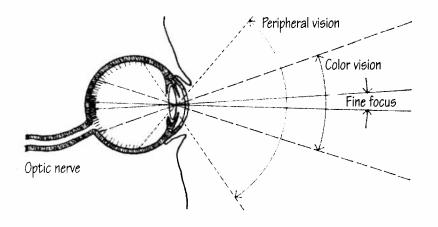


A Design Vocabulary



Our ability to focus on and perceive detail is restricted to a fairly narrow cone of vision. In surveying our visual field, our eyes continually move, scan, focus, and refocus to discover visual information. To make sense of what we see, the brain interprets the visual data gathered by our eyes and assembles the information into visual patterns that we can recognize and understand.

The normal process of perception is utilitarian and geared toward recognition. When we see a chair, we recognize it to be a chair if its form and configuration fit a pattern established by chairs we have seen and used in the past. If we look carefully, however, we would also be able to perceive the chair's specific shape, size, proportion, color, texture, and material. This ability to see beyond recognition and utility is extremely important to designers. We must continually strive to see and be conscious of the specific visual characteristics of things and how they relate and interact to form the aesthetic quality of our visual environments.

A Design Vocabulary

Form

Shape

Color

Texture

Light

Proportion

Scale

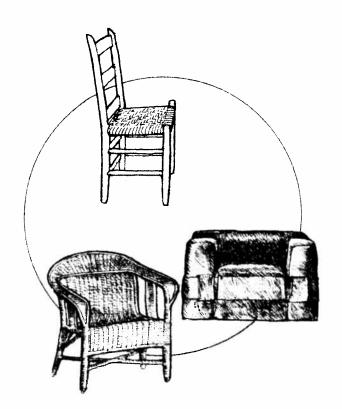
Balance

Harmony

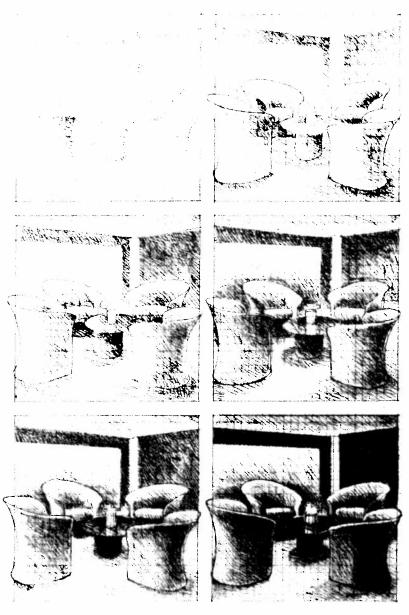
Unity and Variety

Rhythm

Emphasis



Our perception of the visual shape, size, color, and texture of things is affected by the optical environment in which we see them and the relationships we can discern between them and their visual setting. If our visual field were undifferentiated, we would see nothingness. As a perceptible change in tonal value, color, and texture occurred, however, we would begin to discern an object or figure as differentiated from its background. To read the lines, shapes, and forms of objects in our field of vision, therefore, we must first perceive contrast between them and their background.





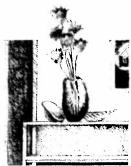
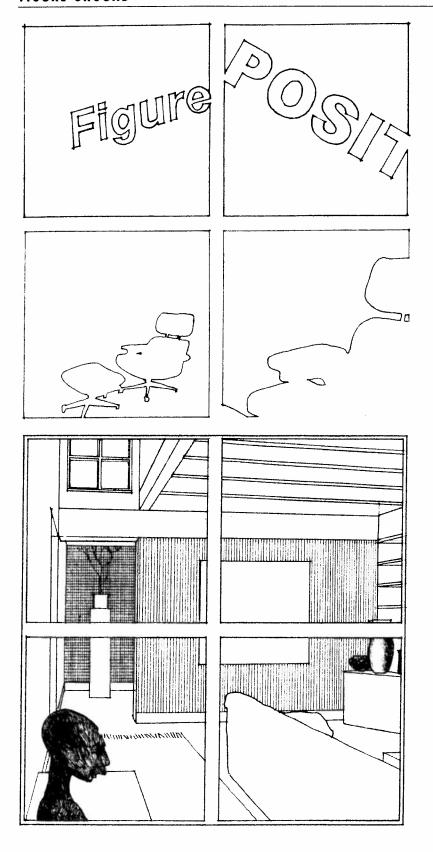


Figure-Ground Relationships

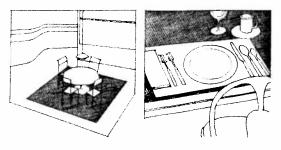
Visual Contrast



Those elements that appear to stand out from or in front of their background are called figures. In addition to tonal value contrast, what distinguishes a figure from its background are its shape and size relative to its field. While a figure shares a common border with its background, it has a more distinct and recognizable shape that makes it appear as an object. Figures are sometimes referred to as positive elements—having a positive shape—while backgrounds are described as negative or neutral elements—lacking a clear or discernible shape.

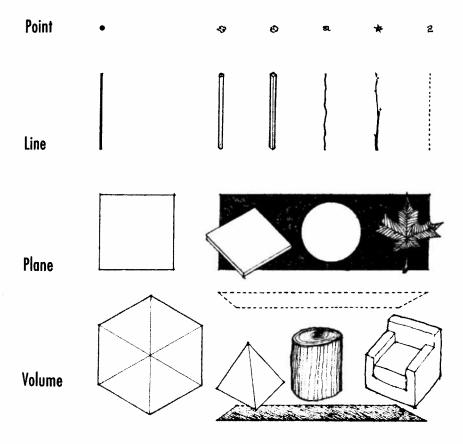
Figures are most discernible when surrounded by a generous amount of space or background. When the size of a figure is such that it crowds its background, the background can develop its own distinct shape and interact with the shape of the figure. At times, an ambiguous figure-ground relationship can occur wherein elements in a composition can be seen alternately, but not simultaneously, as both figure and ground.

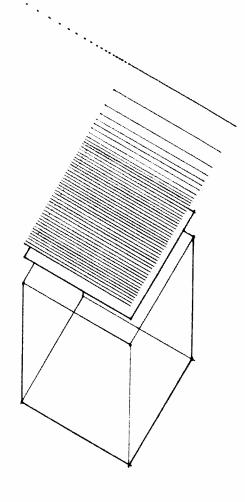
Our visual world is, in reality, a composite image constructed from a continuous array of figure-ground relationships. In interior design, these relationships can be seen to exist at several scales, depending on one's point of view.

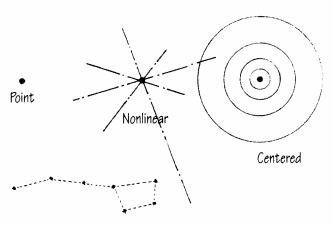


The point is the generator of all form. As a point moves, it leaves a trace of a line—the first dimension. As the line shifts in direction, it defines a plane—a two-dimensional element. The plane, extended in a direction oblique or perpendicular to its surface, forms a three-dimensional volume.

Point, line, plane, and volume. These are the primary elements of form. All visible forms are, in reality, three-dimensional. In describing form, these primary elements differ according to their relative dimensions of length, width, and depth—a matter of proportion and scale.







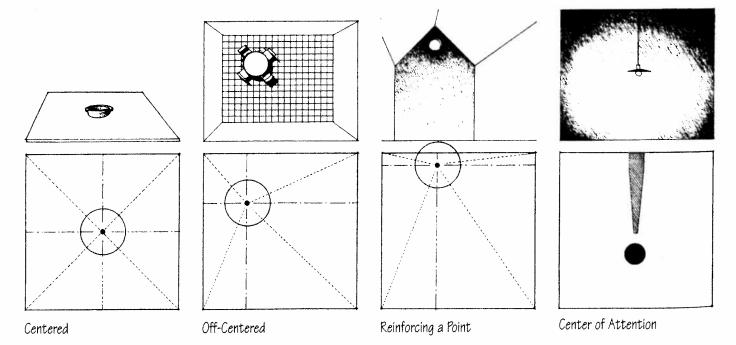
Multiple points define lines and shapes.

Relatively small shapes can read as points.

A point marks a location in space. Conceptually, it has no length, width, or depth. It is, therefore, static and directionless. As the prime generator of form, a point can mark the ends of a line, the intersection of two lines, or the corner where the lines of a plane or volume meet.

As a visible form, a point is most commonly manifested as a dot, a circular shape that is small relative to its field. Other shapes can also be seen as point-forms if sufficiently small, compact, and nondirectional.

When at the center of a field or space, a point is stable and at rest and capable of organizing other elements about itself. When moved off-center, it retains its self-centering quality but becomes more dynamic. Visual tension is created between the point and its field. Point-generated forms, such as the circle and the sphere, share this self-centering quality of the point.

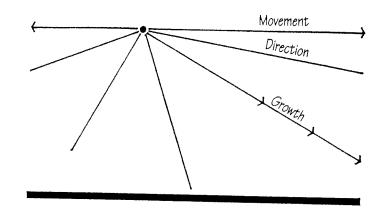


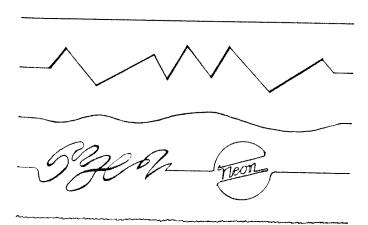
Point-generated forms, such as the circle and the sphere, are self-centering.

A point extended becomes a line. Conceptually, a line has only one dimension, length. In reality, a line's length visually dominates whatever thickness it must have to be visible. Unlike a point, which is static and directionless, a line is capable of expressing movement, direction, and growth.

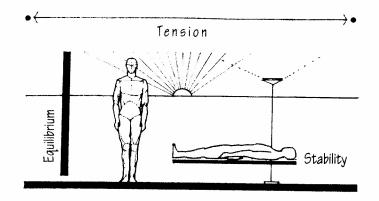
As visible forms, lines may vary in weight and character. Whether bold or delicate, taut or limp, graceful or jagged, a line's visual character is due to our perception of its length-to-width ratio, its contour, and its degree of continuity.

A line can also be implied by two points. Carried further, the simple repetition of similar elements, if continuous enough, can define a line with significant textural qualities.





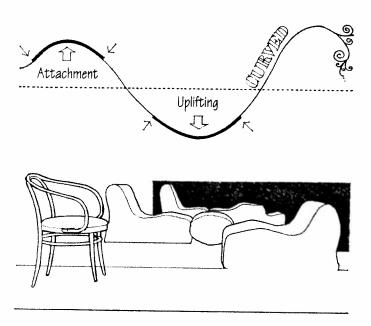
Lines varying in weight, contour, and texture

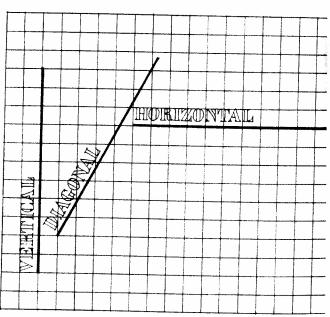


A straight line represents the tension that exists between two points. An important characteristic of a straight line is its direction. A horizontal line car represent stability, repose, or the plane upon which we stand or move. In contrast to this, a vertical line can express a state of equilibrium with the force of gravity.

Diagonal lines, deviations from the horizontal and the vertical, can be seen as rising or falling. In eith case, they imply movement and are visually active a dynamic.

A curved line represents movement deflected by lateral forces. Curved lines tend to express gentle movement. Depending on their orientation, they can be uplifting or represent solidity and attachment to the earth. Small curves can express playfulness, energy, or patterns of biological growth.



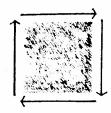


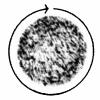
is an essential element in the formation of any sual construction. Without lines, we would not be to define shape—that characteristic by which we generally recognize things. Lines describe the edges of a shape and separate it from the space around it. In addition, the contours of these lines mbue the shape with their expressive qualities.

in addition to describing shape, lines can articulate the edges of planes and the corners of volumes.

These lines can be expressed either by the absence of material—reveals and recessed joints—or by the application of trim.

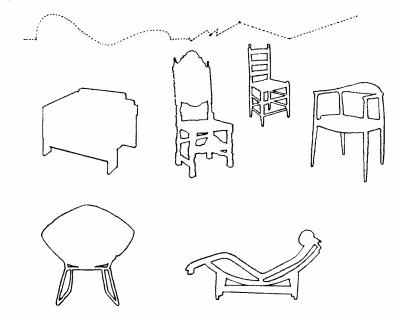
Lines can also be used to create texture and patterns on the surfaces of forms.

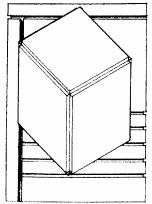


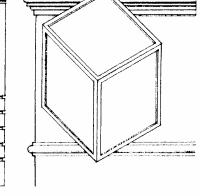


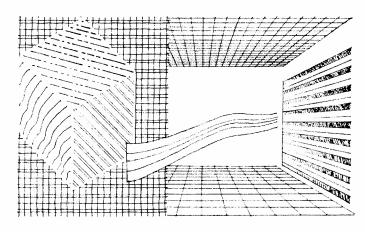


Lines defining shapes







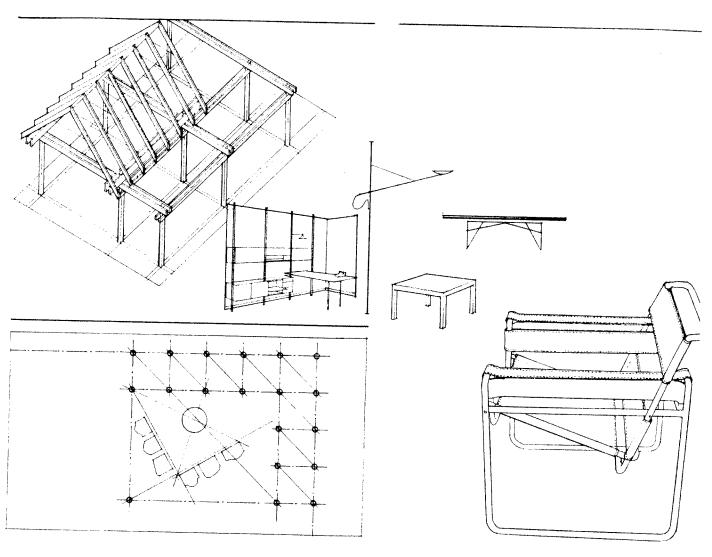


Lines articulating edges

Lines creating textures and patterns

Linear forms have traditionally been used to provid vertical support, span and express movement acro space, and define the edges of spatial volumes. Thi structural role of linear elements can be seen at the scale of both architecture and interior space and furnishings.

