# 6
LIGHT AND DARK

The contrast between light and dark allows us to see form. Our eyes search for contrasts in light quality, focusing on the linking borders between them. In a constant, uniform field of light, we see nothing.

We schedule our lives around the cyclical pattern of day and night, light and dark. Yet in each phase of the cycle there is an integration of the opposite — the night is brightened by the stars and the moon; daylight is relieved by shadows, which lengthen as darkness approaches. At the boundaries between light and dark, sunrise and sunset provide the essential links, brilliant elements that mark the transition between day and night. Houses, too, require an integration of light and dark, and the presence of color or pattern as the border, or event, between them.
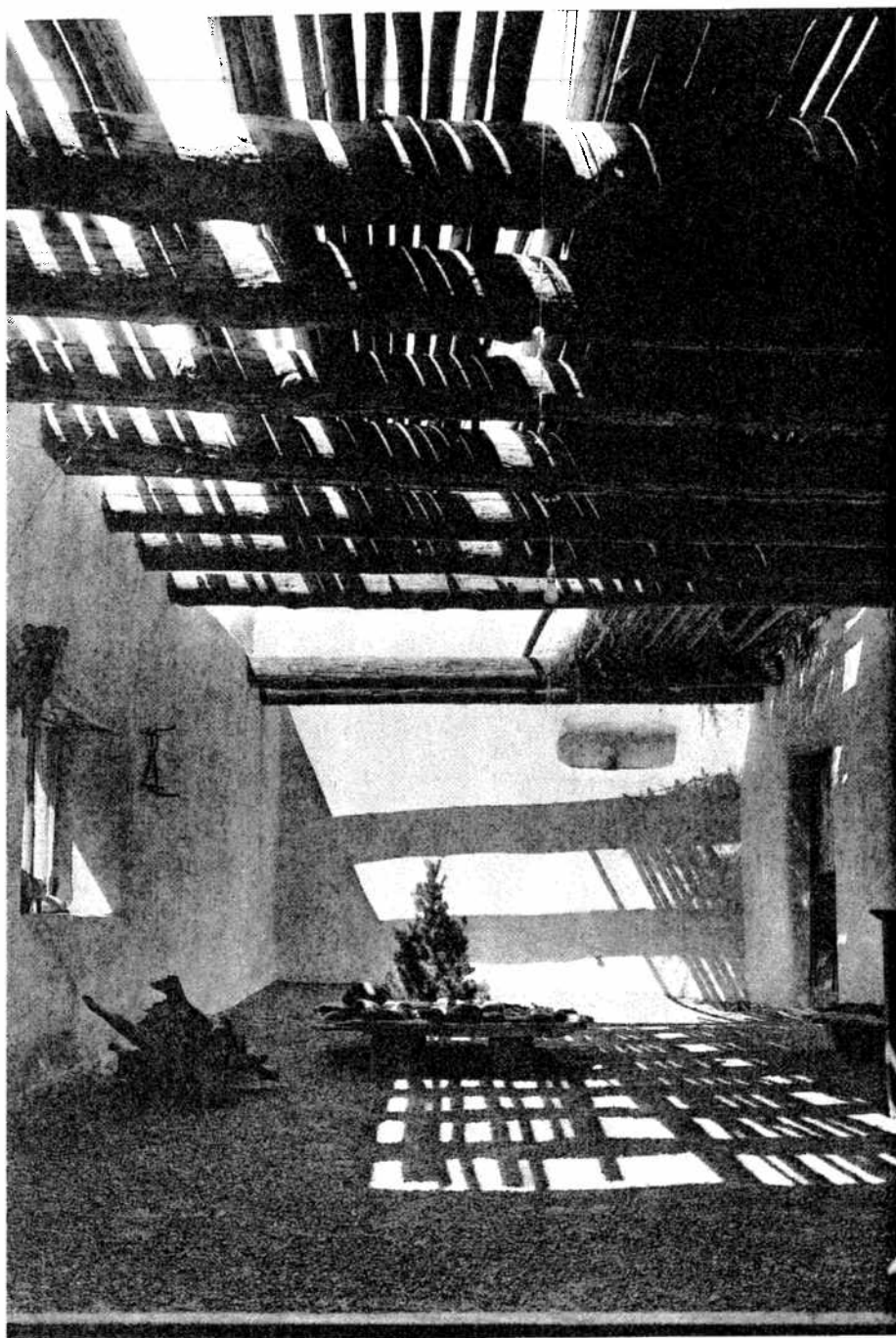
The play of shadow and light adds richness and texture to the simple white adobe patio of Georgia O'Keefe's New Mexico home. (Photo by Balthazar Korab Ltd.)

