for the beauty it brings to the home and for the variety it can provide. Texture also influences the lighting and

colors in a home. The texture of a surface that light falls on has a bearing on how much, and in what direction, light will be reflected. A difference in texture can change home lighting. The importance of color, texture, and light is pointed out by Derek Phillips:

> Variety is an important aspect for all building, just as it is important in all art forms from sculpture to town planning. A balance must be struck between monotony and anarchy at the point of variety that is acceptable to the use of the space. Light is one of the most potent methods of achieving variety, through either the nature of the source or the reflectance, color, or texture of surfaces.[2]

The use and selection of textures in home decorating are a matter of personal taste. Part of the answer to the question, however, lies in the earlier statement that all objects have texture. In a room one does not see one texture alone, but a combination of all the surfaces in the room. This is not to say that textures in a room should all be the same. Another element of design appears when one says that the room should have unity--that is, the textures should be a part of the total look of the room.

There are many textures in each home. The choice of building materials used in the construction is a selection of textures. Glass, rock, brick, and steel all have their own characteristic feel. The materials used for the inside finish of a house (floors, walls, ceilings) are a major part of the textures of the completed home because they cover more surface area than furniture. Wallpaper, wood, and plaster are among the common materials used for ceiling and wall coverings today. Among the usual floor coverings are wood, tile, and carpeting. To each of these building materials and others, a variety of treatments can be applied to provide a wide range of textures. The choices of textures available in both hard and upholstered furniture is astounding, while new materials and treatments for present materials appear each year. The

selection of accessories and small items for the home presents another opportunity to use a variety of textures in home decorating. As new items are added to the home, each texture presents change. How the texture, along with color, size, design, will fit into the present arrangement of the home should be considered when purchasing new items.

Patterns in the Home

Pattern is the arrangement of forms, lines, and/or colors. There are two kinds of pattern: integral and applied. Integral is that which is a part of the object itself--for example, the grain lines in wood. When something is added to the object to form a pattern, it is called applied. If flecks of paint were put on wood, the pattern would be one of applied. When looking at fabrics, one is often aware of the two kinds of pattern. When different colors or textures are woven into fabric, they become an integral part of that fabric; however, when the colors or textures are stamped on after the fabric has been woven, they present an applied pattern.

Pattern, like texture, is a part of the construction of a house. The way a house is put together forms a pattern. Exposed beams make a pattern on the ceiling. Rock or brick work creates a pattern by the way it is put together. Generally, walls and ceilings do not have a pronounced pattern; pattern is more common in floor coverings. One piece of furniture could have pattern in wood grain, in hammered metal parts, and in upholstery covering. This piece of furniture could be placed in front of a window covered with draperies which themselves very often are patterned. Thus different patterns may be used for effect. Yet the one piece of furniture and draperies are but a small portion of the patterns found in the home. How the patterns are combined is often of more im-

portance in decorating than the number or amount of patterns. Color is of importance in seeing pattern because of the contrast.[3] For example, white ink on white paper would hardly produce a desirable pattern.

When one speaks of texture and pattern, some mention must be made of the human eye. The eye is not perfect; it sometimes makes visual mistakes, but it is the source of sight, and one tends to believe what he sees. We see all the things in our field of vision, not just one item. True, one may concentrate on one item; but there is still a background. Of course, distance has a part to play in the span of our field of vision. In a room one sees many patterns and textures at the same time. One part of the eye distinguishes forms while another part sees colors.[4] So it is sometimes possible to see texture without color. In the small amount of time during a lightning flash in a storm, one can see texture and structural pattern; but because seeing color takes more time everything appears gray. When considering pattern, it is well to remember that shadows of objects form patterns. The brightness or darkness of a shadow depends on the furnishings and how they reflect light. So the kinds of surfaces, arrangement of furniture, and placement of light sources should not be overlooked in planning for pleasant living.

A certain amount of optical illusion is involved in seeing patterns and textures. Some patterns seem to have a third dimension (one part stands out from the other), one that is not real but that is an illusion caused by the contrast of light and dark. This added dimension sometimes makes a visual pun, in that one design can be read differently to make more than one pattern. Or it sometimes happens that, because of the contrast of colors and shapes, a pattern seems to have movement. This sense of movement is experienced often when one looks at the "mod"

automobile advertisements. In seeing texture the eye is sometimes deceived by an applied texture which looks like an integral part of the object. Fabric is often printed to look like it has a rough texture. The antiquing finish popular today began as an attempt to make an applied texture (paint and ink) look like integral wood grains.

FOOTNOTES

[1]Ray Faulkner, Edwin Zigfeld and Gerald Hill, Art Today (New York, 1949), p. 195.

[2]Derek Phillips, Lighting in Architectural Design (New York, 1964), p. 50.

[3]Du Pont Color Conditioning Report Number 10 (Wilmington, Delaware, 1966), p.1.

[4]Olin Jerome Ferguson, Electric Lighting (New York, 1920), pp. 77-79.

CHAPTER III

LIGHT

Natural Light

Basically there are two kinds of light sources in most homes: natural and man-made. Natural light is that which is received from the sun and stars, since they are the major sources of light in nature. The moon and sky are secondary light sources because they reflect sunlight. Man does not control his natural source. He cannot command, with any assurance of its happening, the stars to be visible tonight or the sun to shine brightly tomorrow. He has, however, learned to make himself more comfortable in the presence of natural light than his ancestors were. He can go into his house and draw the window coverings and perhaps turn on an air conditioner to combat the heat from natural light. Climate and available natural light have a bearing on each other. Climate often influences the amount of light a builder decides to let into the house and even influences the types of dwellings to be constructed. The seasons of the year affect the natural light because of the earth's relation to the sun, and due to a change in the surroundings which reflect the light. Sunlight on snow reflects more light than sunlight on green grass. The kind of day in any season has a bearing on the natural light available; for example, there is less sunlight on a rainy or foggy day than on a clear day. Not only the kind of day but also the time of day alters natural light. At noon the sunlight passes

through less atmospheric density than any other time of day in reaching the earth. Of course the light available at any time will also depend on atmospheric conditions and the direction from which the light comes.[1] William M. C. Lam has this to say about daylighting:

> Daylighting has certainly been one of the key factors in the shaping of plans and structures--from the classic example of a Gothic cathedral where the structure was created to achieve the desired window shapes, and the modeling of the details was based on the light that would render them, to the multiplicity of clerestories, skylights and so forth used today.[2]

Man-made Light

Man-made (or "artificial") light is that which is not produced by nature. It generally refers to electricity, since that is the source most widely used today. Electricity can be controlled by man. The planning for electricity in a home has become an accepted part of building. In fact, electricity has become so common that one seldom thinks about it until he has moved into the completed building. One should consider the natural and "artificial" lighting when the building is in the planning stage. Electric lighting can be changed to some extent after a building has been completed; but often a few questions during construction could save time, money, and frustration.

One should consider the kinds of light bulbs to be used in the home. There are two kinds in wide use today: incandescent and fluorescent. The incandescent bulb gives off light by heating a tungesten wire filament. The fluorescent light is a little more complex: it heats a filament at each end of the bulb to vaporize mercury which produces ultraviolet rays that strike a phosporous coating inside the bulb to produce light.[3] Booklets extolling the features and uses of both kinds of bulbs are made available by the companies manufacturing the bulbs.

Along with a wide selection of variations in the two kinds of bulbs, there is a huge array of kinds of fixtures to put the bulbs in. The amount and quality of light and the direction the light leaves the fixture should be considered along with color, design, size, and price when buying a fixture. One of the most important parts of home lighting is the placement of fixtures. Where a light is located determines the activities that can take place, the visual comfort, and how an area will look. Distance of the light source from the activity has a direct ratio to the amount of light available from that source. The significance of amount and quality of light is emphasized by Louise Peet and Lenore Thye:

> Mere lighting of the home is not enough. Comfortable seeing is what counts. Desirable illumination implies light of good quality and of adequate wattage, so placed and shaded that it is sufficent for carrying on any occupation after dark, without strain upon the eyes or nerves. It means giving the house a cheerful atmosphere where family and friends may find welcome and rest.[4]

Man-made light has been divided into parts and discussed different ways in various texts. One division speaks of functional lighting for getting about the house and for doing specific work and of aesthetic lighting for purely decorative purposes. Another divides light into task lighting for doing jobs and general lighting for illumination necessary for normal movement. Still another division is structural lighting, which is built in and not moveable, and portable lighting such as lamps or swag lights that can be moved from place to place. Quite a lot has been written about task or functional lighting, giving recommendations for amounts of light for jobs to be done. If one compares the time spent in the home relaxing and general living with the time spent doing tasks such as sewing, reading, and shaving,then the need for information concerning general lighting and/or aesthetic lighting

becomes apparent. What is needed is not more divisions of kinds of light but a combination and understanding of the present divisions, which might produce a total lighting scheme which would be functional while giving beauty to the home. As was mentioned in the chapter on texture and pattern, light should be a part of the total look of a home.