Within the design process itself, lines are used simple as regulating devices to express relationships and establish patterns among design elements.



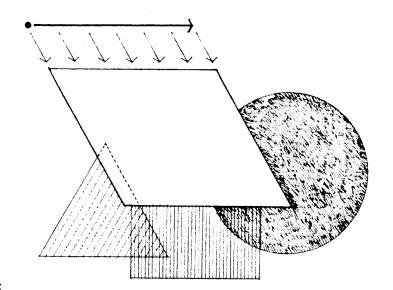
We often use lines to regulate relationships in drawing and design.

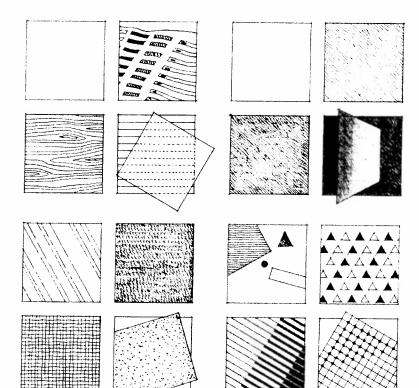
whited in a direction other than its intrinsic defines a plane. Conceptually, a plane has width and length—but no depth. In plane's width and length dominate whatever the be visible.

characteristic of a plane. It is described by the contour of the lines defining the edges of the plane. Since our perceptions of a plane's the can be distorted by perspective, we see the endead of a plane only when we view it frontally.

in addition to shape, planar forms have significant surface qualities of material, color, texture, and pattern. These visual characteristics affect a plane's:

- Visual weight and stability
- Perceived size, proportion, and position in space
- · Light reflectivity
- · Tactile qualities
- · Acoustic properties



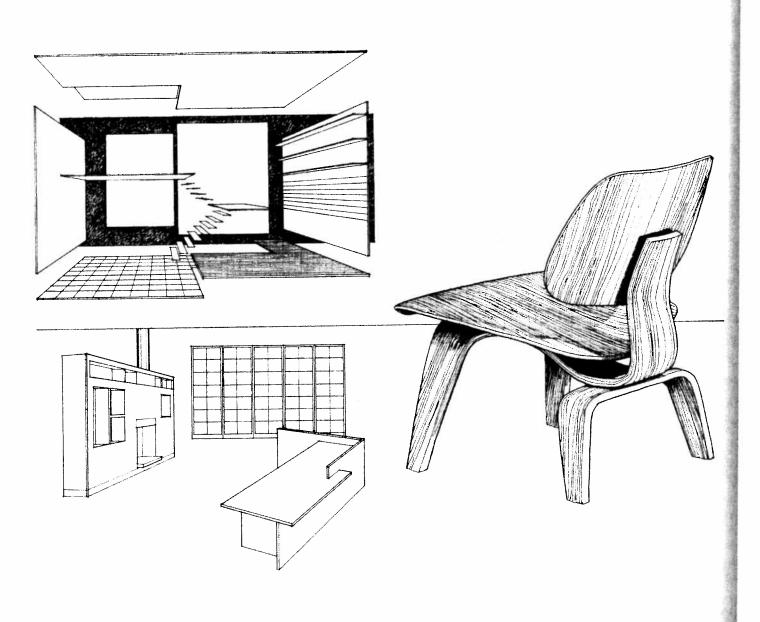


Texture and Pattern

Material and Color

Surface Characteristics of Planar Elements

Planar forms are fundamental elements of architecture and interior design. Floor, wall, and ceiling or roof planes serve to enclose and define three-dimensional volumes of space. Their specific visual characteristics and their relationships in space determine the form and character of the space they define. Within these spaces, furnishings and other interior design elements can also be seen to consist of planar forms.

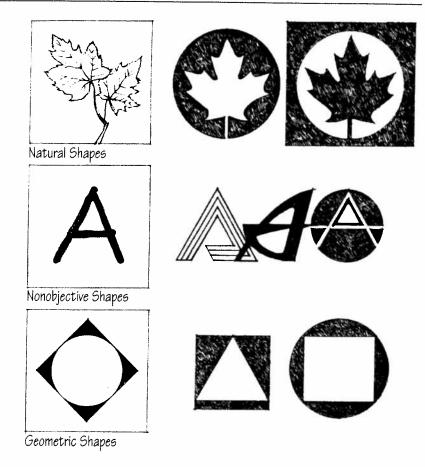


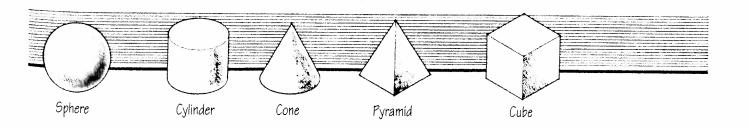
Shape is the primary means by which we distinguish one form from another. It may refer to the contour of a line, the outline of a plane, or the boundary of a three-dimensional mass. In each case, shape is defined by the specific configuration of the lines or planes that separate a form from its background or surrounding space.

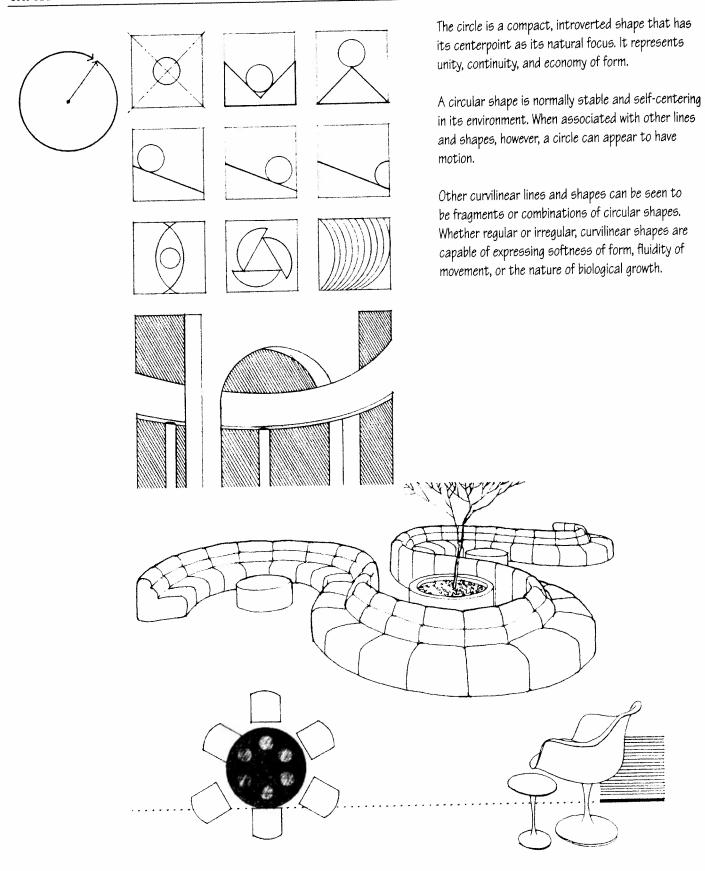
There are several broad categories of shapes. Natural shapes represent the images and forms of our natural world. These shapes may be abstracted, usually through a process of simplification, and still retain the essential characteristics of their natural sources.

Nonobjective shapes make no obvious reference to a specific object or to a particular subject matter. Some nonobjective shapes may result from a process, such as calligraphy, and carry meaning as symbols. Others may be geometric and elicit responses based on their purely visual qualities.

Jeometric shapes dominate the built environment of roth architecture and interior design. There are two separate and distinct types of geometric shapes—ectilinear and curvilinear. In their most regular form, survilinear shapes are circular while rectilinear shapes sclude the series of polygons that can be inscribed within a circle. Of these, the most significant leometric shapes are the circle, the triangle, and he square. Extended into the third dimension, these rimary shapes generate the sphere, the cylinder, the one, the pyramid, and the cube.



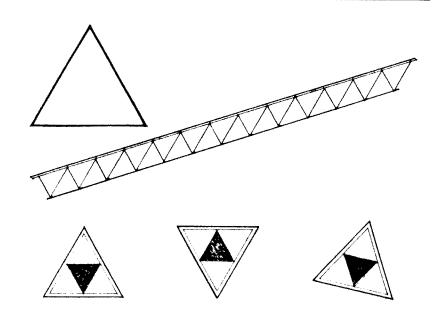




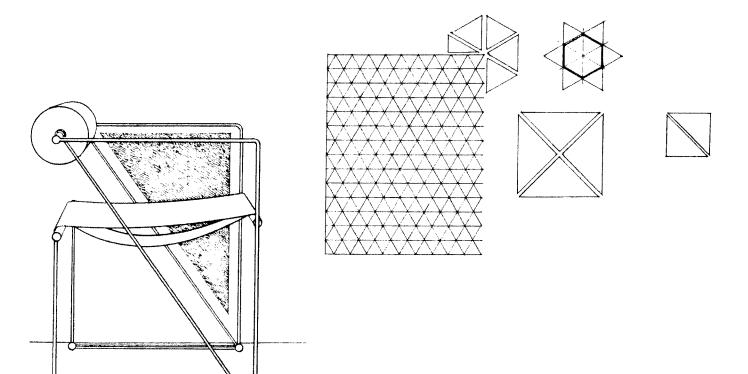
The triangle represents stability. Triangular shapes and patterns are often used in structural systems since their configuration cannot be altered without bending or breaking one of their sides.

From a purely visual point of view, a triangular shape is also stable when resting on one of its sides. When tipped to stand on one of its points, however, the triangular shape becomes dynamic. It can exist in a precarious state of balance or imply motion as it tends to fall over onto one of its sides.

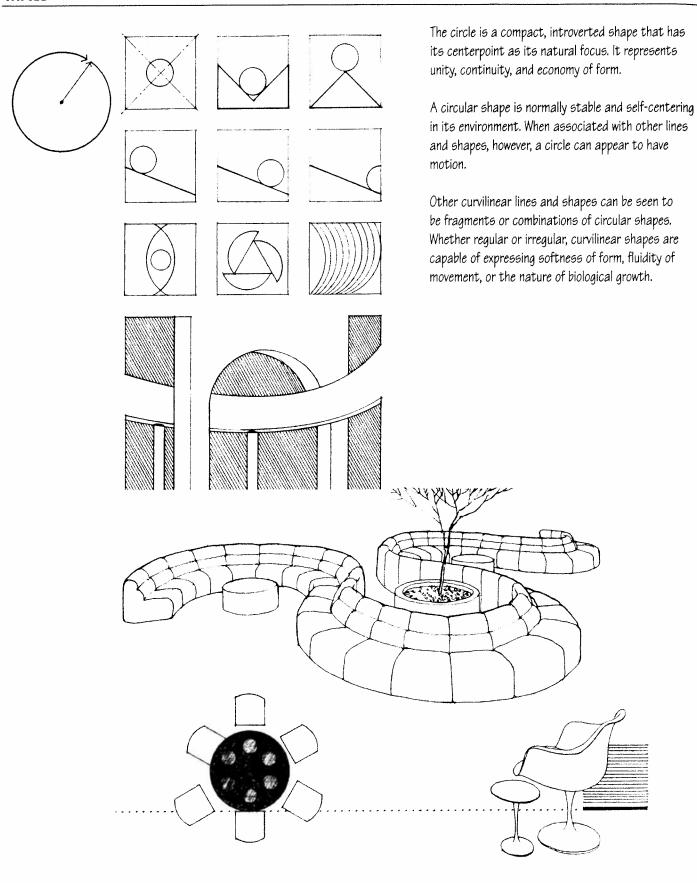
The dynamic quality of a triangular shape is also due to the angular relationships of its three sides. Because these angles can vary, triangles are more flexible than squares and rectangles. In addition, triangles can be conveniently combined to form any number of square, rectangular, and other polygonal shapes.







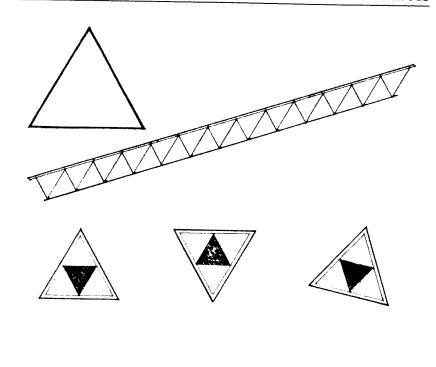
Steel Frame Chair, KF: Mario Botta



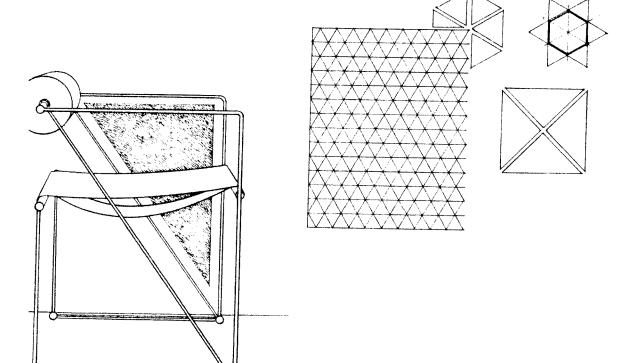
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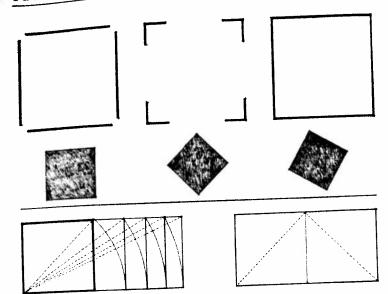
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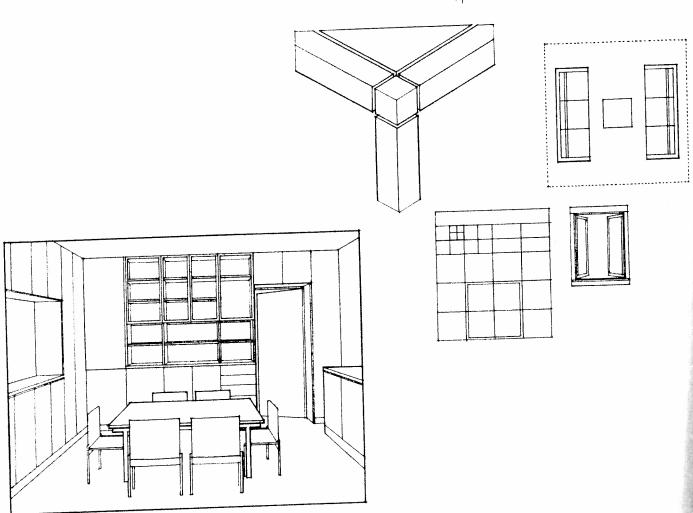
Steel Frame Chair, KF: Mario Botta



The square represents the pure and the rational. The equality of its four sides and its four right angles contributes to its regularity and visual clarity.