Creating Light and Dark

We are attracted to places that are defined by a contrast in light level. When we choose an interior place to sit, it is almost always in the light — at a window, near a fire or beside a candle or lamp. On the other hand, when outdoors and in bright sun, we tend to seek the dappled light beneath an umbrella, tree or porch roof.

In dark spaces, create contrast by introducing light from concentrated sources — from a single large window or overhead skylight. The shaft of direct light will move around the room with the sun, intensifying the sense of the passing day. In the evening, intensify the gathering power of the fireplace by lighting only that area, dimming the room's other lighting. You may also create contrast between light and dark by using clustered artificial lights.

Similarly, consider how to create shadows within very light places. Shadows define forms three-dimensionally and prevent the disorientation that comes with perceiving no depth or shape, only the light in a uniformly lit room. Shadows also create new and unpredictable shapes, bringing interest and variety to a surface. And like moving shafts of light, they contribute to the sense of passing time.

Using the light of a window or a desk lamp to define a bright work area makes it easier to direct attention to the task at hand.
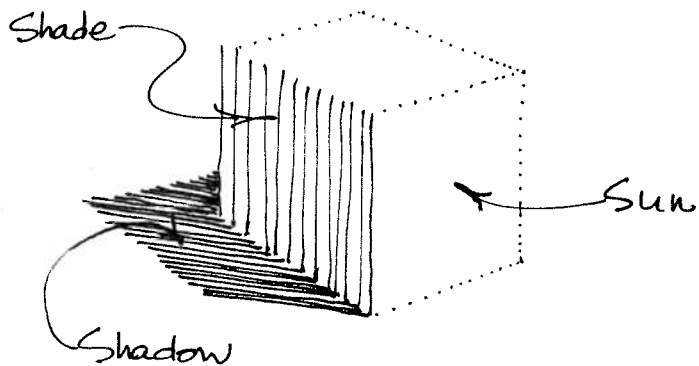
An object's form is defined by the play of light across it and by the location of light and shade. Additional information about both the object and the source of light can be gained from the shadow.
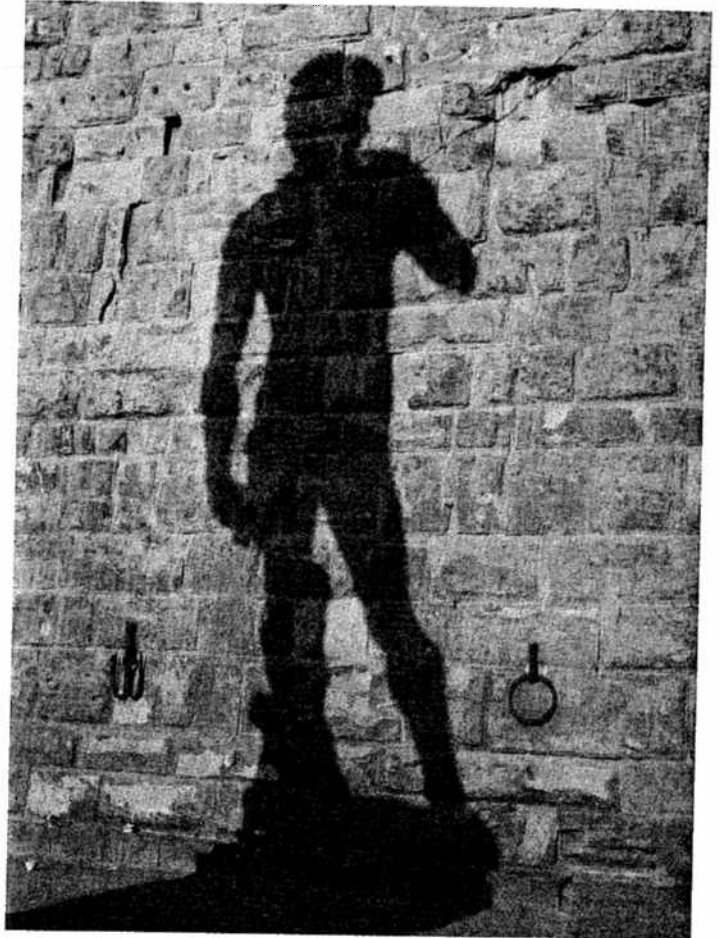
The moving shadow helps to link the casting and receiving surfaces to each other, to define shapes and surfaces and to record the passing of time. (Photo by Slobodan Dan Paich.)