Color and Light

In any observation of light upon pattern and texture, color must be considered. Many people say that color is light. This is true in the sense that one must have light to see color and that the light reflected from an item is what we identify as its color. J. Bergmans explains the necessity of light for color:

> We say that an object possesses a certain colour. This does not mean, however, that an object makes a certain colour, but only that it has a preference for reflecting or transmitting light of this certain colour. If the object is lit, therefore, with light in which the colour concerned is missing, the object is not seen in that colour. A red object can thus only be seen as red when it is illuminated with light which contains red sorts of light.[5]

One should have some awareness of the colors of light present when furnishing a home. Daylight will reflect any color, but it does have a preference for blues. Fluorescent light, also, has a preference for blues. Incandescent bulbs, however, if not otherwise treated, reflect yellows and oranges best.[6] The difference in lighting sometimes accounts for the change in color from the store to home since many stores use fluorescent lighting and the majority of homes use incandescent bulbs.

The lighting planner or homemaker, then, has still another choice to make: the color of light to use. Any selection of light bulbs is a choice in color, not just the choosing of a colored bulb. The fixture or lamp shade surrounding the light is another choice in color, just as

is the decision of the color for the walls and ceilings in a room. Color is important in another way: in lighting the home, since dark colors absorb light and light colors reflect light. Changing some of the colors and/or textures is often the simplest way to change the room lighting. Color plays a big part in the relation between light, texture, and pattern. Color, with texture, determines reflection, absorption, and transmission of light. Contrast between colors or textures is necessary to see pattern. An illustration of how changing the surroundings can make a difference in color and texture is given in Appendix C.

FOOTNOTES

[1]Ralph Evans, An Introduction to Color (New York, 1948), p. 79.

[2]William M. C. Lam, "Lighting For Architecture," Architectural Record, CLVII (June, 1960), p. 228.

[3]Light Bulbs and Fluorescent Tubes (Bloomfield, New Jersey, 1966), p. 11.

[4]Louise Peet and Lenore Thye, Household Equipment (New York, 1961), p. 302.

[5]J. Bergmans, Seeing Colours, tr. T. Holmes (Edinburgh, Scotland, 1960), p. 6.

[6]Color Is How You Light It (New York, 1966), pp. 1-3.

CHAPTER IV

OBSERVATIONS

Method

After reviewing the literature in this field, one can say that there has been very little written about the relationship of light, texture, pattern, and the influence of these elements in the home. However, a considerable amount has been written about each of the three individually. The desire to show the interrelation between these three led to the selection of observations in homes as one way to emphasize the effect light, texture, and pattern have on one another.

Several questions arose in preparing to do observations in homes. Some of these questions were as follows: How many homes should one observe? How can one keep the observations as constant as possible? How does one include the results of the observations in a useful and concise way? The time involved necessitated limiting the observations to four houses. The living room, dining room, and bedroom in each house were used in making the observations. The houses do represent different prices, ranging from 8,000 to 40,000 dollars. The value of the house, however, does not necessarily serve as an indication of the quality of the lighting.

The materials used in making the observations are a light meter, four carpet samples, and two wallpaper samples. The carpet samples are two feet by three feet. The samples are of three different colors, in-

cluding a patterned sample and four textures. Two of the samples are of the same color but have different textures to rule out the possibility that color alone affects light. The four carpet samples are of different fiber content, which, in itself, influences reflection and absorption of light. The wallpaper samples were selected for their pattern and texture. One has a rough texture and a very subtle pattern while the other has a fairly smooth texture and a definite pattern.

Three trips to each home were made in making the observations. The first part of the observations consisted of drawing the floor, furniture, and lighting plans. The second time that the homes were visited the day observations of light, texture, and pattern were made; and on the third visit the night observations were made. The day observations were all made at 3 P. M. on days with similar weather conditions. The carpet samples were placed in the center of each room when both the day and night observations were made. The wallpaper was observed on the wall farthest away from windows in each home for both observations. The wallpaper samples were placed from ceiling to floor and covered three feet of the wall width when being observed.

Although it is not included in the chart in Appendix A, the writer did measure the light in the homes as it now is before measuring the light upon the carpet and wallpaper taken into the home. These light readings were used in describing the homes and discussing the observations. Samples of the carpet and wallpaper used in this study are in Appendix B.

Part of the criteria for the materials used was that they should be easily portable. For this reason a light meter which measures light in foot candles was used instead of other devices which measure light in lumens. The footcandle readings are used as a basis for comparison of the different amounts of light in each room of the four homes and the

lighting change in each home from day to night. The writer would like to emphasize that there are considerations other than amounts of light in providing useful and pleasant home lighting. Footcandle readings for the observations of carpet and wallpaper are given in Appendix A.

To further clarify the observations, a brief description of the homes precedes the discussion of observations. The description and discussion are placed just before the lighting, furniture, and floor plans of that home. The lighting plan is included to show the placement of fixtures and the pattern the placement creates. If the pattern is a pleasant one, the chances are that the home lighting is also pleasant. The furniture arrangement is shown because the relation of one piece of furniture to another and their relation to the light source is an important part of lighting. The floor plan is used to show the area that the light covers and how the light has been placed to provide for activities in the home.

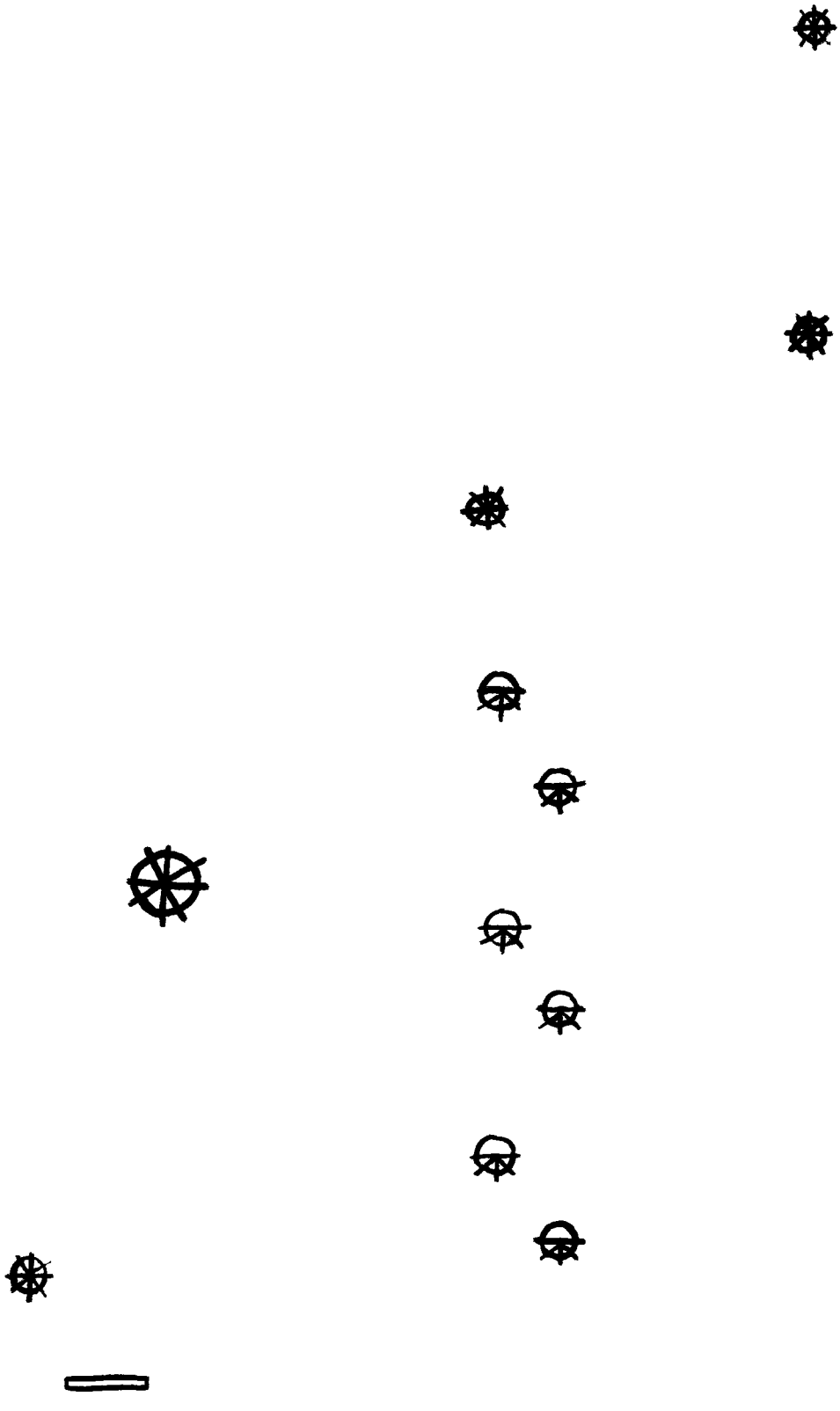
Barnes Home

The Barnes house (1st floor plan) is located twelve miles south of Tahlequah, Oklahoma, overlooking Lake Tenkiller. The sunlight is reflected off the lake toward the house in the afternoons. Several trees and rock ledges surround the house. The house is constructed of native rock, wood, and glass. The large amount of glass used in the structure allows quite a lot of light into all the rooms. The house is located on an isolated hillside; so windows are generally left open during the days. The living and dining areas are decorated in bright yellow and orange. The colors used in the bedroom are blue and white.