A square shape has no preferred or dominant direction. Like the triangle, the square is a stable, tranquil figure when resting on one of its sides, but becomes dynamic when standing on one of its corners.

All other rectangles can be considered to be variations of the square with the addition of width or length. While the clarity and stability of rectangular shapes can lead to visual monotony, variety can be introduced by varying their size, proportion, color, texture, placement, or orientation.

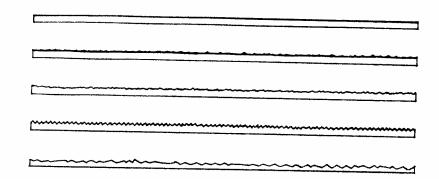


ure is the specific quality of a surface that Its from its three-dimensional structure.

Its most often used to describe the relative of others or roughness of a surface. It can also be to describe the characteristic surface qualities miliar materials, such as the roughness of stone, grain of wood, and the weave of a fabric.

are two basic types of texture. Tactile texture all and can be felt by touch; visual texture is seen e eye. All tactile textures provide visual texture all. Visual texture, on the other hand, may be ry or real.

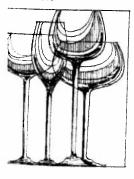
enses of sight and touch are closely intertwined. Ir eyes read the visual texture of a surface, we respond to its apparent tactile quality without ally touching it. We base these physical reactions a textural qualities of surfaces on previous siations with similar materials.

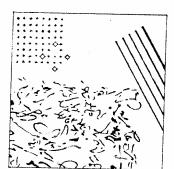


Texture refers to the three-dimensional structure of a surface.

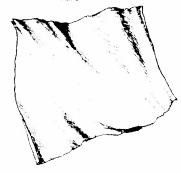


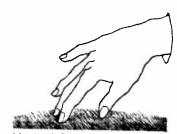
al Texture





Visual Texture



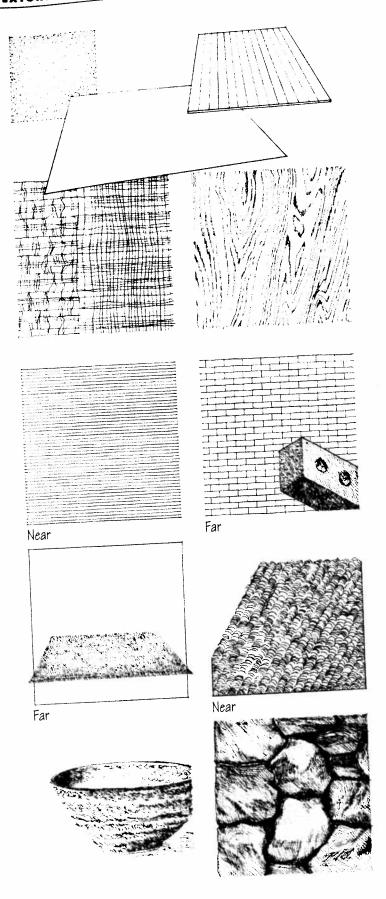


Material Texture



Texture is intertwined with our senses of sight and touch.





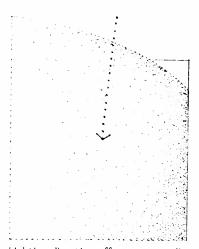
Scale, viewing distance, and light are important modifying factors in our perception of texture and the surfaces they articulate.

All materials have some degree of texture. But the finer the scale of a textural pattern, the smoother it will appear to be. Even coarse textures, when seen from a distance, can appear to be relatively smooth. Only upon closer viewing would the texture's coarseness become evident.

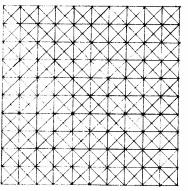
The relative scale of a texture can affect the apparent shape and position of a plane in space. Textures with a directional grain can accentuate a plane's length or width. Coarse textures can make a plane appear closer, reduce its scale, and increase its visual weight. In general, textures tend to visually fill the space in which they exist.

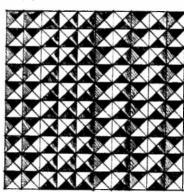
nt influences our perception of texture and, in n, is affected by the texture it illuminates. Direct t falling across a surface with physical texture enhance its visual texture. Diffused lighting mphasizes physical texture and can even obscure three-dimensional structure.

ooth, shiny surfaces reflect light brilliantly, rear sharply in focus, and attract our attention. faces with a matte or medium-rough texture orb and diffuse light unevenly and, therefore, rear less bright than similarly colored but oother surfaces. Very rough surfaces, when ninated with direct lighting, cast distinct shadow terns of light and dark.

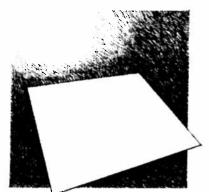


Lighting direction affects our reading of texture.

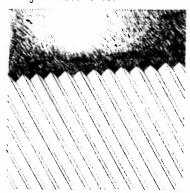


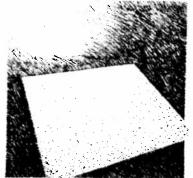


VOLUME

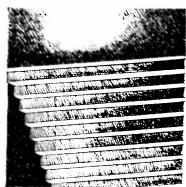


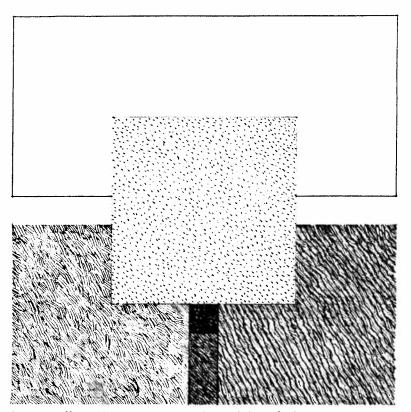
Shiny surfaces reflect.





Matte surfaces diffuse.

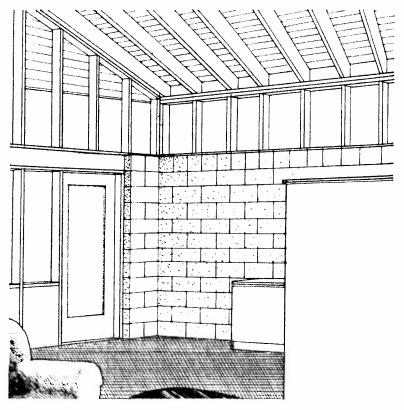




Contrast affects the apparent strength or subtlety of adjacent textures.

Contrast influences how strong or subtle a texture will appear to be. A texture seen against a uniformly smooth background will appear more obvious than when placed in juxtaposition with a similar texture. When seen against a coarser background, the texture will appear to be finer and reduced in scale.

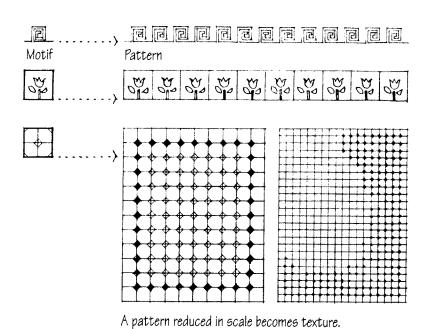
Finally, texture is a factor in the maintenance of the materials and surfaces of a space. Smooth surfaces show dirt and wear but are relatively easy to clean, while rough surfaces may conceal dirt but are difficult to maintain.

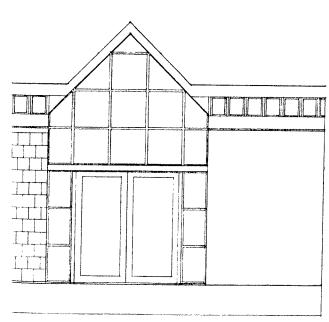


Texture can also result from the manner in which materials are assembled in construction.

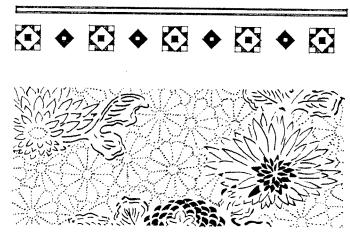
ture and pattern are closely related design nents. Pattern is the decorative design or amentation of a surface that is almost always sed on the repetition of a motif—a distinctive I recurring shape, form, or color in a design. repetitive nature of a pattern often gives the amented surface a textural quality as well. When elements that create a pattern become so small t they lose their individual identity and blend into one, they become more texture than pattern.

attern may be structural or applied. A structural tern results from the intrinsic nature of a zerial and the way it is processed, fabricated, or embled. An applied pattern is added to a surface or it is structurally complete.

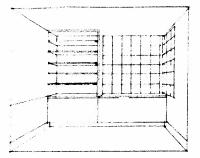




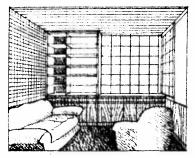




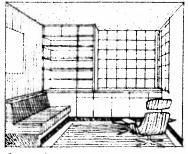
Applied Patterns



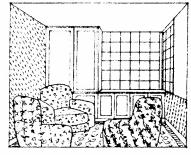
Minimal Texture



Texture Filling Space



Textured

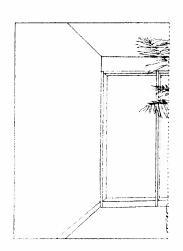


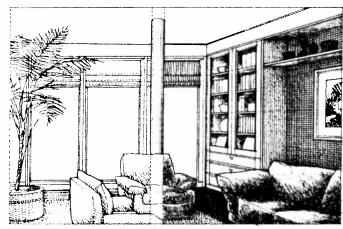
Competing Textures

Texture is an intrinsic characteristic of the materials we use to define, furnish, and embellish interior space. How we combine and compose differing textures is just as important as the composition of color and light and should suit the desired character and use of a space.

The scale of a textural pattern should be related to the scale of a space and its major surfaces, as well as to the size of secondary elements within the space. Since texture tends to fill space visually, any textures used in a small room should be subtle or used sparingly. In a large room, texture can be used to reduce the scale of the space or to define a more intimate area within it.

A room with little textural variation can be bland. Combinations of hard and soft, even and uneven, and shiny and dull textures can be used to create variety and interest. In the selection and distribution of textures, moderation should be exercised and attention paid to their ordering and sequence. Harmony among contrasting textures can be sustained if they share a common trait, such as degree of light reflectance or visual weight.

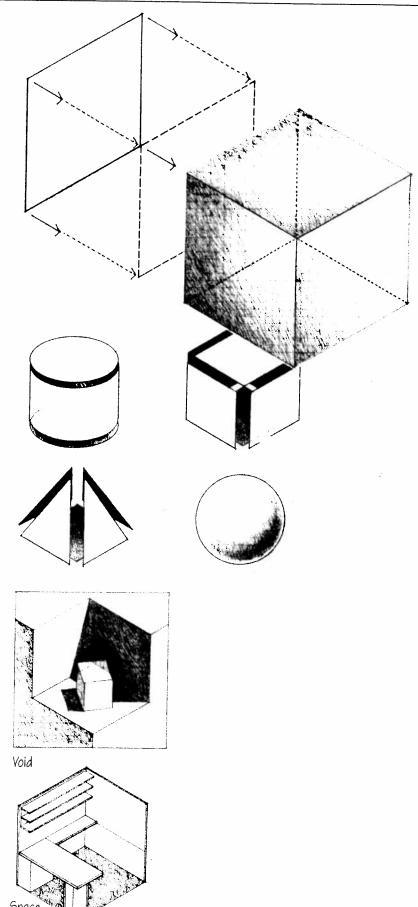


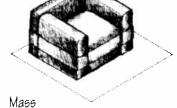


ine extended in a direction other than along its ace forms a volume. Conceptually and in reality a 1e exists in three dimensions.

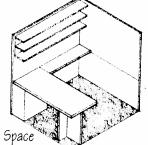
is the term we use to describe the contour overall structure of a volume. The specific of a volume is determined by the shapes and relationships of the lines and planes that ibe the boundaries of the volume.

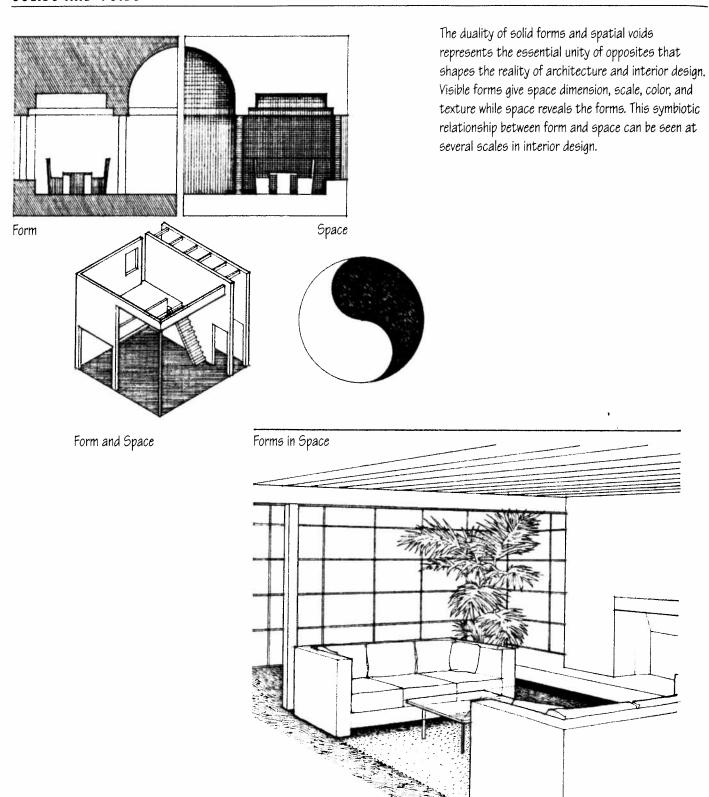
1e three-dimensional element of architectural nterior design, a volume can be either solid :e displaced by the mass of a building or building :nt) or a void (space contained and defined by loor, and ceiling or roof planes). It is important rceive this duality of containment versus icement, especially when reading orthographic , elevations, and sections.