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The intricate trellis over the courtyard of Abdel Wahed El-Wakil's Sulaiman Palace in Saudi Arabia fragments the intense sunlight into intricate geometric patterns. (Photo by Abdel Wahed El-Wakil.)

Linking Light and Dark

At the boundary of light and dark, it is important to introduce an element that links the two together. This new element, which possesses a wholeness and beauty of its own, moderates and tempers the brightness contrast.

Filtering and Controlling Sunlight

Eyelashes shade our eyes from overhead light and moderate the difference between bright light and total shade. When the sun is very bright, we add additional layers of protection: sunglasses, a visor or a hat with a broad brim.

A similar approach to the control of natural light is needed in the design of homes and gardens. Providing an overhead screen will filter the light as eyelashes do. In outdoor settings, the screen may be trees or trellises, which provide dappled shade. Indoors, windows that are broken into small panes, protected by filigreed latticework or shaded by the branches of a tree achieve this effect — the sunlight is broken into small but brilliant fragments.

Greater protection can be added with shadecloth or canvas awnings, translucent roofing or filmy curtains; occupants will still experience the light, but with diminished intensity. For maximum protection, build visors of solid materials overhead to create dense shade. Extended eaves, roofed porches and deeply inset windows create a shadowy space from which to look out into the light.

The grapevines growing on the trellis of the Sailer house, designed by the authors, offer seasonal shade; in summer, cool filtered light is admitted, while in winter, patterned sunlight flows through the windows.

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The flared reveals of this deep window create a small space filled with a light whose intensity is between that of the bright outdoors and the dark interior. (Photo © Morley Baer.)
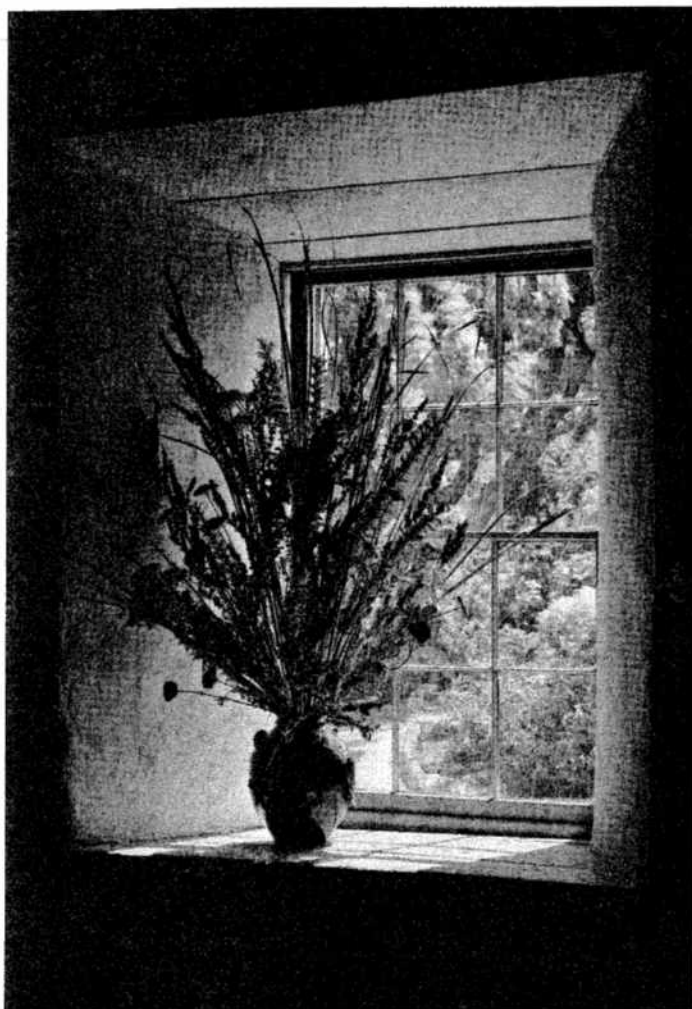
Interior Glare and Sparkle

Introducing light into a room from a single window or skylight can create high contrast between light and dark. But it can also cause painful glare. Prevent glare by better linking the light to dark, perhaps by creating an intermediate border with one of the following: a deep window reveal that flares out toward the room, reflecting an intermediate level of light; a rounded sill and jamb, which create a smooth transition between light and dark; very light-colored interior window trim; or, to temper the sharp contrast between light and dark, a second light source on another wall.