The day observations show that there is more light in the bedroom than in the living and dining areas. The reason for this is the light colored walls and curtains in the bedroom. With so much light in the bedroom the carpet samples tended to have a smooth texture. The plush carpet seemed to have a sheen and some of the colors in the patterned sample seemed to blend together. The red carpet sample had purple highlights probably because of the combined blue reflected from the daylight, lake, and walls. The walls in both rooms reflected more light with the wallpaper than with their present finishes.

The night observations show very low illumination on the floor. All colors looked darker and duller than during the day. All textures were more evident, especially the textured wall paper, which had shadows and highlights.

The following three overlays represent the Barnes lighting plan, furniture plan, and floor plan.



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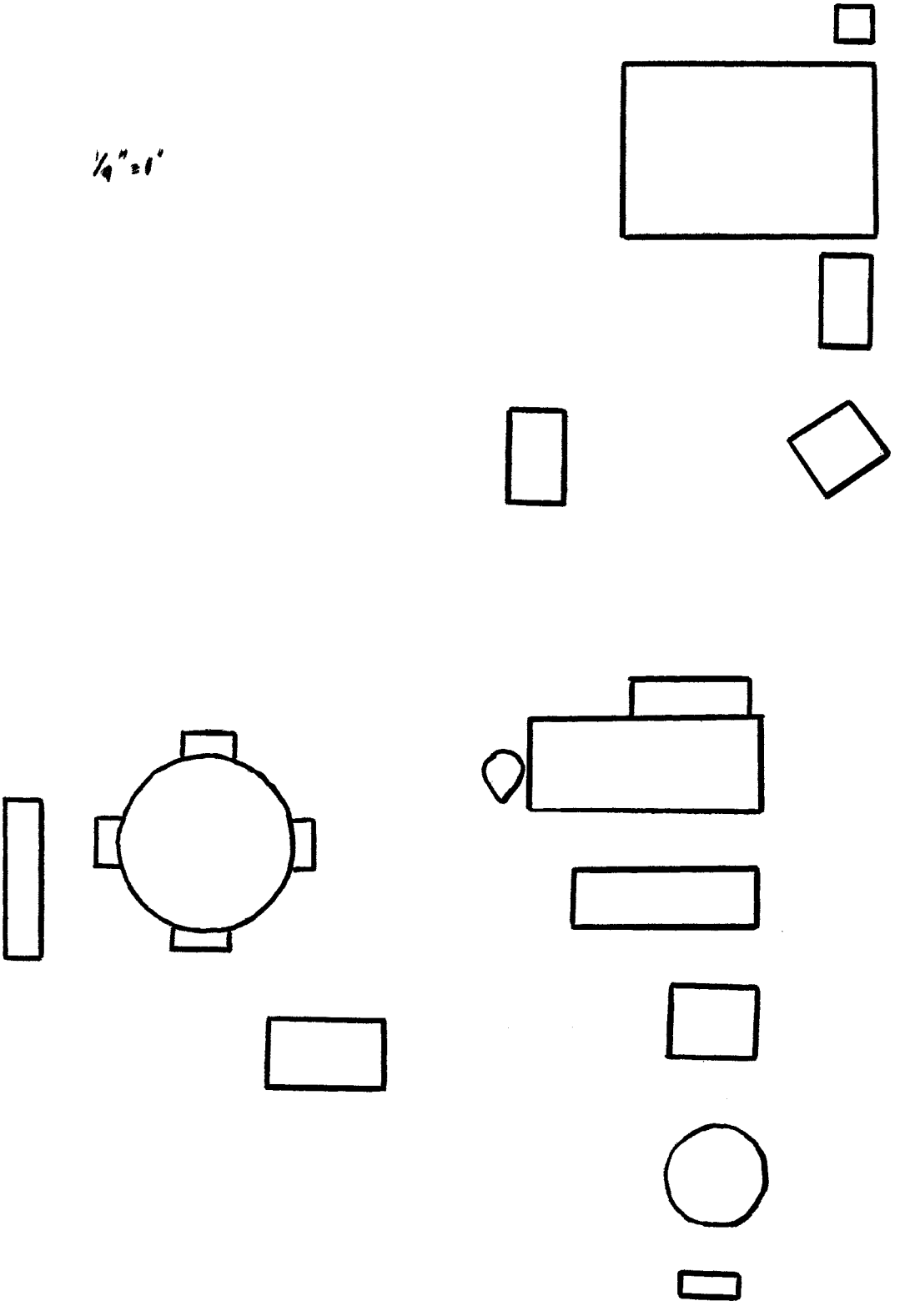
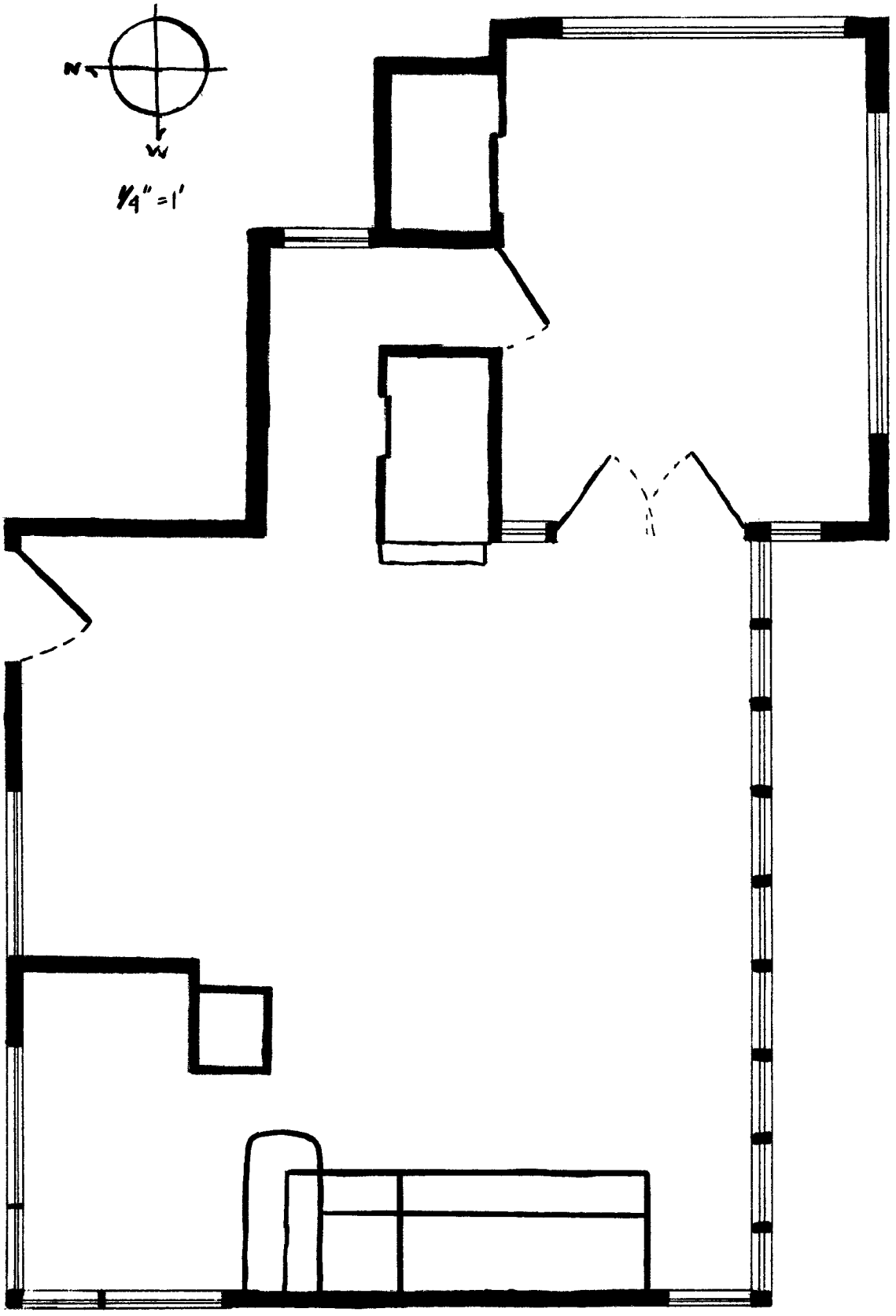



N
W
1/4" = 1'