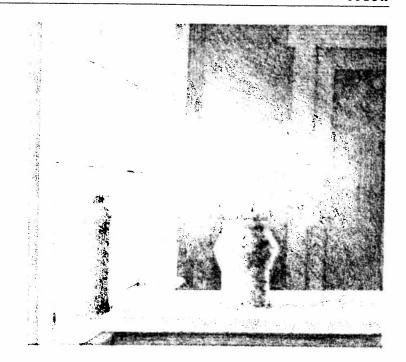
Solid

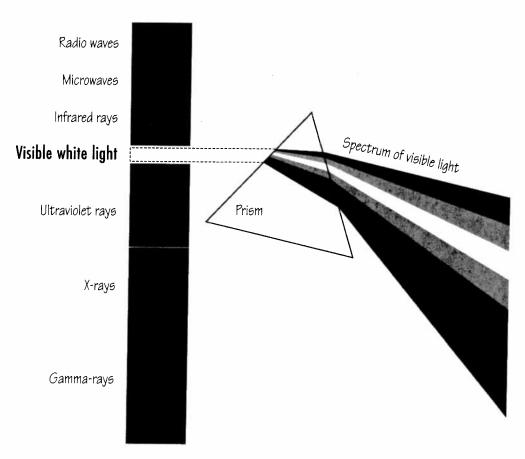




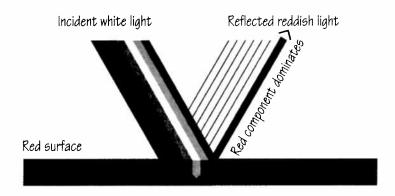
or is, like shape and texture, an inherent visual perty of all form. We are surrounded by color in environmental settings. The colors we attribute objects, however, find their source in the light that minates and reveals form and space. Without light, or does not exist.

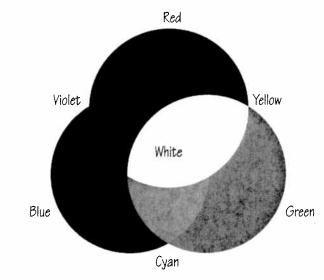
perty of light. Within the spectrum of visible to color is determined by wavelength; starting the longest wavelength with red, we proceed ough the spectrum of orange, yellow, green, blue, go, and violet to arrive at the shortest visible relengths. When these colored lights are present light source in approximately equal quantities, y combine to produce white light—light that is arently colorless.



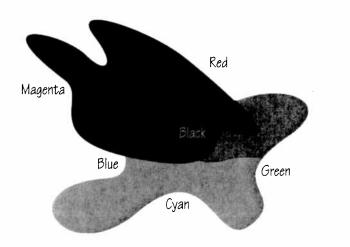


Electrico-magnetic Spectrum





Colored lights combine by additive mixing.



Yellow

Pigment colors combine by subtractive mixing.

When white light falls on an opaque object, selective absorption occurs. The surface of the object absorbs certain wavelengths of light and reflects others. Our eyes apprehend the color of the reflected light as the color of the object.

White light, such as noon sunlight, is composed of the entire spectrum of colored lights. Some light sources, such as fluorescent lamps or light reflected off a colored wall, may not be well balanced and may lack part of the spectrum. This lack of certain colors would make a surface illuminated by such light appear to also lack those colors.

Which wavelengths or bands of light are absorbed and which are reflected as object color is determined by the pigmentation of a surface. A red surface appears red because it absorbs most of the blue and green light falling on it and reflects the red part of the spectrum; a blue surface absorbs the reds. Similarly, a black surface absorbs the entire spectrum; a white surface reflects all of it.

A surface has the natural pigmentation of its material. This coloration can be altered with the application of paints, stains, or dyes that contain color pigments. While colored light is additive in nature, color pigments are subtractive. Each pigment absorbs certain proportions of white light. When pigments are mixed, their absorptions combine to subtract various colors of the spectrum. The colors that remain determine the hue, value, and intensity of the mixed pigment.

or has three dimensions:

e

attribute by which we recognize and describe a or, such as red or yellow.

ue

degree of lightness or darkness of a color in ition to white and black.

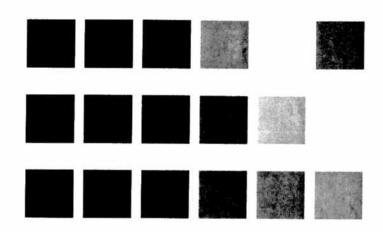
uration

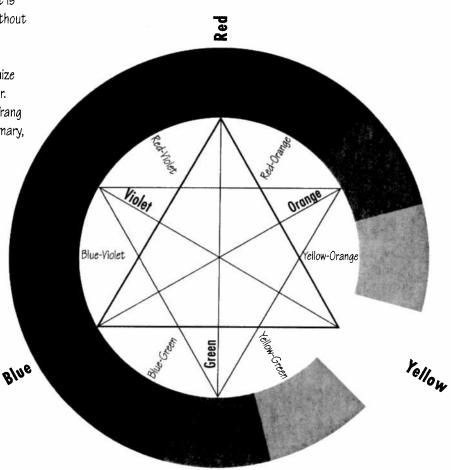
brilliance or dullness of a color; this depends on amount of hue in a color.

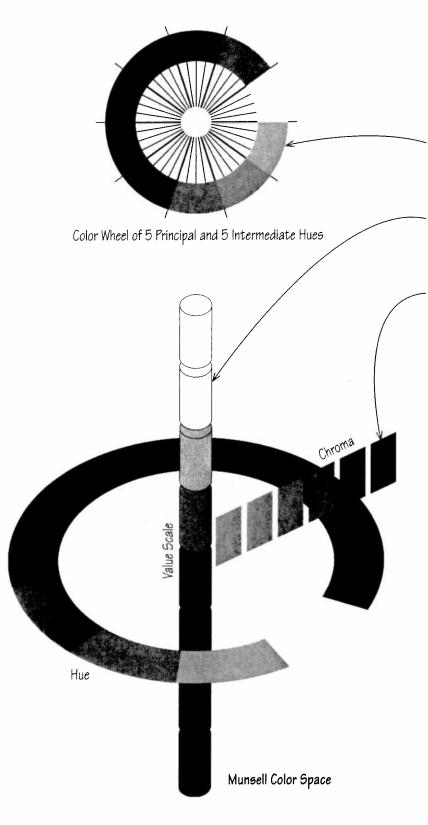
of these attributes of color are necessarily arrelated. Each principal hue has a normal ie. Pure yellow, for example, is lighter in value in pure blue. If white, black, or a complementary is added to a color to lighten or darken its ie, its saturation will also be diminished. It is icult to adjust one attribute of a color without ultaneously altering the other two.

umber of color systems attempt to organize irs and their attributes into a visible order. simplest type, such as the Brewster or Prang ir wheel, organizes color pigments into primary, and tertiary hues.

primary hues are red, yellow, and blue. secondary hues are orange, green, and it. The tertiary hues are red-orange, wo-orange, yellow-green, blue-green, violet, and red-violet.







A more comprehensive system for the accurate specification and description of color is the Munsell system, developed by Albert H. Munsell. The system arranges colors into three orderly scales of uniform visual steps according to their attributes of hue, value, and chroma (intensity).

The Munsell system is based on five principal hues and five intermediate hues. These ten major hues are arranged horizontally in a circle.

Extending vertically through the center of the hue circle is a scale of neutral gray values, graded in ten equal visual steps from black to white.

Radiating out from the vertical scale of values are equal steps of chroma or intensity. The number of steps will vary according to the attainable saturation of each color's hue and value.

With this system, a specific color can be identified with the following notation: Hue Value/Chroma, or H V/C. For example, 5R 5/14 would indicate a pure red at middle value and maximum chroma.

While the ability to accurately communicate the hue, value, and intensity of a specific color without an actual sample is important in science, commerce, and industry, color names and notations cannot adequately describe the visual sensation of color. Actual color samples, seen in the color of the light in which they will be used, are essential in the design of a color scheme.

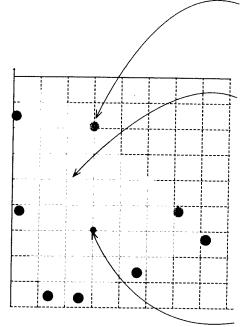
the advent of color computer monitors and ters, the need for a universal language of color munication has become even more pressing. For designers often must indicate a color to sed uniformly in paints, textiles, graphic design erials, and other media.

mission Internationale l'Eclairage (CIE) standards zased on the precise measurement of light waves cted by a surface, factored by sensitivity curves have been measured for the human eye. Ough cumbersome to use, CIE standards are lifted by most American furniture manufacturers.

- maps, such as the color space developed by sell and described on the previous page, allow communication between any two individuals with same map.

ems like Pantone® for architecture and interiors de the interior designer with a way to specify, nunicate, and manage color choices for a wide ty of materials, both online and offline.

ronic color analyzers to identify color data from ples and color viewing lights that simulate varieding conditions are also available.



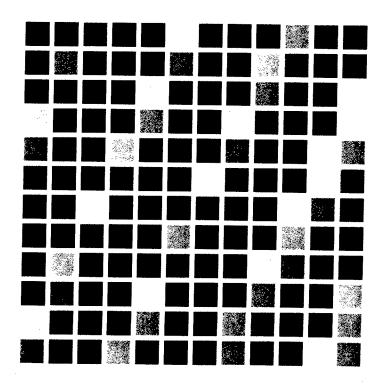
CIE Chromaticity Diagram

The boundary of the color space represents the maximum saturation of the spectral colors.

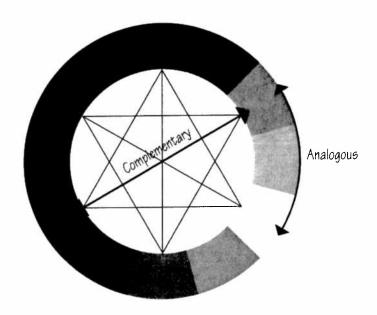
The color space contains the entire range of human color perception, i.e., all of the colors of the visible spectrum perceivable by the human eye.

Any color can be expressed in terms of the two chromaticity coordinates for hue and saturation, x and y.

Achromatic point $(x = \frac{1}{2}; y = \frac{1}{3})$



A Sampling of Pantone® Color Swatches

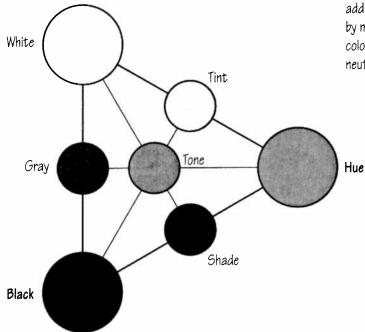


Object colorants, such as paints and dyes, are means to modify the color of the illuminating light, which we interpret to be the color of the object. In mixing the pigments of paints and dyes, each of the attributes of color can be altered.

The hue of a color can be changed by mixing it with other hues. When neighboring or analogous hues on the color wheel are mixed, harmonious and closely related hues are created. In contrast to this, mixing complementary hues, hues directly opposite of each other on the color wheel, produces neutral hues.

The value of a color can be raised by adding white and lowered by adding black. Lightening a hue's normal value by adding white creates a tint of that hue; darkening the hue's normal value with black creates a shade of the hue. A normally high-value color, such as yellow, is capable of more shades than tints, while a low-value color, such a red, is able to have more tints than shades.

The intensity of a color can be strengthened by adding more of the dominant hue. It can be lowered by mixing gray with the color or by adding to the color its complementary hue. Hues that are grayed or neutralized in this manner are often called tones.



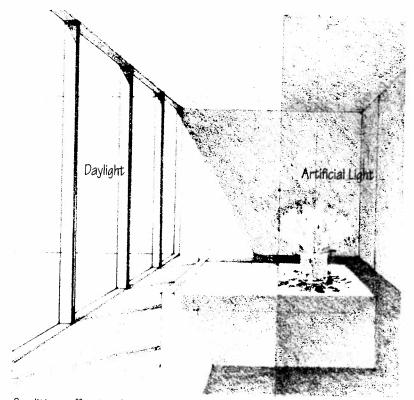
rent changes in an object's color can also result the effects of light and from the juxtaposition rrounding or background colors. These factors specially important to the interior designer, who carefully consider how the colors of elements in terior space interact and how they are rendered a light illuminating them.

of a particular hue, other than white, is rarely for general illumination. Not all sources of light, however, are spectrally well balanced. descent bulbs cast a warm glow, while many scent lamps cast a cool light. Daylight, too, can rm or cool, depending on the time of day and rection from which it comes. Even the color of e reflecting surface can tint the light within an or space.

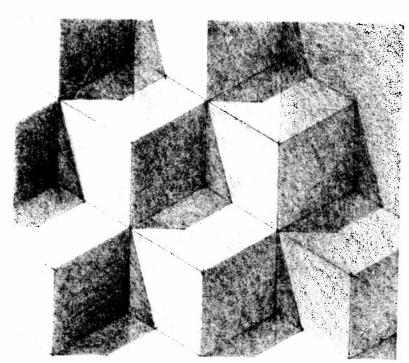
light tends to accentuate warm colors and alize cool hues, while cool light intensifies cool and weakens warm hues. If light is tinted with icular hue, it will raise the intensity of colors thue and neutralize colors of a complementary

parent value of a color can also be altered by 10 nount of light used to illuminate it. Lowering the t of illumination will darken a color's value and lize its hue. Raising the lighting level will lighten or's value and enhance its intensity. High levels lination, however, can also tend to make colors less saturated or washed out.

the natural fluctuations of light in an interior later colors in often subtle ways, it is always test colors in the environment in which they be viewed, under both daylight and nighttime ons.



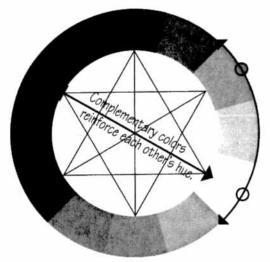
Conditions affecting the rendition of colors in an interior space



Strong Illumination

Medium Illumination

Low Illumination

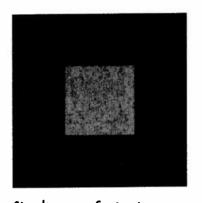


Analogous colors push each other toward the other's complement.