The dining room of the Sailer house has several light sources. Outdoor light is introduced through a window seat. This is balanced by general artificial lighting and by a centered recessed cove overhead, illuminated by hidden fluorescent tubes wrapped with brown paper to create a warmer-color light.

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Tiny white Christmas-tree lights spread throughout a tree reveal the tree's form even in darkness, giving it a magical, sparkling quality. A similar effect occurs when we look through a tree toward the sunlight beyond. The pattern of leaves and branches breaks up the sunlight into small, brilliant fragments — we can look directly into the light and enjoy its brightness because it is diffused.
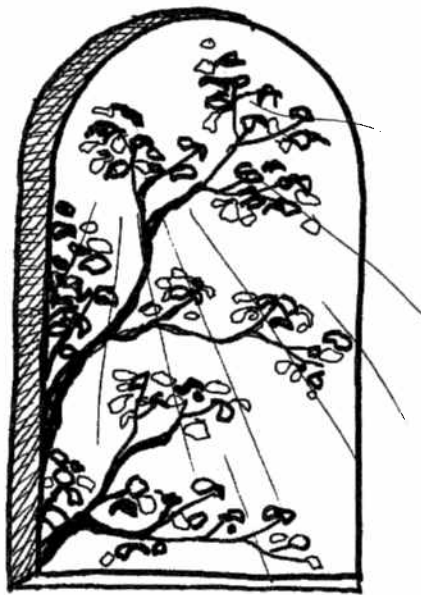

A final glare-eliminating technique requires breaking up the source of light into many smaller sources. A large window can be broken into many smaller panes, in the style of a stained-glass window, for example. Or in artificial lighting, a few single sources can be replaced with additional smaller ones. For example, a chandelier of tiny lights will create a pleasant, lively effect called sparkle. Or a recessed lighting cove concealing several bulbs casting bounced light will create a subtle glowing effect.

Sequence of Light and Dark

As occupants move through a building, they will feel the contrast between light and dark more intensely if they experience a rhythmic sequence of light/dark/light/dark. This alternation of light and dark can be created by using skylights at important hall junctions, by installing a regular pattern of ceiling lights along the length of a hall or by collecting windows into recognizable groups.
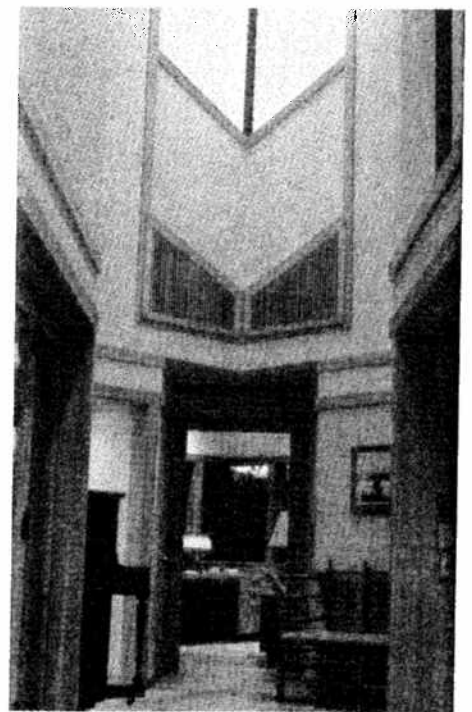
The high windows in the light towers at each end of the hallway of the Hobert house, designed by the authors, create a bright spot to move toward.
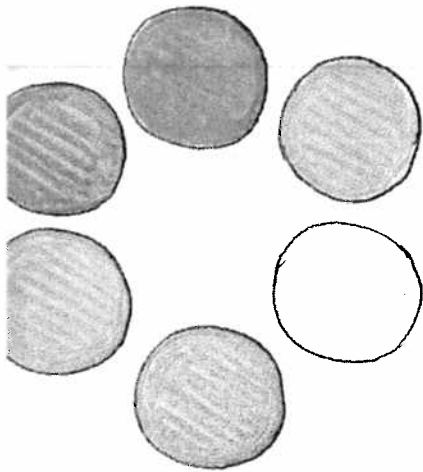
he color wheel places complementary (or contrasting) colors opposite each other, while adjacent colors are related by a common tone.