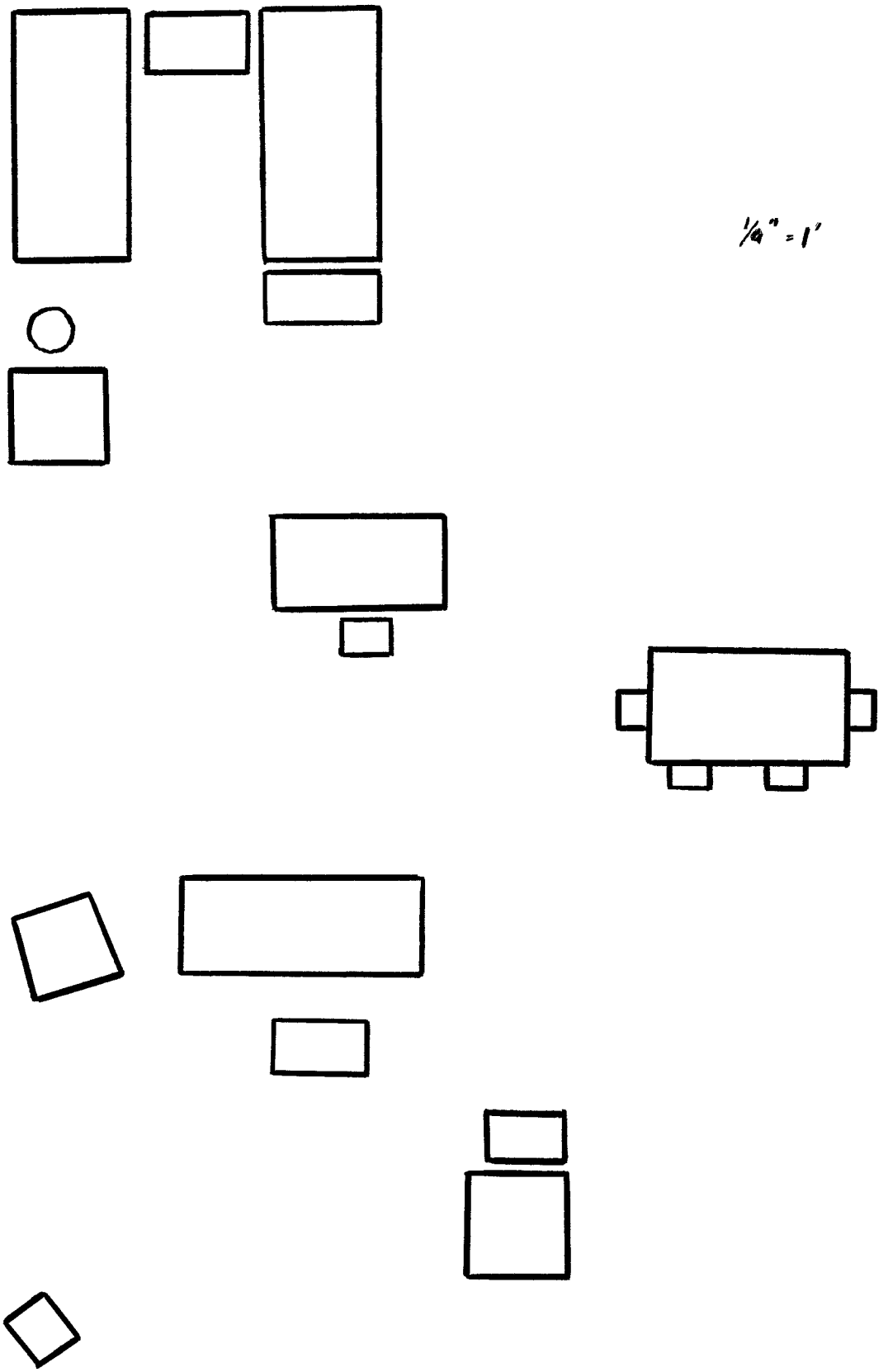
Miller Home

The Miller home (2nd floor plan) is located four miles west of Tahlequah, Oklahoma. The house was built at the bottom of a hill and is surrounded by a wide yard shaded by several trees. The house is near a public road; thus the glass is mostly on the sides away from the road. Windows are often covered during the day. The house, excepting windows and fireplace, is made of smooth wood. One wall in the living area, and all the dining area, is wood-paneled; other walls are white. All the floors are hardwood. The colors used in the living and dining area are olive green, burnt orange, and brown. The colors used in the bedroom are olive green and beige.

The day observations gave a fairly low footcandle reading because the wood paneling, floor, and furnishings are all dark. The beige carpet sample looked darker and grayer than it really is because of the green reflected from the grass, curtains, and furniture. The red carpet samples looked bright red because of the color contrast between red and green. Readings proved that the wallpaper samples did not reflect as much light as the present smooth white wall finish.

The night observations indicated that there is about the same amount of light present in the house for night and day; but, of course, the direction, source, and color of light is changed. The beige carpet sample color and texture especially seemed to change from smooth gray during the day to a yellow beige color and rough texture at night. The color of the wallpaper did not seem to change much, but the texture did look rougher at night.

The following three overlays represent the Miller lighting plan, furniture plan, and floor plan.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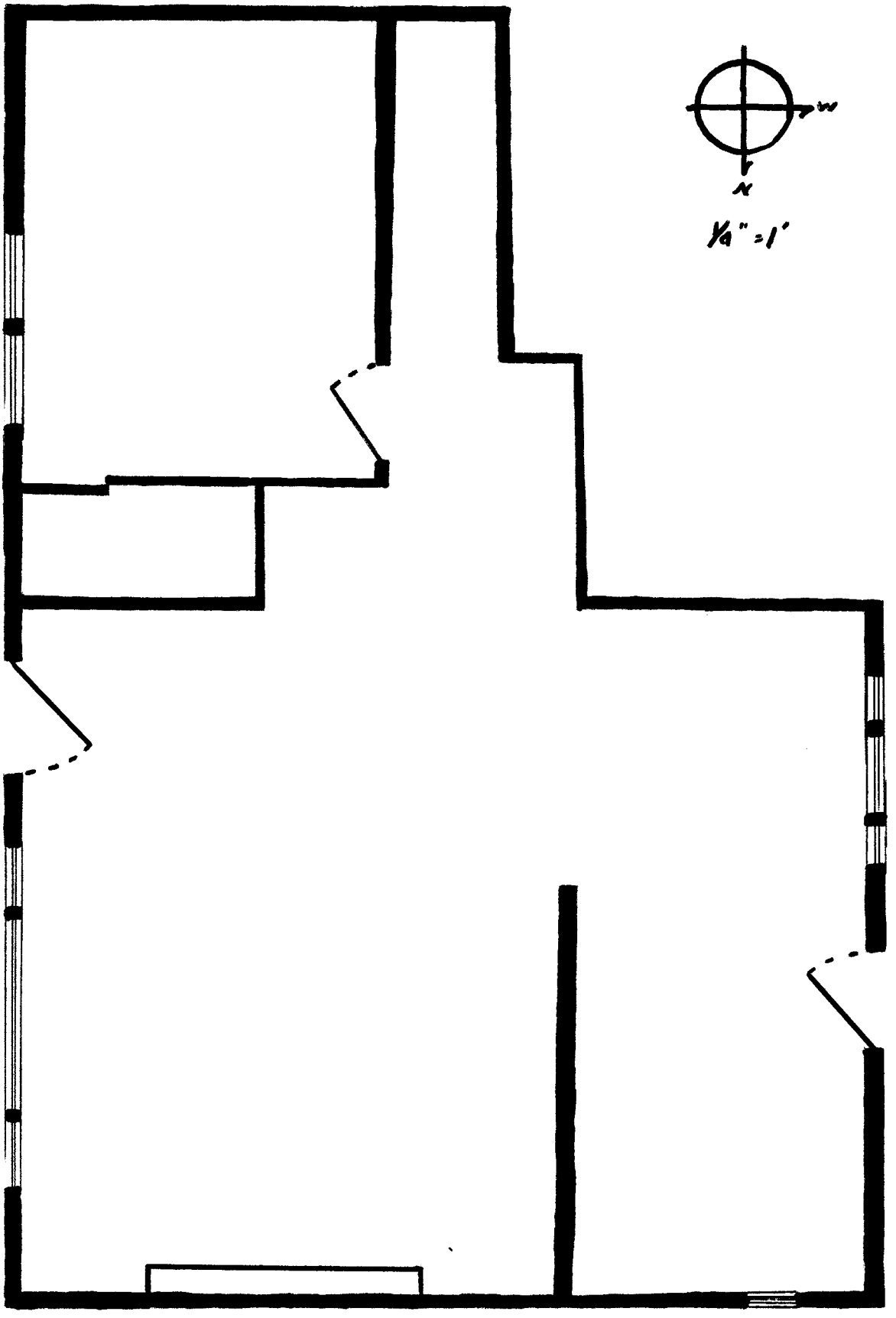

W
N
1/8" = 1'