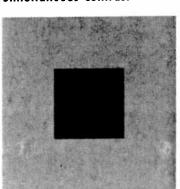
While mixing two complementary color pigments results in a neutralized or grayed hue, placing them next to each other can produce the opposite effect. In the phenomenon known as simultaneous contrast, the eye tends to generate a color's complementary hue and project it as an afterimage on adjacent colors. Thus two complementary colors placed side by side tend to heighten each other's saturation and brilliance without an apparent change in hue.

When the two colors are not complementary, each will tint the other with its own complement and shift it toward that hue. The result is that the two colors are pushed farther apart in hue.

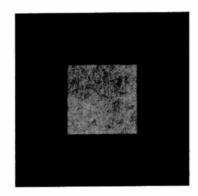
Simultaneous contrast in hue is most easily perceived when two colors are fairly uniform in value. If one color is much lighter or darker than the other, the effects of contrasting values become more noticeable.



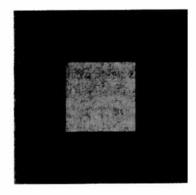
Simultaneous Contrast

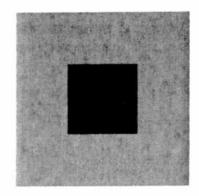


Complementary Colors



Analogous Colors; Contrasting Values



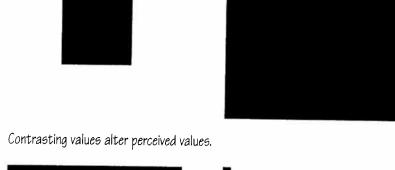


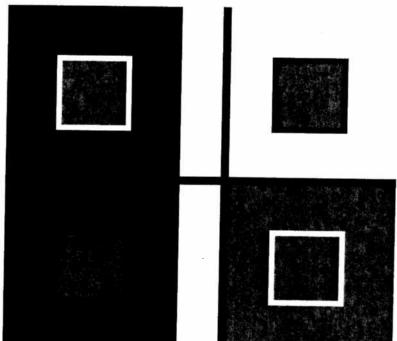
Analogous Colors; Similar Values

nultaneous contrast also affects the apparent ue of a color, which can be made to appear lighter agree according to the value of its background on. A light color will tend to deepen a dark color le a dark color will tend to brighten a light color.

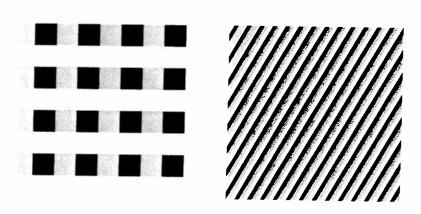
in clack and white have a visible effect on colors in brought into contact with them. Surrounding is with black tends to make them richer and is vibrant, while outlining with white often has the osite effect. A large area of white will reflect light adjacent colors, while thin white lines tend to ead and tint the hues they separate.

effects of contrasting hues and values depend areas large enough to be perceived as separate rs. If the areas are small and closely spaced, the does not have enough time to adjust to their erences and mixes the colors optically. The effects ptical mixing are often used in the weaving of lies to create an impression of many hues and es with a limited number of colored yarns or ads.

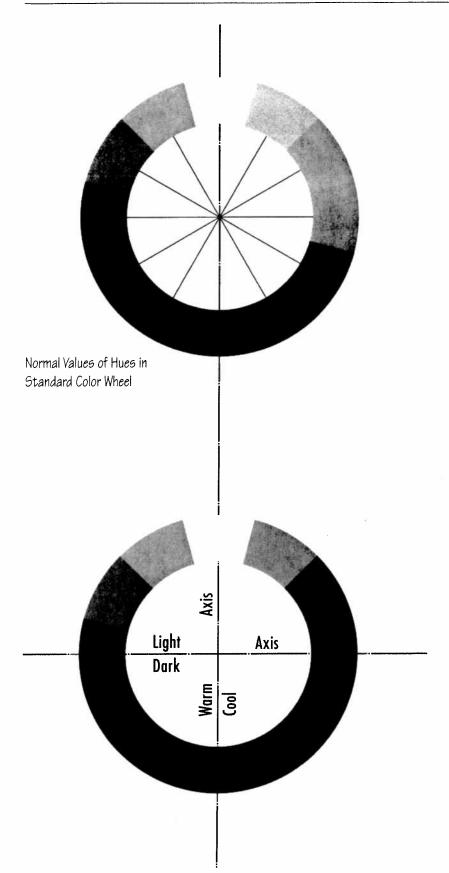




Effect of outlining colors with white or black.



Optical mixing occurs when dots or strokes of colors merge to produce more luminous hues.



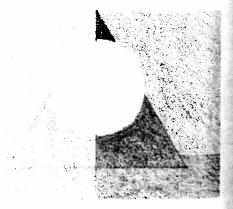
In addition to how colors interact and alter one another's attributes, it is important to note how color might affect our perception of form and the dimensions and qualities of interior space.

Colors are often divided into warm and cool categories. Reds, oranges, and yellows are considered to be warm colors that advance. Blues, greens, and violets are cooler and tend to recede. Neutrals, such as grays, may be either warm (brownish) or cool (bluish).

The warmth or coolness of a color's hue, along with its relative value and degree of saturation, determines the visual force with which it attracts our attention, brings an object into focus, and creates space. The following generalizations summarize some of these effects of color.

Warm hues and high intensities are said to be visually active and stimulating, while cool hues and low intensities are more subdued and relaxing. Light values tend to be cheerful, middle values undemanding, and dark values somber.

Bright, saturated colors and any strong contrasts attract our attention. Grayed hues and middle values are less forceful. Contrasting values in particular make us aware of shapes and forms. Contrasting hues and saturations can also define shape; but if they are too similar in value, the definition they afford will be less distinct.



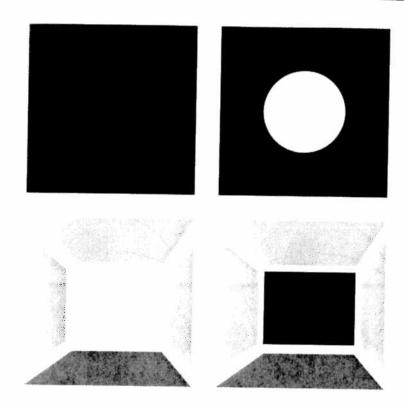
Value contrast aids in our perception of shape.

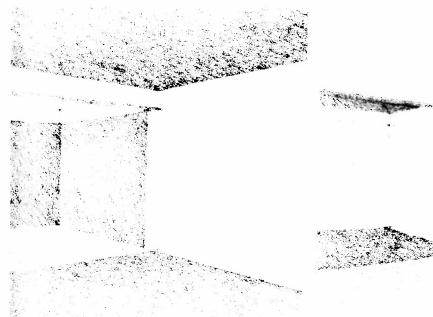
leep, cool colors appear to contract. Light, warm olors tend to expand and increase the apparent ize of an object, especially when seen against a dark ackground.

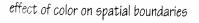
then used on an enclosing plane of a space, light alues, cool hues, and grayed colors appear to recede nd increase apparent distance. They can therefore a used to enhance the spaciousness of a room and crease its apparent width, length, or ceiling height.

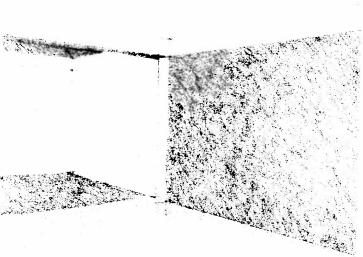
arm hues appear to advance. Dark values and aturated colors suggest nearness. These traits in be used to diminish the scale of a space or, in an usionary way, shorten a room's dimensions.

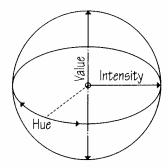
e should acknowledge here that our emotional actions to color vary with our personal experiences id cultural associations. In addition, favored color imbinations are subject to fashion trends, with rtain color palettes closely tied to specific times places.

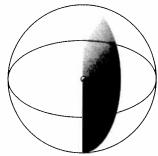




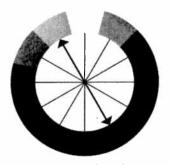




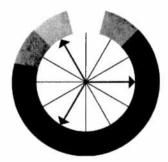




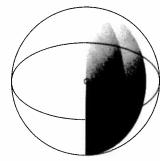
Monochromatic color schemes vary the value of a single hue.



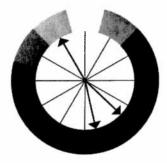
Complementary color schemes use two hues on opposite sides of the color wheel.



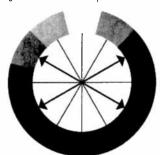
Triadic color schemes use colors located at three equidistant points on the color wheel.



Analogous color schemes use two or more hues from the same quarter of the color wheel.



Split complementary color schemes combine one hue with the two hues adjacent to its complement.



Contrasting hue schemes, based on complementary or triadic color combinations, are inherently more rich and varied since they always include both warm and cool hues.

Although each of us may have favorite colors and a distinct dislike of others, there is no such thing as a good or bad color. Some colors are simply in or out of fashion at a given time; others may be appropriate or inappropriate given a specific color scheme. The suitability of a color depends ultimately on how and where it is used and how it fits into the palette of a color scheme.

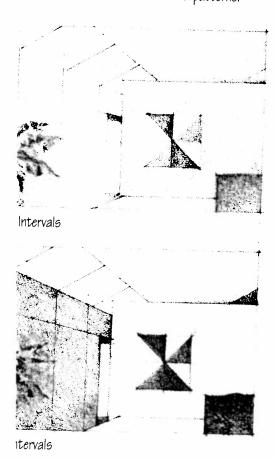
If colors are like the notes of a musical scale, then color schemes are like musical chords, structuring color groups according to certain visual relationships among their attributes of hue, value, and intensity. The following color schemes are based on the hue relationships within a color group.

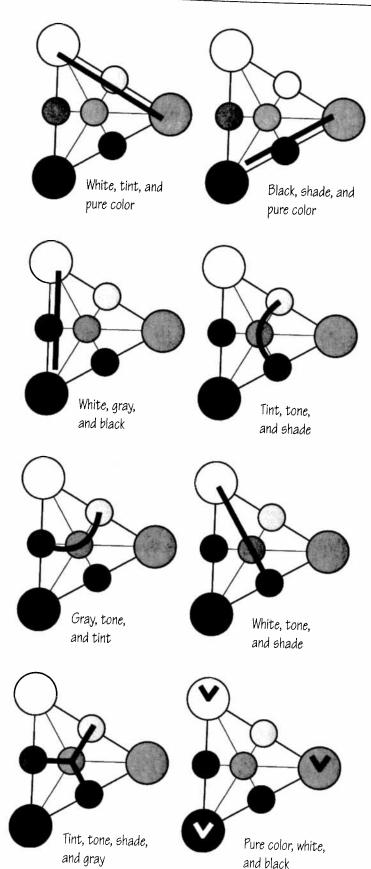
There are two broad categories of hue schemes, related and contrasting. Related hue schemes, based on either a single hue or a series of analogous hues, promote harmony and unity. Variety can be introduced by varying value and intensity, including small amounts of other hues as accents, or bringing shape, form, and texture into play.

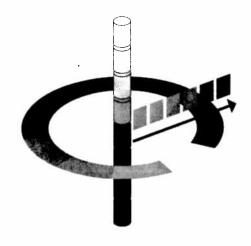
te schemes merely outline the approaches one can ke in organizing a combination of hues. In designing color scheme, other color relationships must also considered.

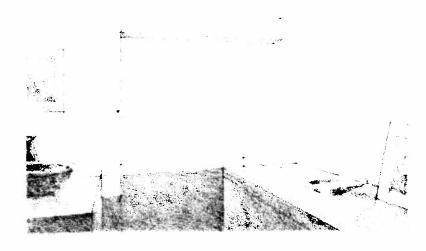
color triangle developed by Faber Birren strates how modified colors—tints, tones, and ides—might be related in a harmonious sequence. triangle is based on the three basic elements, e color, white, and black. They combine to create secondary forms of tint, shade, gray, and tone. of the bold-line paths illustrated to the right ne a harmonious sequence since each involves a es of visually related elements.

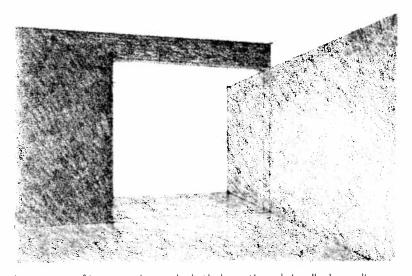
nately, whether a color scheme is lively and verant or restful and quiet will depend on the matic and tonal values of the hues chosen. Large vals between the colors and values will create contrasts and dramatic effects. Small intervals esult in more subtle contrasts and patterns.











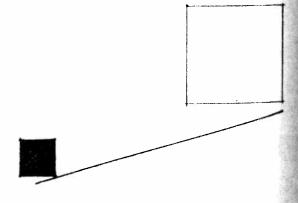
Large areas of intense color can be both dramatic and visually demanding.

In developing a color scheme for an interior space, one must consider carefully the chromatic and tonal key to be established and the distribution of the colors. The scheme must not only satisfy the purpose and use of the space but also take into account its architectural character.

Decisions must be made regarding the major planes of an interior space and how color might be used to modify their apparent size, shape, scale, and distance. Which elements will form the background, middle ground, and foreground? Are there architectural or structural features that should be accentuated or undesirable elements to be minimized?

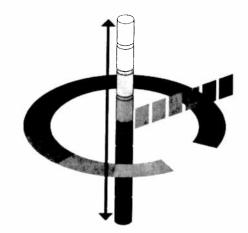
Usually, the largest surfaces of a room—its floor, walls, and ceiling—have the most neutralized values. Against this background, secondary elements such as large pieces of furniture or area rugs can have greater chromatic intensity. Finally, accent pieces, accessories, and other small-scale elements can have the strongest chroma for balance and to create interest.

Neutralized color schemes are the most flexible. For a more dramatic effect, the main areas of a room can be given the more intense values while secondary elements have lesser intensity. Large areas of intense color should be used with caution, particularly in a small room. They reduce the apparent distance and can be visually demanding.



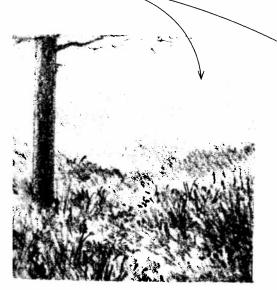
Balance large neutral areas with smaller areas of stronger intensity.