The blue shutters and cool white walls typically found on the Greek island of Hydra provide welcome contrast to the hot Mediterranean sun.

Houses in the small town of Dragør, Denmark, are painted warm yellow, which combines with red tile roofs and soft brown thatch to create a sense of warmth in this cool climate. (Photo by Gary Coates.)

Color as a Source of Linked Contrast

The spectrum of visible light can be represented as a color wheel. Complementary colors, which lie opposite each other on the wheel, contrast intensely with each other. Natural sunlight contains the full spectrum of color, incorporating all the complementary colors.

Perhaps our bodies require a balance of the warm and cool colors that compose white light. If so, it explains why sunlight contributes so much to well-being and balance. Fluorescent light is not balanced — it is deficient in the warm, red portion of the spectrum — and its exclusive use can lead to a tired, irritable mood. It needs to be balanced with warmer light from incandescent sources.

The need for balance in color is illustrated by the traditional colors used for buildings in different climates. Mediterranean structures are whitewashed, their doors and shutters often accented with intense blues or greens. The long summer and the high sun combine to create an environment in which the light is bright and warm — the white walls reflect the sun while the cool-colored accents provide contrast and relief. On the other hand, buildings in the cold Scandinavian climate are typically made of brick

or wood colored in warm tones and accented with reds and oranges. Both these materials absorb the limited sunlight and balance the cooler colors of the landscape.

In general, using complementary colors will produce a stimulating effect. But unless these colors are linked, they may fight each other — if you place a very saturated red next to a very saturated green, you'll notice a visual vibration at the border, which can be unpleasant in a building. There are at least five ways to link complementary colors, techniques that allow the colors to retain the energy of contrast while producing a balanced interaction. We will describe each method using green and red, although the principles would be the same for violet and yellow, or orange and blue.

A. Scatter a small amount of green throughout a field of red. A kind of energized balance will result between the dominant red and the recessive green.

B. Dilute (or desaturate) the green with white. The pale green and the strong red will coexist comfortably.

C. Mix the colors a little, adding a little green to the red and vice versa, and the colors will begin to link. (This could, of course, eventually lead to a single muddy color in the middle, which is not what we are talking about.)
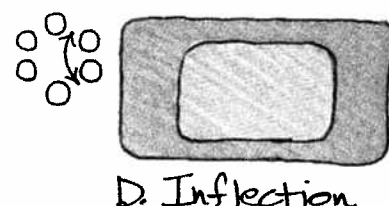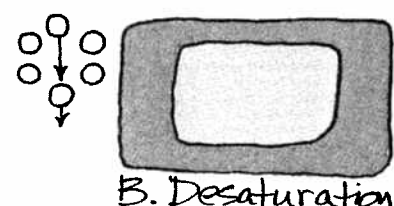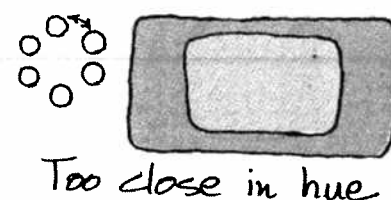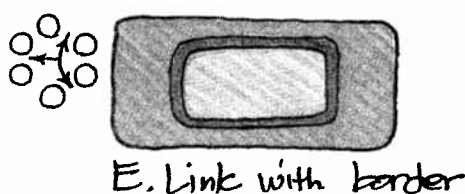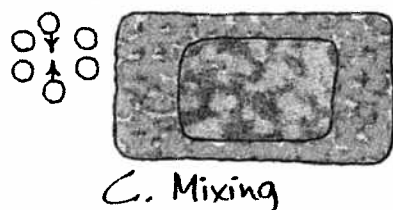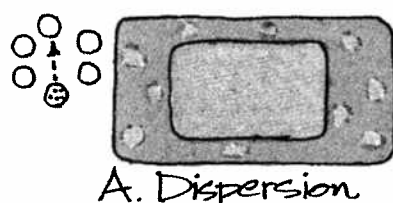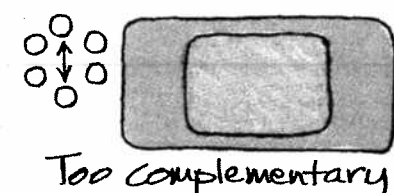
D. Push the contrasting colors toward each other by adding a little of a third color to each. For example, add a little yellow-orange to both the red and green. The resulting orange-red and yellow-green will relate well to each other.