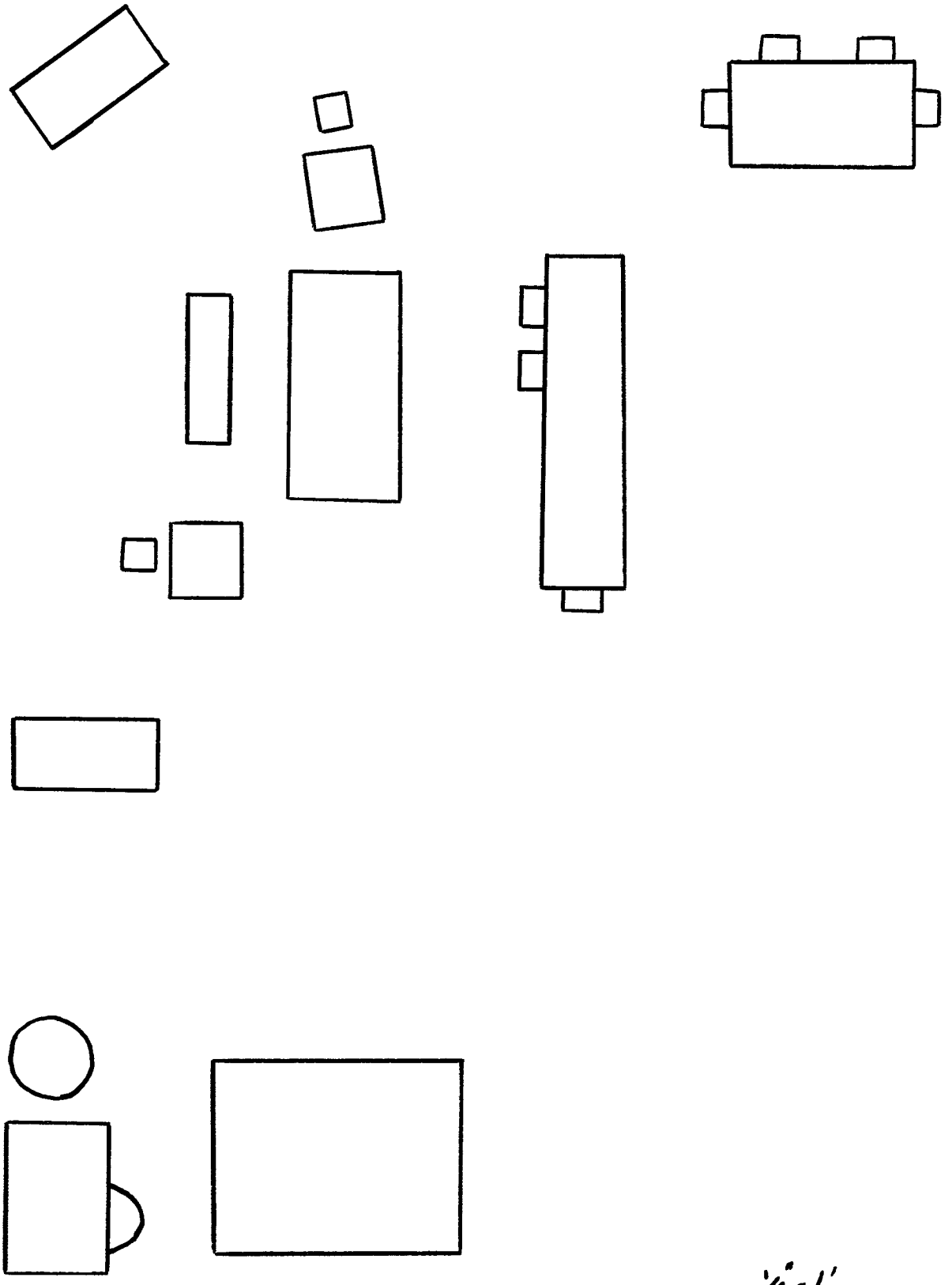
Wasson Home

The Wasson home (3rd floor plan) is in the east part of Tahlequah, Oklahoma. It is located on a dead end street; so there is little traffic passing the house. The house is surrounded by trees and the yard has purposefully been rocked. There is no lawn. From the east of the house, one can see the Illinois River. There is a large window on the east side of the house. The river is not close enough to reflect light on the house. The house is constructed of red brick and unfinished red cedar. The house, except the kitchen, is carpetted throughout with green sculptured carpet. The colors used in the living and dining areas are blue, green, and beige. The bedroom colors are beige and green.

The day observations of light, color, and texture in the three rooms showed that green was reflected on the carpet samples, whereas the wallpaper samples seemed to pick up bluish highlights. The bedroom, because of the time of day, had more sunlight since it is located on the west side of the house.

The night observations show lower illumination in the living room than in the other two rooms. One of the reasons for this is that there is no ceiling fixtures in the living area; all the night light is provided by the lamps. All walls and ceilings in the house are of cream color; so they do reflect more light than a dark wall would. In general, the colors did not seem to change very much between day and night in this house; but, again, textures seemed rougher at night. This was particularly true of samples in the living area because they were observed in the center of the room, away from light sources.

The following three overlays represent the Wasson lighting plan, furniture plan, and floor plan.



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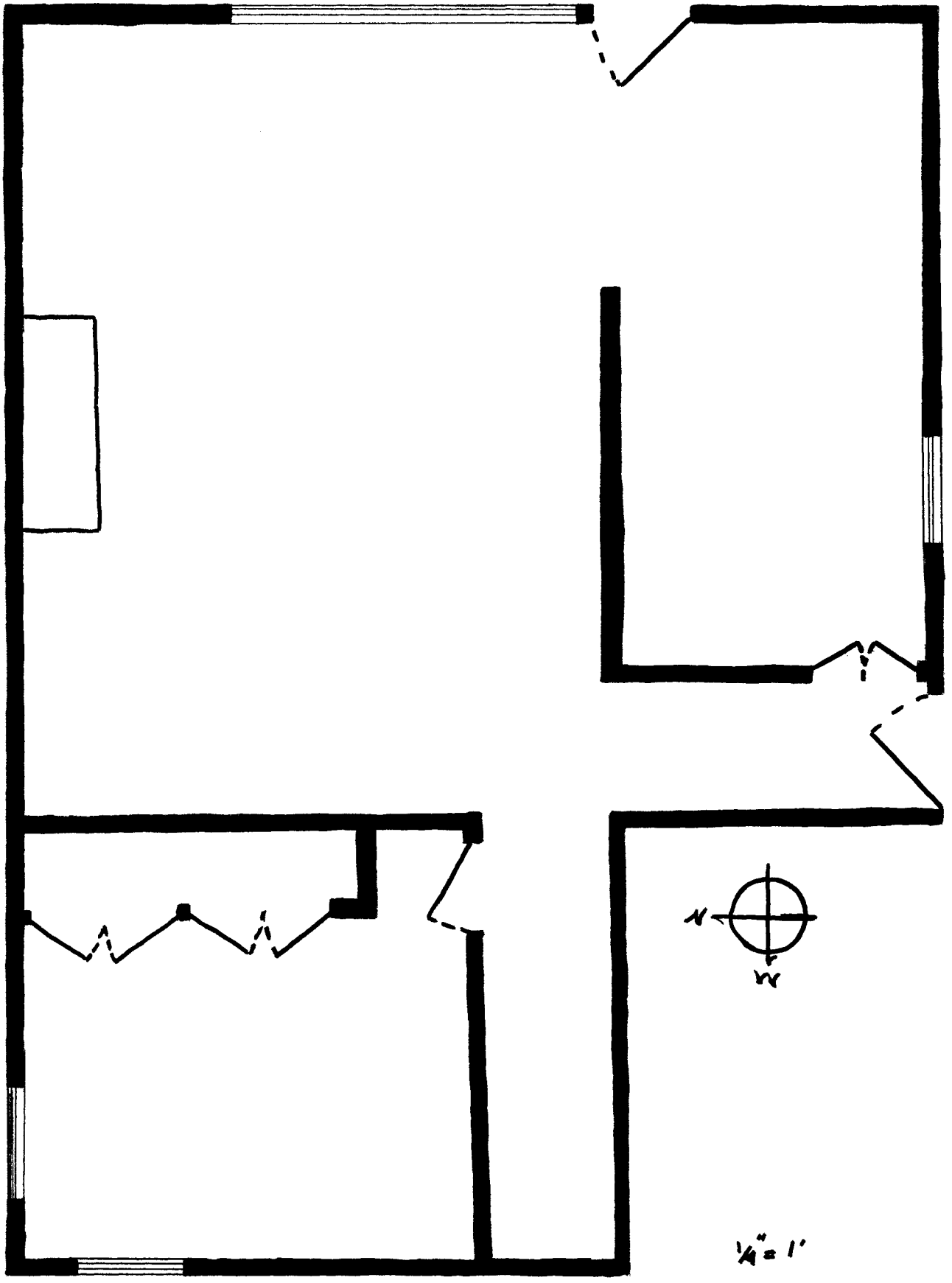

N
W
1/4" = 1'