If equal importance to chromatic distribution is onal distribution, the pattern of lights and darks in space. It is generally best to use varying amounts flight and dark values with a range of middle values o serve as transitional tones. Avoid using equal mounts of light and dark unless a fragmented effect idesired.

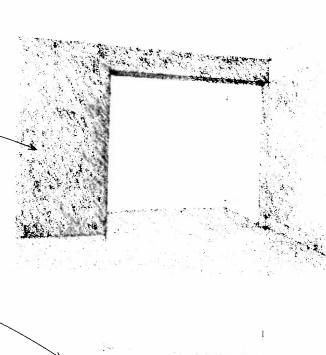


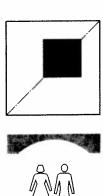
pically, large areas of light value are offset by naller areas of medium and dark values. This use light values is particularly appropriate when the ficient use of available light is important. Dark color themes can absorb much of the light within a space, sulting in a significant loss of illumination.

nother way of distributing values is to follow the ttern of nature. In this tonal sequence, the floor ane has the darkest value, surrounding walls are the middle to light range, and the ceiling above is rly light.



Jourse, the distribution of values and their degree ontrast will also depend on the size, shape, and le of the space. Because light values tend to the while dark values advance, their placement can lify our perception of these spatial dimensions.





Proportion



Scale



Balance



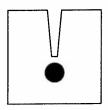
Harmony



Unity and Variety



Rhythm

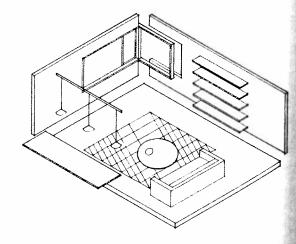


Emphasis

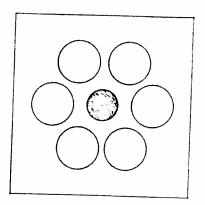
Interior design involves the selection of interior design elements and their arrangement within a spatial enclosure to satisfy certain functional and aesthetic needs and wishes. This arrangement of elements in a space includes the act of making patterns. No one single part or element in a space stands alone. In a design pattern, all of the parts, elements, or pieces depend on one another for their visual impact, function, and meaning.

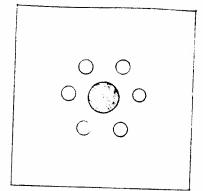
We are concerned here with the visual relationships established among the interior design elements in a space. The following design principles are not intended to be hard and fast rules but rather guidelines to the possible ways design elements can be arranged into recognizable patterns. Ultimately, we must learn to judge the appropriateness of a pattern, its visual role in a space, and its meaning to the users of the space. These principles, however, can help develop and maintain a sense of visual order among the design elements of a space while accommodating their intended use and function.

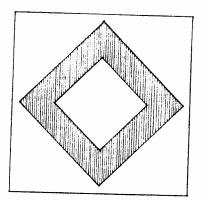
→ Arranging Design Patterns

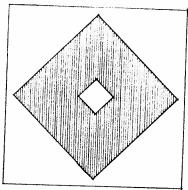


oportion refers to the relationship of one part to other or to the whole, or between one object and other. This relationship may be one of magnitude, antity, or degree.

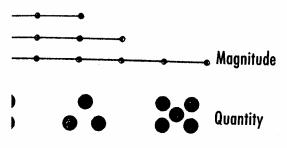


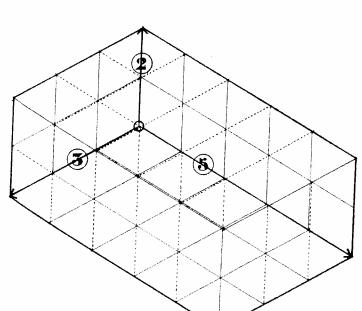






The apparent size of an object is influenced by the relative sizes of other objects in its environment.





Degree

When dealing with forms in space, one must consider proportion in three dimensions.

Ratio

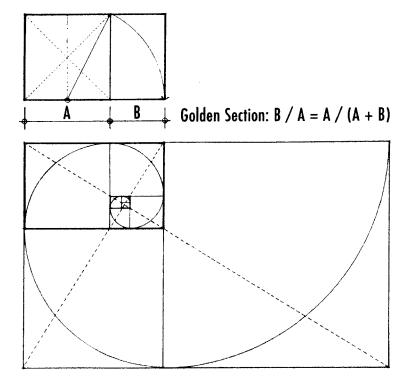
A:B

A/B

Proportion

A:B:C

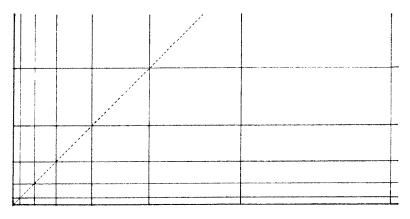
A/B=B/C



In the course of history, a number of mathematical or geometric methods have been developed to determine the ideal proportion of things. These proportioning systems go beyond functional and technical determinants in an attempt to establish a measure of beauty—an aesthetic rationale for the dimensional relationships among the parts and elements of a visual construction.

According to Euclid, the ancient Greek mathematician, a ratio refers to the quantitative comparison of two similar things, while proportion refers to the equality of ratios. Underlying any proportioning system, therefore, is a characteristic ratio, a permanent quality that is transmitted from one ratio to another.

Perhaps the most familiar proportioning system is the golden section established by the ancient Greeks. It defines the unique relationship between two unequal parts of a whole in which the ratio between the smaller and greater parts is equal to the ratio between the greater part and the whole.

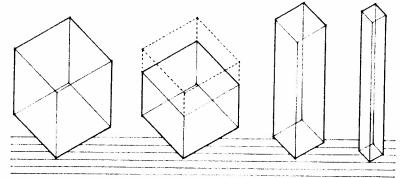


1, 1, 2, 3, 5, 8, 13, 21, 34, 55...

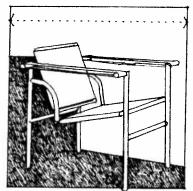
The Fibonacci series is a progression of whole numbers in which each term is the sum of the preceding two. The ratio between two consecutive terms approximates the golden section.

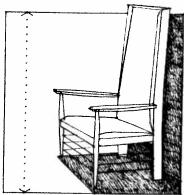
though often defined in mathematical terms, a portioning system establishes a consistent t of visual relationships among the parts of composition. It can be a useful design tool in moting unity and harmony. Our perception the physical dimensions of things is, however, ten imprecise. The foreshortening of perspective, wing distance, even cultural bias, can distort our ception.

matter of proportion is still primarily one of tical visual judgment. In this respect, significant rences in the relative dimensions of things are nortant. Ultimately, a proportion will appear to correct for a given situation when we sense that ther too little nor too much of an element or racteristic is present.

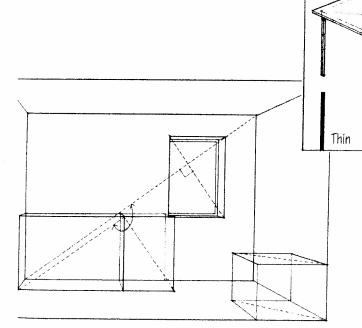


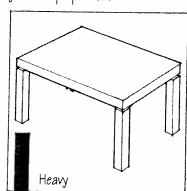
Significant differences in proportion





Pieces of furniture that differ significantly in their proportions



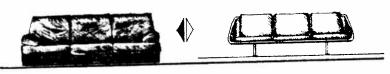


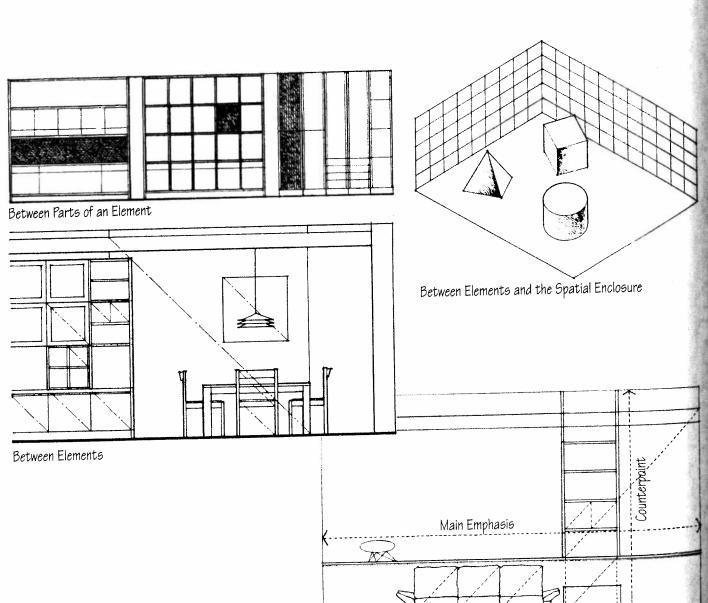
onals that are parallel or perpendicular to each other indicate the rectangles they bisect have similar proportions.



In interior design, we are concerned with the proportional relationships between the parts of a design element, between several design elements, and between the elements and the spatial form and enclosure.

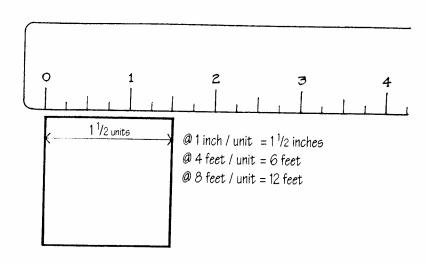
Proportional Differences

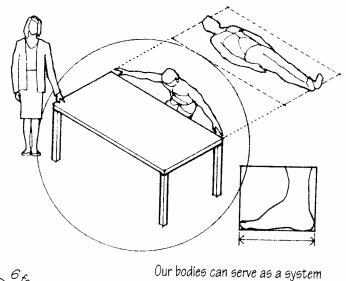


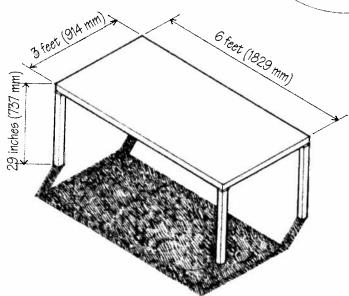


e design principle of scale is related to proportion. Ith proportion and scale deal with the relative ses of things. If there is a difference, proportion rtains to the relationships between the parts of a mposition, while scale refers specifically to the size something, relative to some known standard or sognized constant.

chanical scale is the calculation of something's visical size according to a standard system of asurement. For example, we can say that a table according to the U.S. Customary System, 3 t wide, 6 feet long, and 29 inches high. If we are niliar with this system and with objects of similar to the can visualize how big is the table. Using the exnational Metric System, the same table would asure 914 mm wide, 1829 mm long, and 737 mm



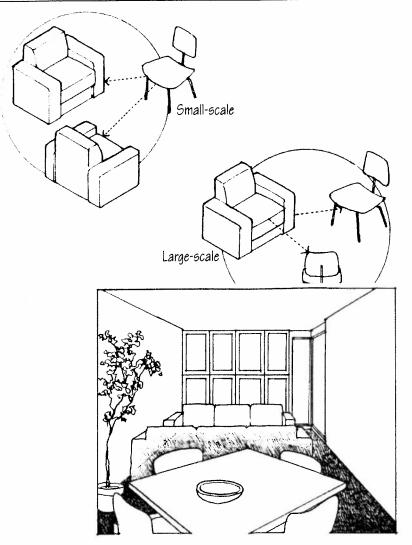




Our bodies can serve as a system of measurement.

Mechanical Scale

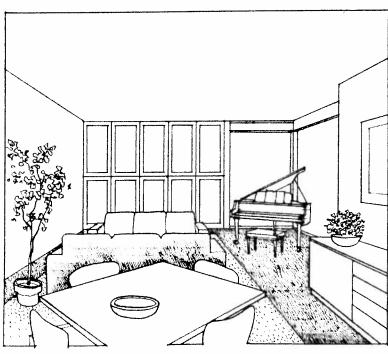
Size relative to an accepted standard of measurement.



Visual scale refers to the size something appears to have when measured against other things around it. Thus, an object's scale is often a judgment we make based on the relative or known sizes of other nearby or surrounding elements. For example, the aforementioned table can appear to be in-scale or out-of-scale with a room, depending on the relative size and proportions of the space.

We can refer to something as being small-scale if we are measuring it against other things that are generally much larger in size. Similarly, an object can be considered to be large-scale if it is grouped with relatively small items or if it appears to be larger than what is considered normal or average in size.

Small-scale space or large-scale furniture

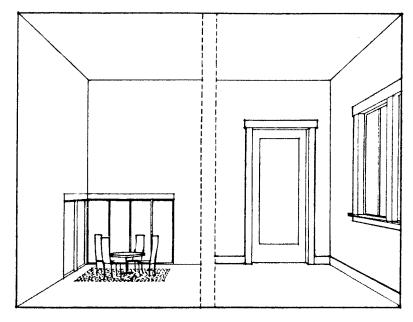


Visual Scale

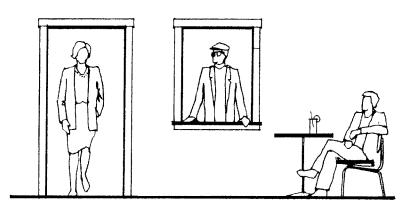
Size relative to other objects in the environment or to the surrounding space

luman scale refers to the feeling of bigness omething gives us. If the dimensions of an interior pace or the sizes of elements within it make us feel mall, we can say they lack human scale. If, on the ther hand, the space does not dwarf us or if the lements offer a comfortable fit with our dimensional equirements of reach, clearance, or movement, we an say they are human in scale.

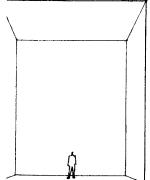
lost of the elements we use to ascertain human cale are those whose dimensions we have become ccustomed to through contact and use. These clude doorways, stairs, tables, counters, and arious types of seating. These elements can be sed to humanize a space that would otherwise lack uman scale.

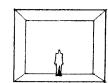


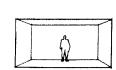
We can judge the scale of a space by the relative size of the interior elements within it.



We often use doorways, window sills, tables and chairs to discern human scale because we have become accustomed to their dimensions.