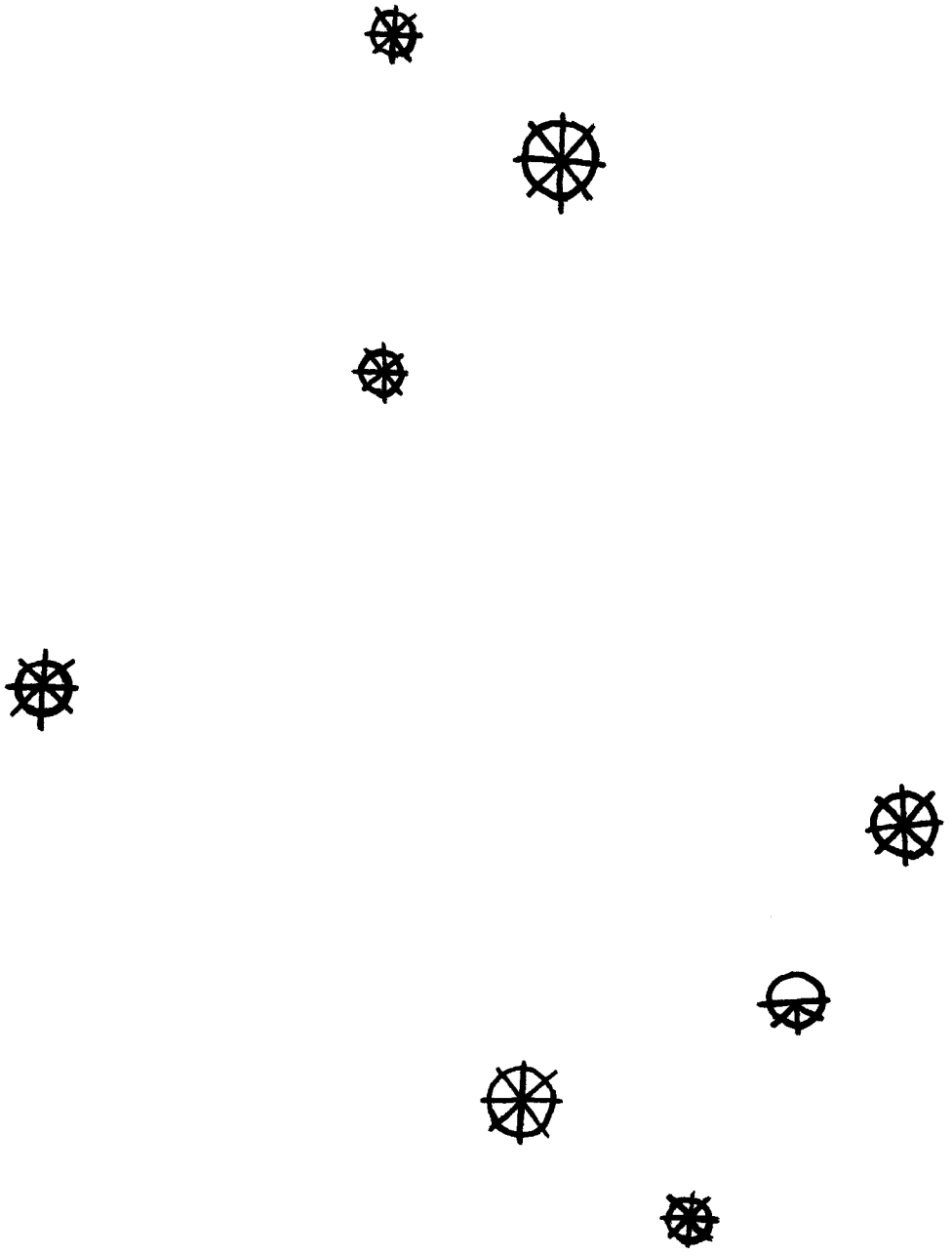
Urquhart Home

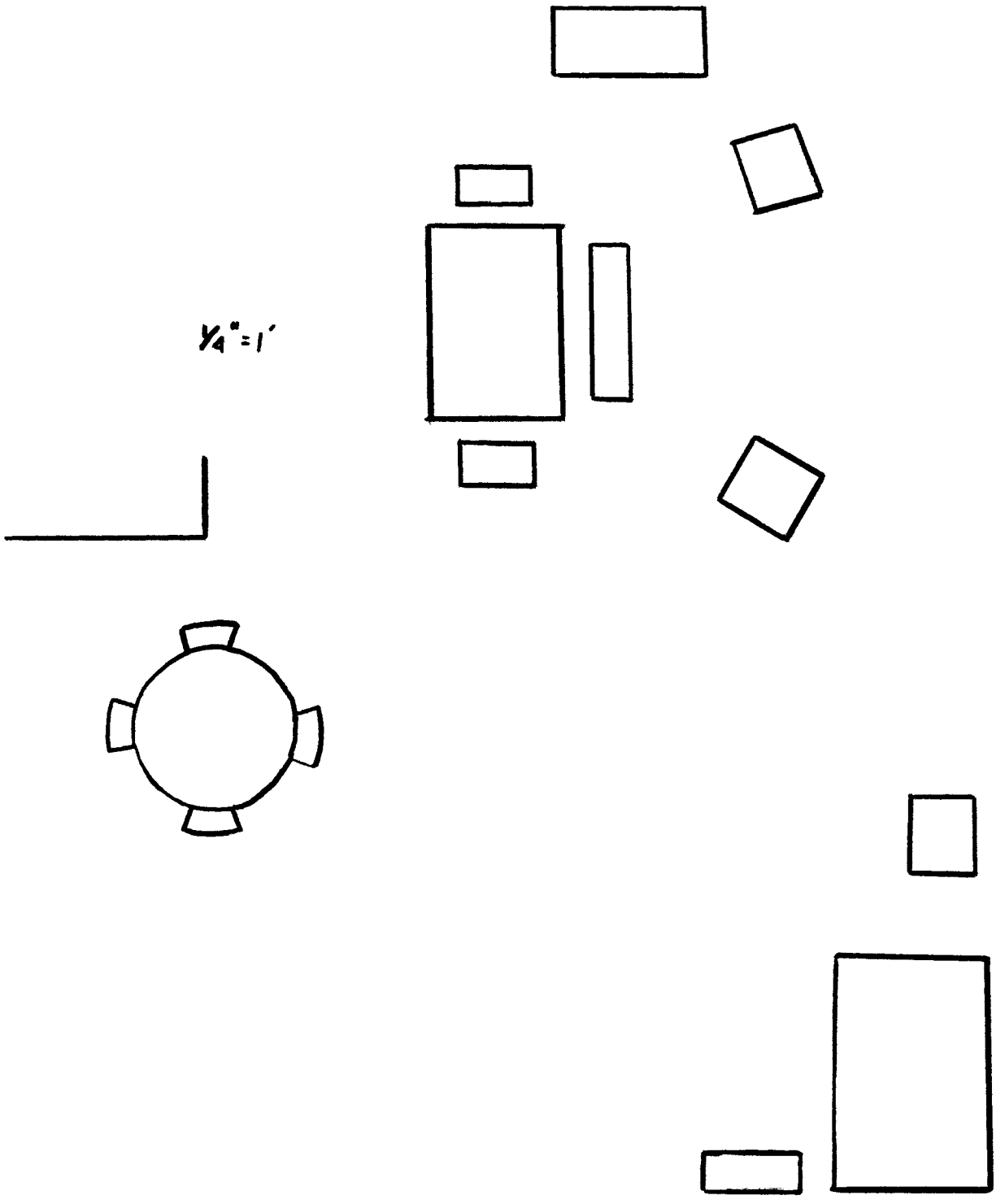
The Urquhart home (4th floor plan) is in Sallisaw, Oklahoma, in the newest housing division of that town. The houses are very close together; as a result, there are no windows on the east or west sides of the house. The land was cleared of all trees before building was begun, and young trees have not had time to grow to give privacy or shade. The Urquhart house is built of gray brick trimmed in white woodwork. The living room is furnished in brown and gold, and has gold carpeting and draperies. The dining room is not carpetted because the Urquharts have a young child. Dining room colors are brown, beige, and white. The bedroom is carpetted in dark green; other colors used in the bedroom are orange, yellow, and white.

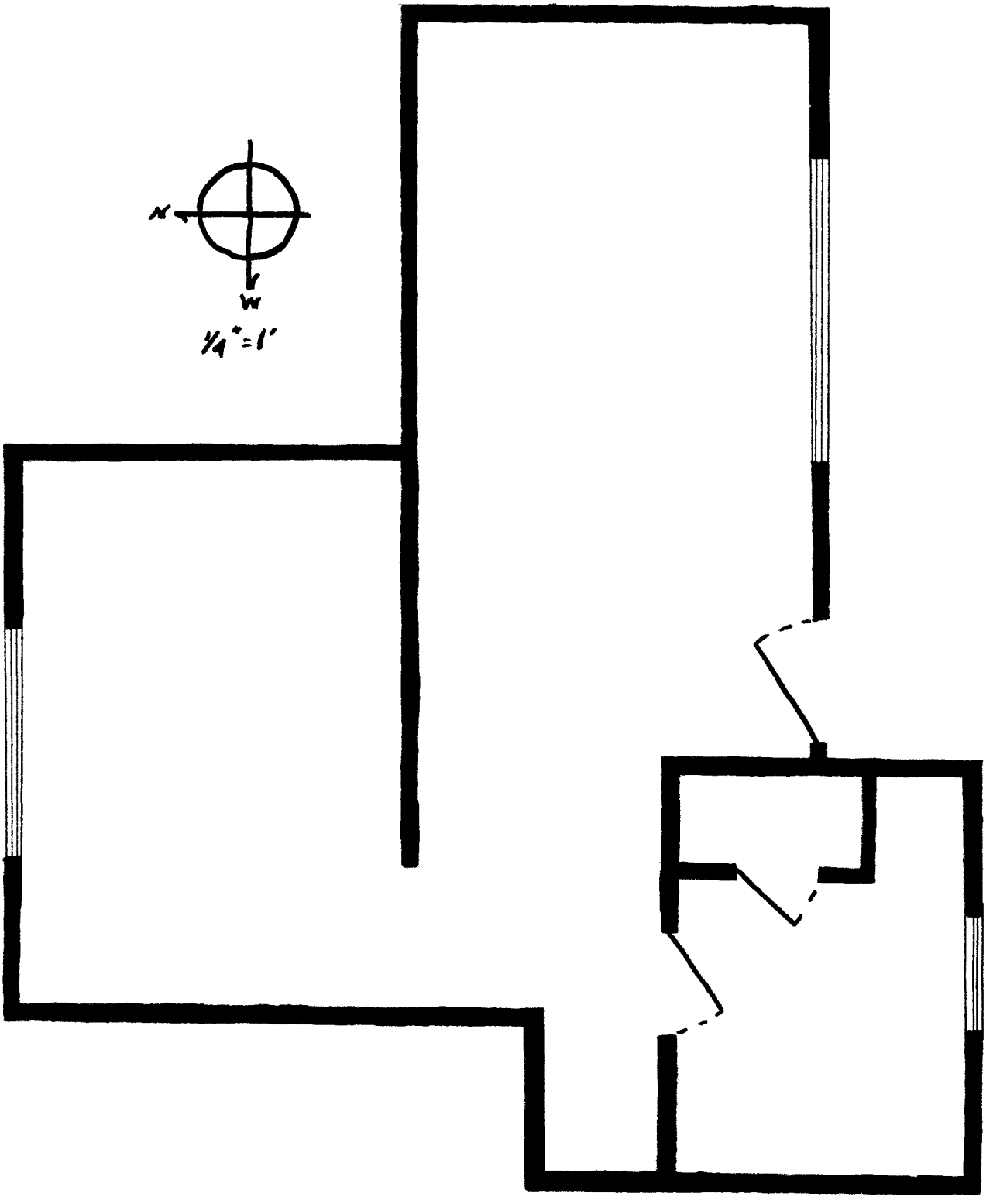
This house probably offers the most contrast between day and night lighting. The living room is particularly light during the day; the light readings were 75 for all samples. This much light was not particularly flattering to any of the samples observed. Both wallpaper samples tended to reflect so much light that there was a glare. The pattern and texture of the carpet samples were so washed in light that they all seemed flat and uninteresting.