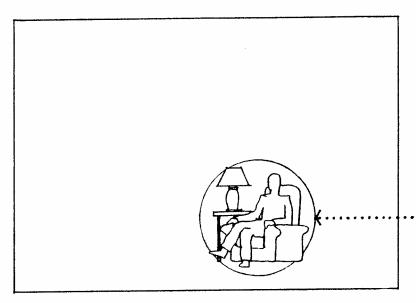




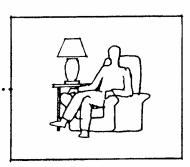


ıman Scale

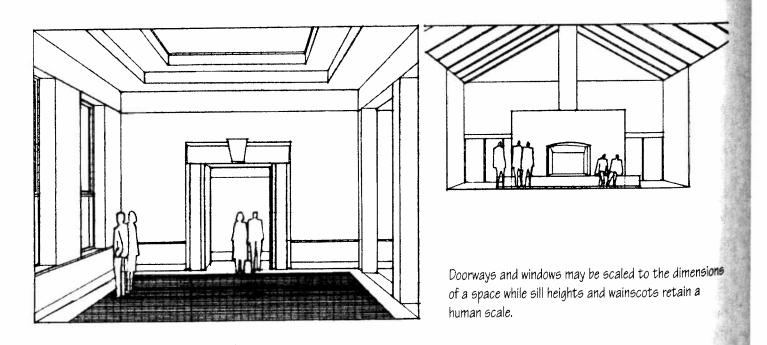
3 feeling of smallness or bigness a space or an interior element gives us.



The issue of scale in an interior space is not limited to one set of relationships. Interior elements can be related simultaneously to the whole space, to each other, and to those people who use the space. It is not unusual for some elements to have a normal, orderly scale relationship but have an exceptional scale when compared to other elements. Unusually scaled elements can be used to attract attention or create and emphasize a focal point.



A set of scale relationships can exist within a larger context.



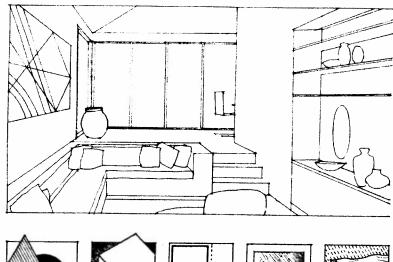
rior spaces—and their elements of enclosure, nishings, lighting, and accessories—often include a of shapes, sizes, colors, and textures. How these nents are organized is a response to functional ds and aesthetic desires. At the same time, se elements should be arranged to achieve visual ince—a state of equilibrium among the visual es projected by the elements.

n element in the ensemble of interior space specific characteristics of shape, form, size, r, and texture. These characteristics, along with factors of location and orientation, determine visual weight of each element and how much ntion each will attract in the overall pattern of se.

acteristics that will enhance or increase the II weight of an element—and attract our ntion—are:

3gular or contrasting shapes
ght colors and contrasting textures
ge dimensions and unusual proportions
borate details

iting attention with...

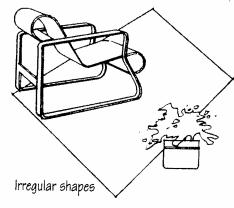


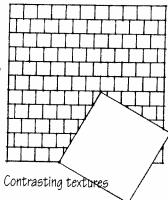


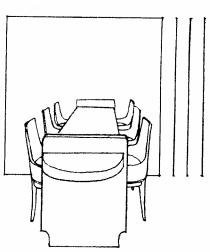


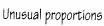


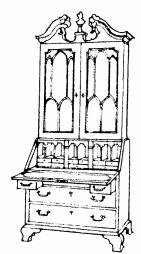
Interiors: a mix of shapes, colors, and textures



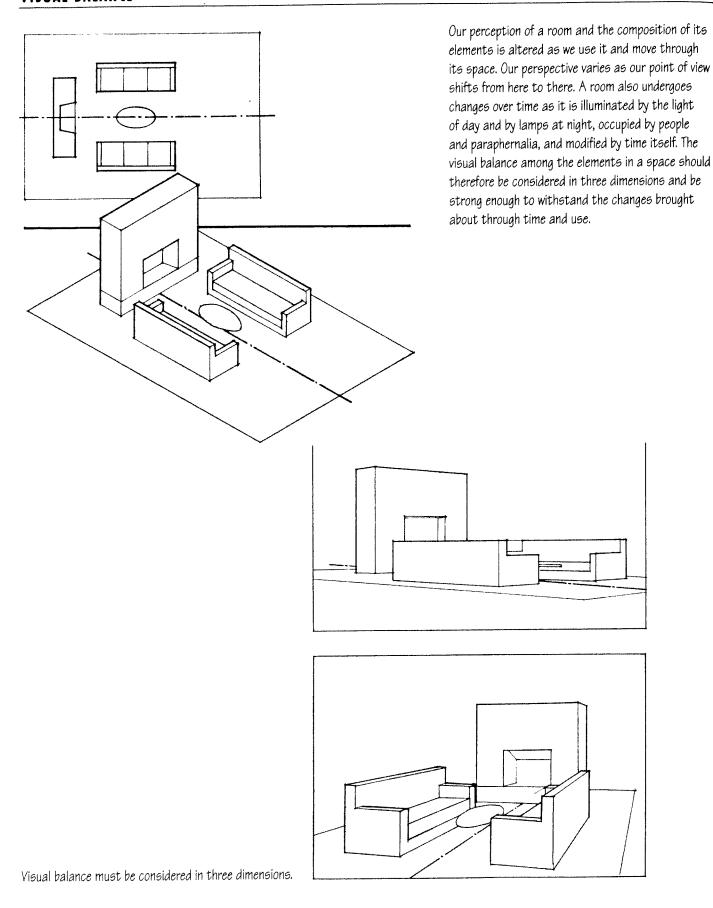






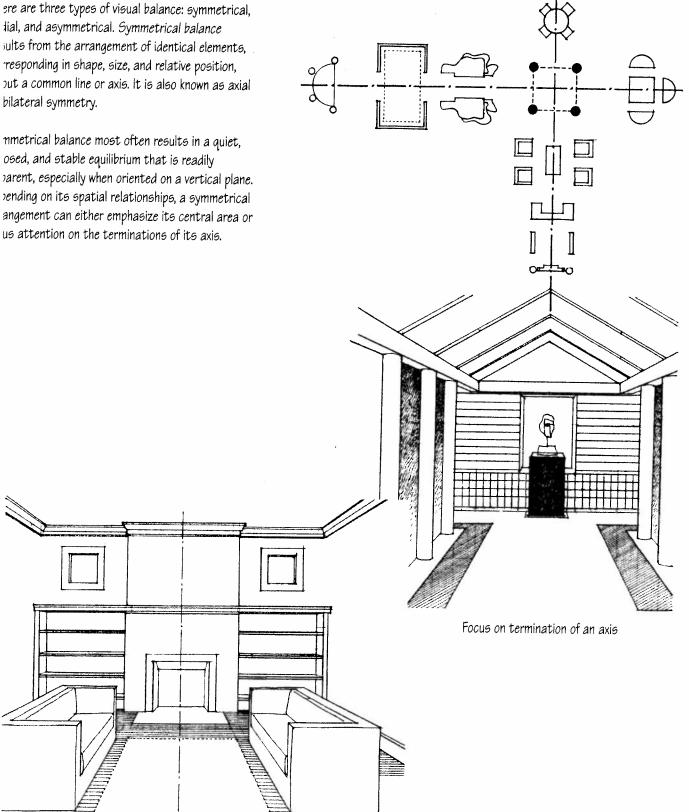


Elaborate details

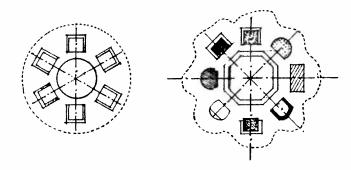


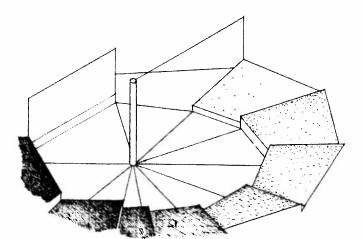
ere are three types of visual balance: symmetrical, lial, and asymmetrical. Symmetrical balance sults from the arrangement of identical elements, responding in shape, size, and relative position, out a common line or axis. It is also known as axial bilateral symmetry.

osed, and stable equilibrium that is readily varent, especially when oriented on a vertical plane. vending on its spatial relationships, a symmetrical angement can either emphasize its central area or us attention on the terminations of its axis.



Focus on the middle ground

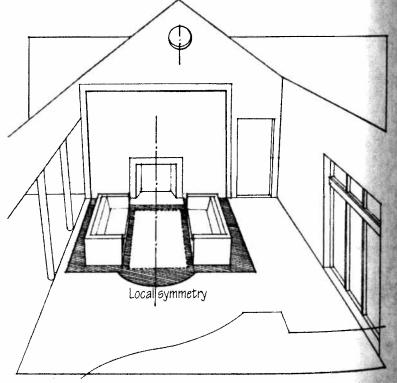




Symmetry is a simple yet powerful device to establish visual order. If carried far enough, it can impose a strict formality on an interior space. Total symmetry, however, is often undesirable or difficult to achieve because of function or circumstance.

It is often possible or desirable to arrange one or more parts of a space in a symmetrical manner and produce local symmetry. Symmetrical groupings within a space are easily recognized and have a quality of wholeness that can serve to simplify or organize the room's composition.

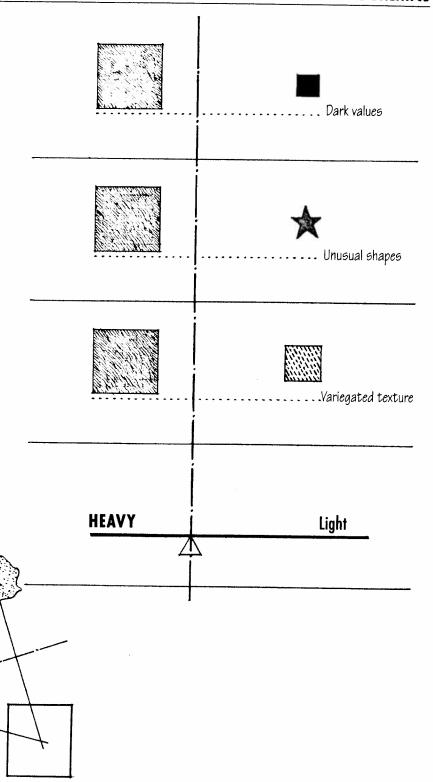
The second type of balance, radial balance, results from the arrangement of elements about a center point. It produces a centralized composition that stresses the middle ground as a focal point. The elements can focus inward toward the center, face outward form the center, or simply be placed about a central element.

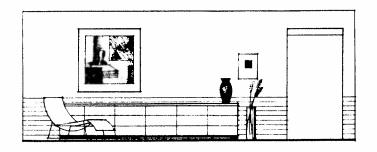


ASYMMETRICAL BALANCE

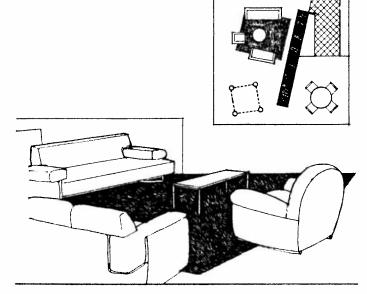
espondence in size, shape, color, or relative tion among the elements of a composition. While mmetrical composition requires the use of pairs entical elements, an asymmetrical composition porates dissimilar elements.

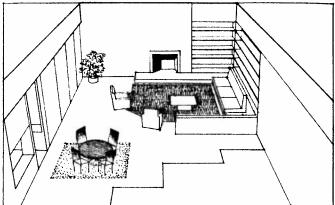
chieve an occult or optical balance, an nmetrical composition must take into account risual weight or force of each of its elements employ the principle of leverage in their rigement. Elements that are visually forceful attract our attention—unusual shapes, bright right ark values, variegated textures—must be terbalanced by less forceful elements that are r or placed farther away from the center of the rosition.

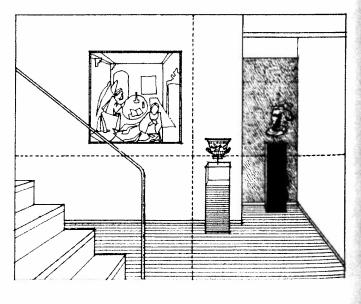




Asymmetrical balance is not as obvious as symmetry and is often more visually active and dynamic. It is capable of expressing movement, change, even exuberance. It is also more flexible than symmetry and can adapt more readily to varying conditions of function, space, and circumstance.

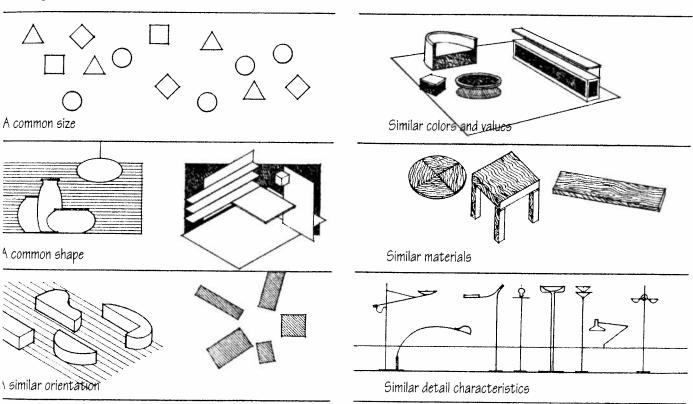




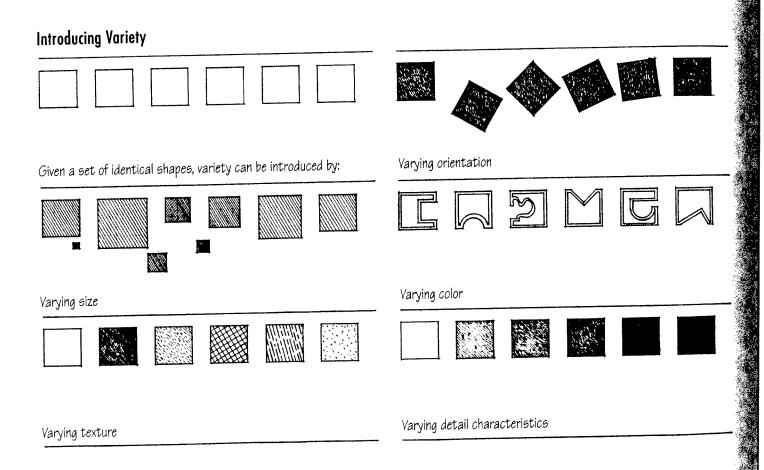


Harmony can be defined as consonance or the pleasing agreement of parts or combination of parts in a composition. While balance achieves unity through the careful arrangement of both similar and dissimilar elements, the principle of harmony involves the careful selection of elements that share a common trait or characteristic, such as shape, color, exture, or material. It is the repetition of a common trait that produces unity and visual harmony among the elements in an interior setting.

Sharing a Common Trait



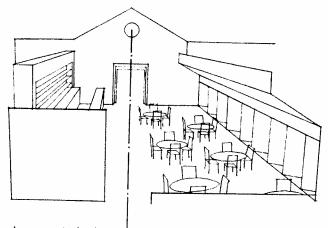
Harmony, when carried too far in the use of elements with similar traits, can result in a unified but uninteresting composition. Variety, on the other hand, when carried to an extreme for the sake of interest, can result in visual chaos. It is the careful and artistic tension between order and disorder—between unity and variety—that enlivens harmony and creates interest in an interior setting.



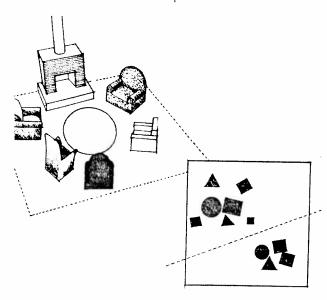
important to note that the principles of balance harmony, in promoting unity, do not exclude the suit of variety and interest. Rather, the means achieving balance and harmony are intended to ude in their patterns the presence of dissimilar tents and characteristics.

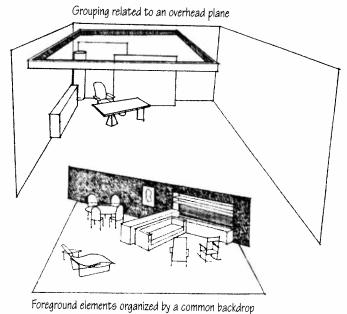
example, asymmetrical balance produces librium among elements that differ in size, shape, r, or texture. The harmony produced by elements a share a common characteristic permits the e elements to also have a variety of unique, idual traits.

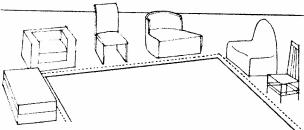
ther method for organizing a number of dissimilar ents is simply to arrange them in close proximity 1e another. We tend to read such a grouping as 1 tity to the exclusion of other elements farther 1. To further reinforce the visual unity of the 10 vosition, continuity of line or contour can be 20 lished among the elements' shapes.



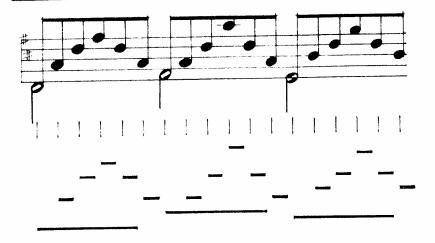
Asymmetrical schemes can organize a variety of shapes, colors, and textures into their layouts.





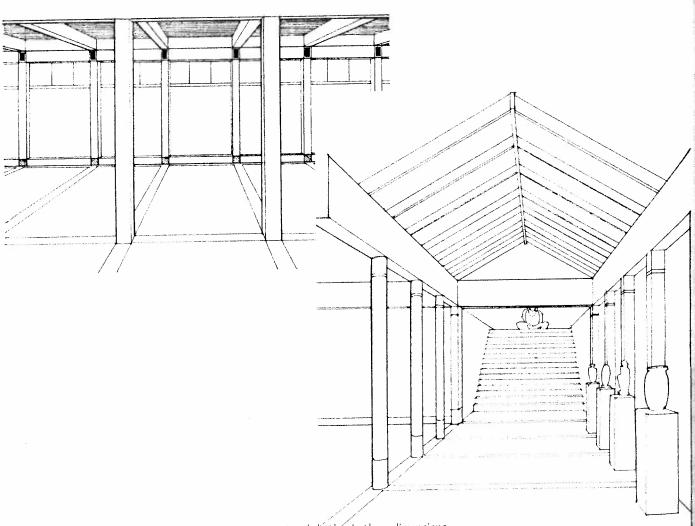


ilar elements can be organized by grouping them in close ty or by relating them to a common line or plane.



The design principle of rhythm is based on the repetition of elements in space and time. This repetition not only creates visual unity but also induces a rhythmic continuity of movement that a viewer's eyes and mind can follow along a path, within a composition, or around a space.

The simplest form of repetition consists of the regular spacing of identical elements along a linear path. While this pattern can be quite monotonous, it can also be useful in establishing a background rhythm for foreground elements or in defining a textured line, border, or trim.

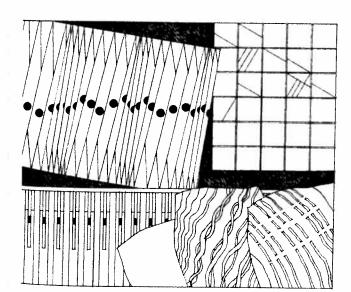


The repetitive nature of structural elements creates a natural rhythm in three dimensions.

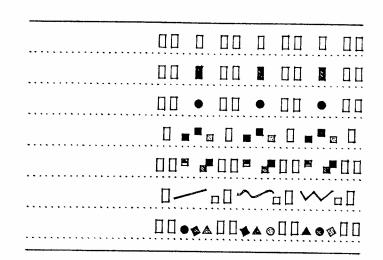
re intricate patterns of rhythm can be produced taking into account the tendency for elements to visually related by their proximity to one another their sharing of a common trait.

spacing of the recurring elements, and thus the e of the visual rhythm, can be varied to create and subsets and to emphasize certain points he pattern. The resulting rhythm may be graceful I flowing or crisp and sharp. The contour of the thmic pattern and the shape of the individual nents can further reinforce the nature of the uence.

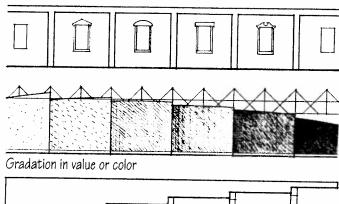
le the recurring elements must, for continuity, re a common trait, they can also vary in shape, ail, color, or texture. These differences, whether tle or distinct, create visual interest and can oduce other levels of complexity. An alternating thm can be superimposed over a more regular one he variations can be progressively graded in size color value to give direction to the sequence.

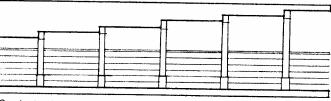


ihm existing at the detail level



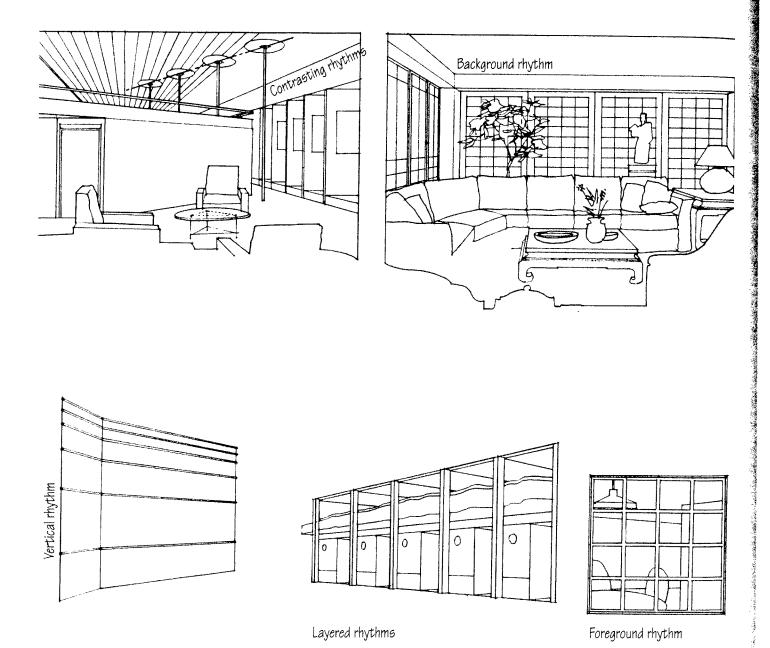
Detail variations in rhythm



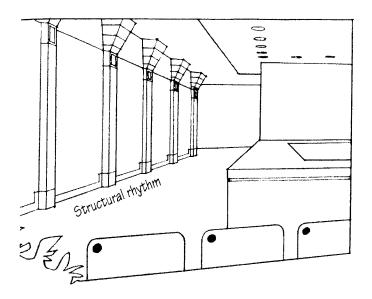


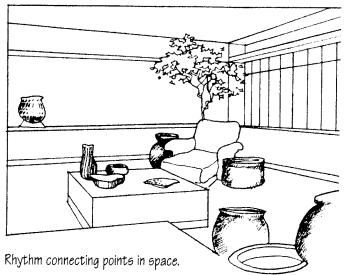
Gradation in size

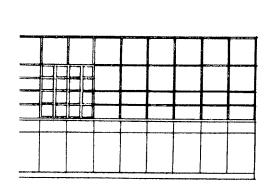
Visual rhythm is most easily recognized when the repetition forms a linear pattern. Within an interior space, however, nonlinear sequences of shape, color, and texture can provide subtler rhythms that may not be immediately obvious to the eye.



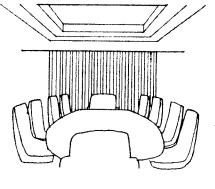
Rhythm may refer to the movement of our bodies as we advance through a sequence of spaces. Rhythm ncorporates the fundamental notion of repetition as a device to organize forms and spaces in architecture. Beams and columns repeat themselves to form repetitive structural bays and modules of space. Spaces often recur to accommodate similar or repetitive functional requirements in the building program.

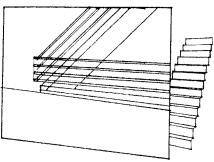




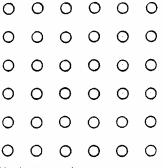


rtical and horizontal rhythms

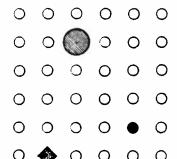




The manner in which stairways and railings express movement naturally results in rhythmic patterns.



No dominant elements... no emphasis





Too many dominant elements... no emphasis

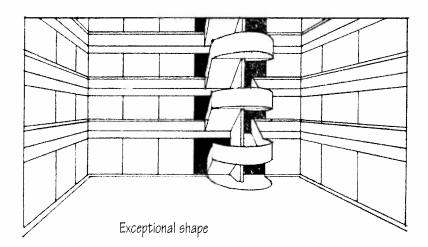
Points of emphasis can be created by a perceptible contrast in size, shape, color, or tonal value.

The principle of emphasis assumes the coexistence of dominant and subordinate elements in the composition of an interior setting. A design without any dominant elements would be bland and monotonous. If there are too many assertive elements, the design would be cluttered and chaotic, detracting from what may be important. Each part of a design should be given proper significance according to its degree of importance in the overall scheme.

An important element or feature can be given visual emphasis by endowing it with significant size, a unique shape, or a contrasting color, value, or texture. In each case, a discernible contrast must be established between the dominant element or feature and the subordinate aspects of the space. Such contrast would attract our attention by interrupting the normal pattern of the composition.

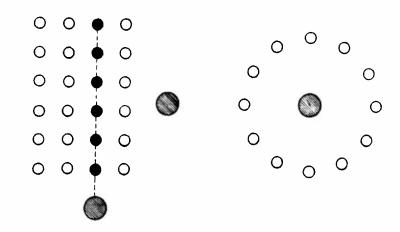


Exceptional size

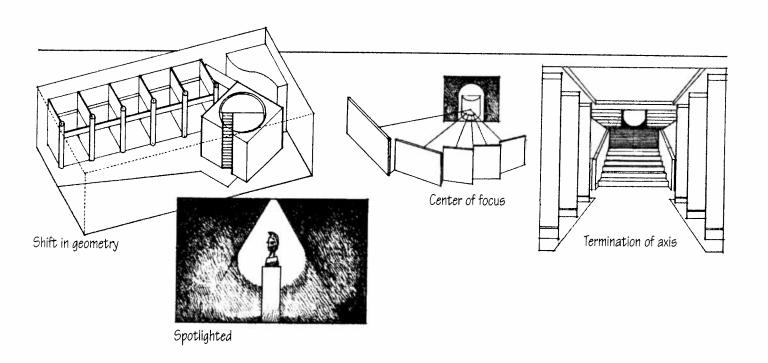


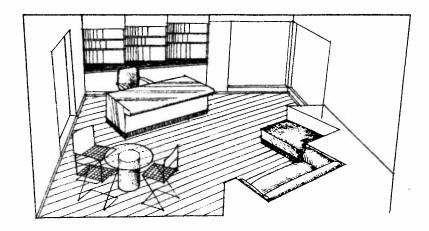
An element or feature can also be visually emphasized by its strategic position and orientation in a space. It can be centered within the space or serve as the centerpiece of a symmetrical organization. In an asymmetric composition, it can be offset or isolated from the rest of the elements. It can be the termination of a linear sequence or a path of movement.

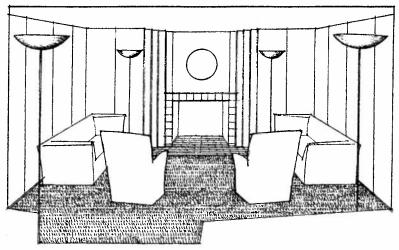
To further enhance its visual importance, an element can be oriented to contrast with the normal geometry of the space and the other elements within it. It can be lit in a special manner. The lines of secondary and subordinate elements can be arranged to focus our attention on the significant element or feature.



Points of emphasis can also be created by the strategic positioning of important elements.







Just as there may be varying degrees of importance among the elements in an interior setting, there can also be varying degrees of emphasis given to them. Once the significant elements or features are established, then a strategy for orchestrating the subordinate elements must be devised to enhance the dominant ones.

A room's focal points should be created with some subtlety and restraint. They should not be so visually dominant that they cease to be integral parts of the overall design. Secondary points of emphasis—visual accents—can often help knit together dominant and subordinate elements. Following the principle of harmony, related shapes, colors, and values can also help retain unity of design.