The night readings ranged from 0 to 6. Because of the low illumination, all the colors, even the red samples, seemed dull. All of the samples had shadows because of the pattern or texture. The patterned carpet sample was changed by the light to a contrast of light and dark that looked like a combination of yellow and brown.

The following three overlays represent the Urquhart lighting plan, furniture plan, and floor plan.




1/4" = 1'


N
W
1/4" = 1'

CHAPTER V

CONCLUSIONS AND FUTURE STUDY

Conclusions

In this study there is a discussion of pattern, texture, light, color, and the human eye. All of these were used in making observations of the influence of light on pattern and texture in four selected homes. Carpet and wallpaper samples were used to see if there would be a change in texture and pattern in the different homes. The samples did look different in each home because of the change in light, surroundings, colors, and construction of the homes. The study reinforced the belief that light colored things reflect and dark colored things absorb light; that rough textures absorb more light than smooth textures; that whatever is near an item influences the way it looks; and that the amount of light in a room can be changed by using different colors, textures, and patterns.

Suggestions for Future Study

Other studies that could be done related to this topic are as follows:

1. The design of lighting plans to include functional and aesthetic lighting in a pleasant arrangement.
2. The influence of light on the way we see space and form in the home.
3. How light influences activities that take place in the home.

4. How lighting in commercial buildings is used to help sell products and attract consumers' attention.

These four suggestions do not exhaust all possibilities for future study. Other problems arise when new or experimental products are put on the market. And, of course, light, texture, and pattern are so varied and ever-changing that there is a continuing need for study of them and their relationships in the home.

GLOSSARY OF TERMS

Absorption: a taking in and not reflecting; partial loss in power of light or radio waves passing through a medium.

Diffusion: spreading; dissemination; a reflection, such as light, from an irregular surface.

Footcandle: a unit for measuring illumination: it is equal to the amount of direct light thrown by one international candle on a square foot of surface, every part of which is one foot away.

Light: a form of radiant energy that acts upon the retina of the eye, optic nerve, etc., making sight possible or a form of radiant energy similar to this, but not acting on the normal retina, as ultraviolet and infrared radiation.

Light meter: an instrument for measuring light.

Light pattern: the arrangement of lights.

Man-made light: illumination from man-produced power, such as electricity.

Natural light: illumination from the sun and stars.

Optical illusion: deception in seeing; misleading appearance or image.

Reflectance: the throwing back, by a surface, of sound, light, heat,etc.

Secondary light source: that which does not produce light but does reflect light.

Source: that from which light comes.

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APPENDIX A

Barnes Home

Day Observations

Carpet Samples	Red Pl.*	Red Sc.**	Beige Sh.***	Patterned
living area	35 ftc.#	30 ftc.	40 ftc.	35 ftc.
dining area	18 ftc.	15 ftc.	20 ftc.	18 ftc.
bedroom	70 ftc.	70 ftc.	75 ftc.	70 ftc.

Wallpaper Samples	Textured	Patterned
living area	75 ftc.	75 ftc.
dining area	45 ftc.	40 ftc.
bedroom	75 ftc.	75 ftc.

Night Observations

Carpet Samples	Red Pl.	Red Sc.	Beige Sh.	Patterned
living area	8 ftc.	10 ftc.	8 ftc.	6 ftc.
dining area	6 ftc.	10 ftc.	5 ftc.	5 ftc.
bedroom	2 ftc.	2 ftc.	2 ftc.	0 ftc.

Wallpaper Samples	Textured	Patterned
living area	12 ftc.	10 ftc.
dining area	10 ftc.	10 ftc.
bedroom	5 ftc.	5 ftc.

Miller Home

Day Observations

Carpet Samples	Red Pl.	Red Sc.	Beige Sh.	Patterned
living area	15 ftc.	18 ftc.	18 ftc.	15 ftc.
dining area	12 ftc.	13 ftc.	11 ftc.	12 ftc.
bedroom	6 ftc.	8 ftc.	8 ftc.	6 ftc.

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*Red Pl.--Red Plush
**Red Sc.--Red Sculptured
***Beige Sh.--Beige Shag
#ftc.--footcandle

Wallpaper Samples	Textured	Patterned
living area	25 ftc.	20 ftc.
dining area	15 ftc.	13 ftc.
bedroom	15 ftc.	10 ftc.

Night Observations

Carpet Samples	Red Pl.	Red Sc.	Beige Sh.	Patterned
living area	8 ftc.	8 ftc.	10 ftc.	8 ftc.
dining area	10 ftc.	10 ftc.	12 ftc.	10 ftc.
bedroom	6 ftc.	8 ftc.	10 ftc.	6 ftc.

Wallpaper Samples	Textured	Patterned
living area	13 ftc.	10 ftc.
dining area	15 ftc.	11 ftc.
bedroom	13 ftc.	8 ftc.

Wasson Home

Day Observations

Carpet Samples	Red Pl.	Red Sc.	Beige Sh.	Patterned
living area	20 ftc.	20 ftc.	23 ftc.	18 ftc.
dining area	15 ftc.	12 ftc.	18 ftc.	15 ftc.
bedroom	35 ftc.	33 ftc.	38 ftc.	33 ftc.

Wallpaper Samples	Textured	Patterned
living area	30 ftc.	25 ftc.
dining area	25 ftc.	25 ftc.
bedroom	55 ftc.	52 ftc.

Night Observations

Carpet Samples	Red Pl.	Red Sc.	Beige Sh.	Patterned
living area	6 ftc.	6 ftc.	7 ftc.	6 ftc.
dining area	8 ftc.	8 ftc.	8 ftc.	6 ftc.
bedroom	5 ftc.	5 ftc.	5 ftc.	5 ftc.

Wallpaper Samples	Textured	Patterned
living area	10 ftc.	8 ftc.
dining area	10 ftc.	5 ftc.
bedroom	8 ftc.	8 ftc.

Urquhart Home

Day Observations

Carpet Samples	Red Pl.	Red Sc.	Beige Sh.	Patterned
living area	75 ftc.	75 ftc.	75 ftc.	75 ftc.
dining area	50 ftc.	55 ftc.	48 ftc.	40 ftc.
bedroom	8 ftc.	10 ftc.	10 ftc.	10 ftc.

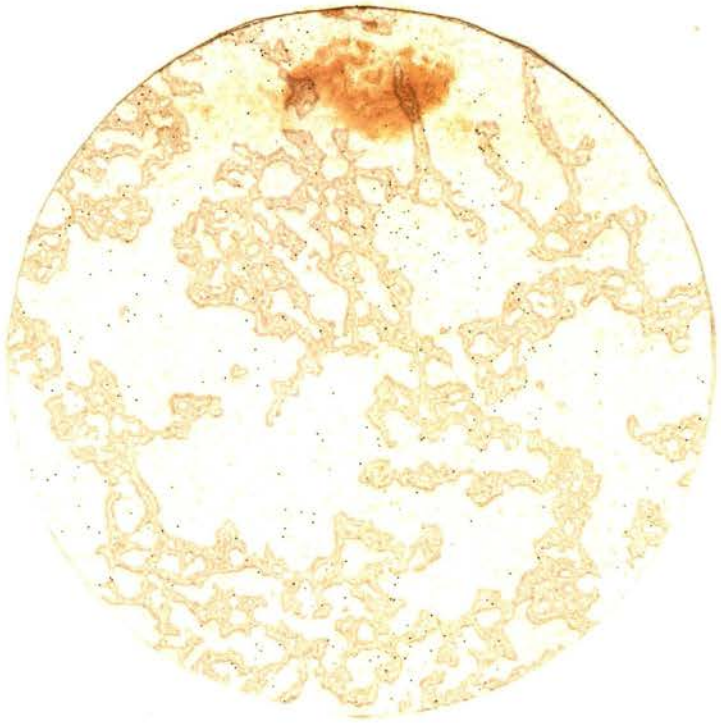
Wallpaper Samples	Textured	Patterned
living area	75 ftc.	75 ftc.
dining area	50 ftc.	40 ftc.
bedroom	25 ftc.	20 ftc.

Night Observations

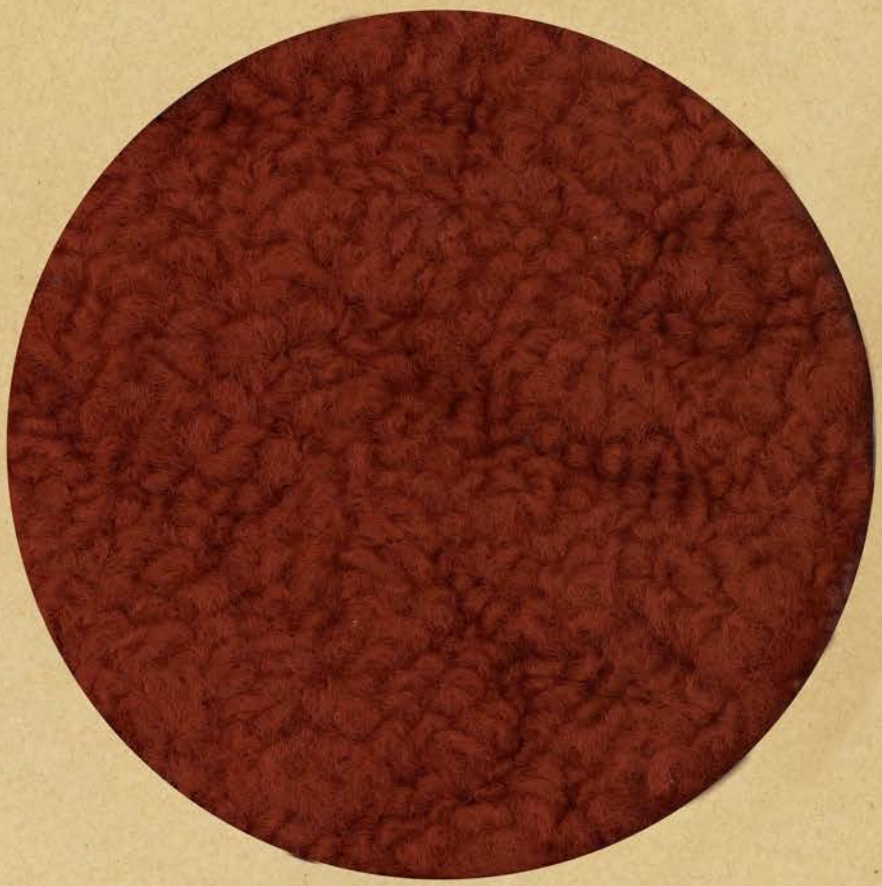
Carpet Samples	Red Pl.	Red Sc.	Beige Sh.	Patterned
living area	4 ftc.	4 ftc.	4 ftc.	3 ftc.
dining area	3 ftc.	1 ftc.	3 ftc.	0 ftc.
bedroom	4 ftc.	4 ftc.	4 ftc.	4 ftc.

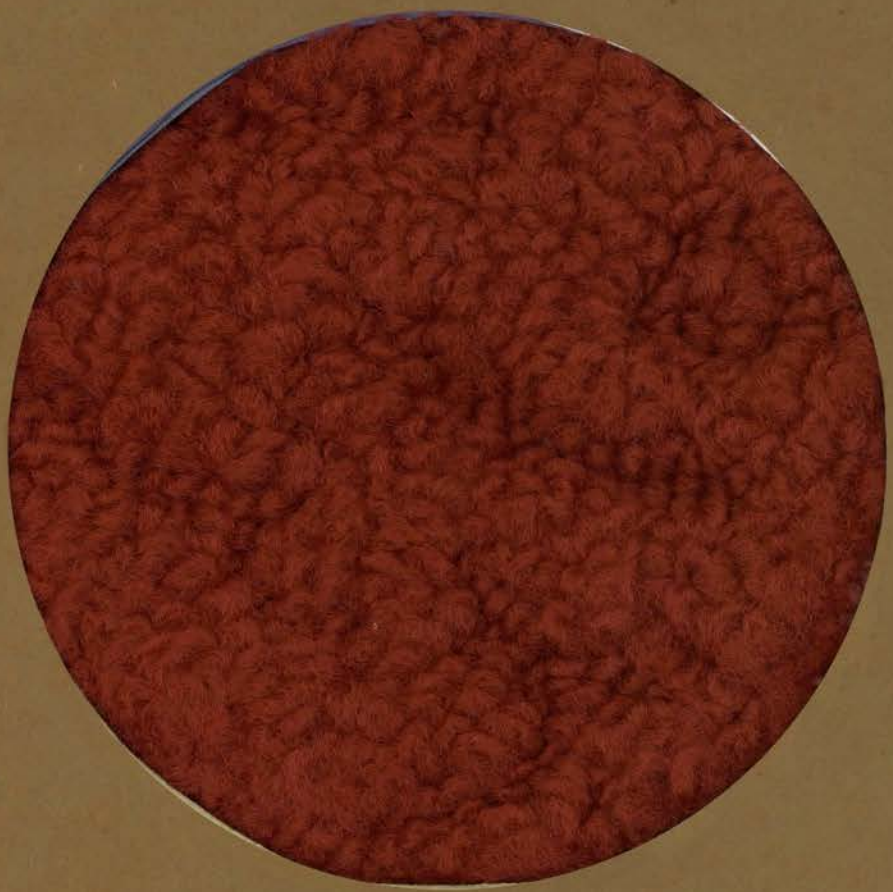
Wallpaper Samples	Textured	Patterned
living area	5 ftc.	4 ftc.
dining area	3 ftc.	3 ftc.
bedroom	6 ftc.	6 ftc.

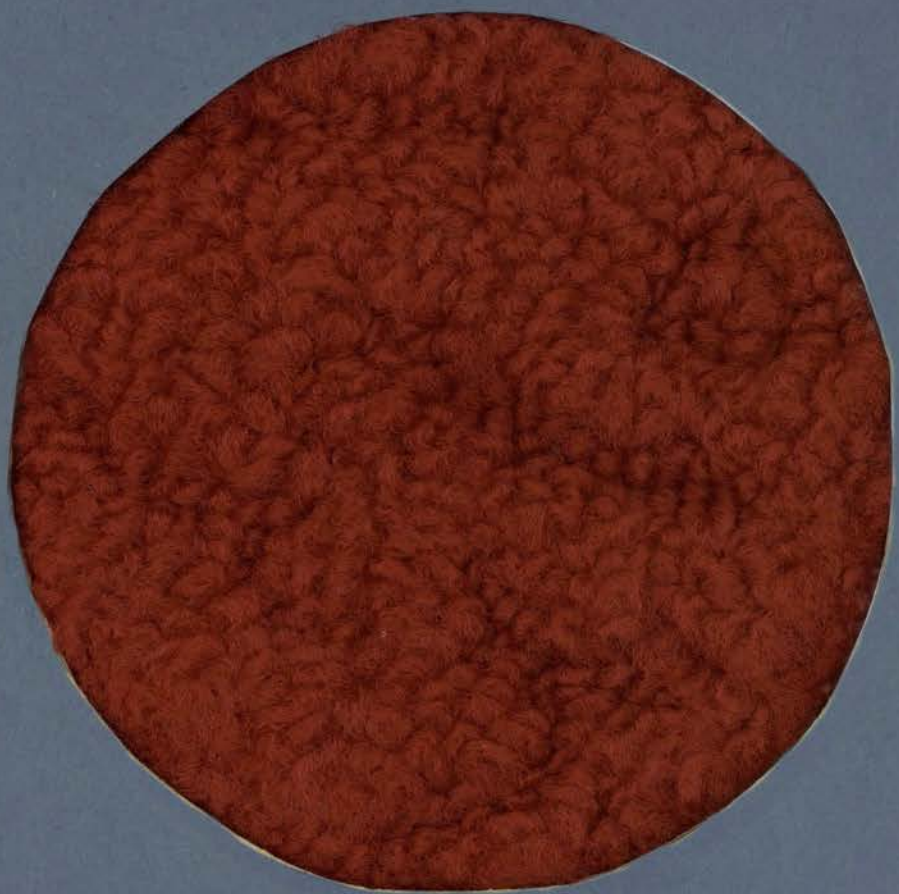
APPENDIX B



APPENDIX C







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