E. Further link these colors by creating a bold, contrasting border between them. For example, you could link the orange-red and the yellow-green with a border of blue-violet, which will contrast equally with each of them.

This drawing shows the clash of complementary and neighboring colors and the harmony of the following kinds of links: (A) dispersion of one member; (B) desaturation of one member; (C) mixing, or 'walking toward each other;' (D) inflection toward each other by mixing in a common third color; and (E) sharing a border of a third color.

Too complementary

A. Dispersion

C. Mixing

E. Link with border

Too close in hue

B. Desaturation

D. Inflection
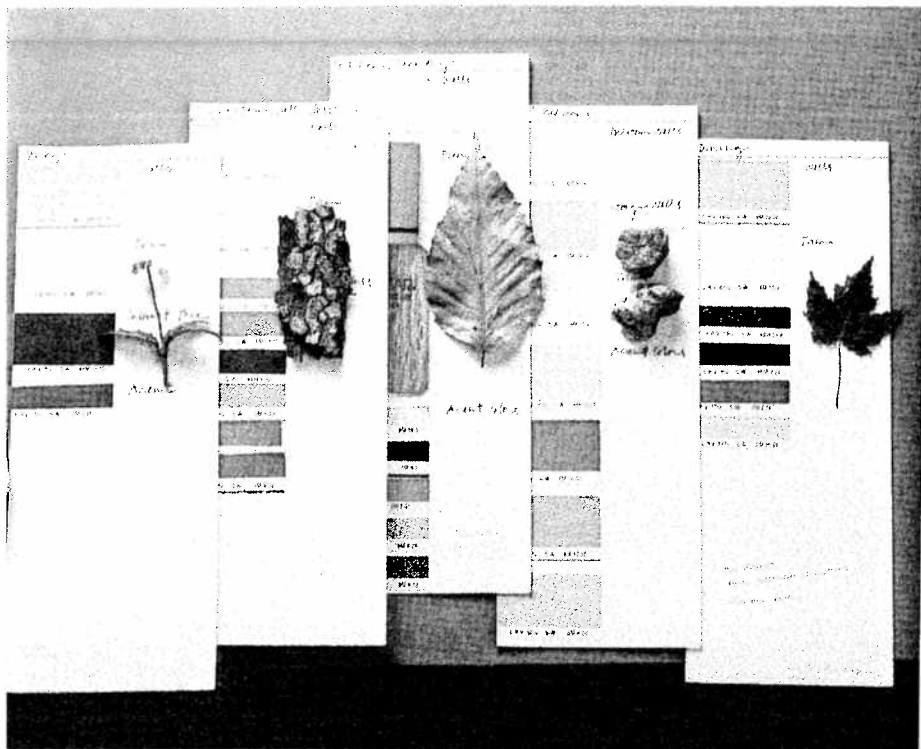
Architect Kim Tanzer derived the interior colors of a house from the surrounding natural colors of leaves, twigs and rocks. Tanzer says, 'We followed the colors found on the underside of a new maple leaf for the dining-room palette, with muted grey-green walls, dusty white trim and burgundy accents.' The contrasting, complementary red and green are linked by desaturating the green and adding blue to the red. (Photo © Jerry Markatos.)

Because the colors of buildings are not usually arbitrary, these techniques will typically be mixed and combined to achieve the desired results. The challenge is to coordinate the built-in color limitations and potentials of the materials being used. The building should also attempt to contrast with the predominant set of colors of the surrounding landscape.

A Place in between Light and Dark

Finally, try to link light and dark by creating a special place in between, where both can be experienced simultaneously. Link the darker indoors to the lighter outdoors with a window seat, a bay window or a greenhouse. Link the brighter outdoors to the cooler, darker indoors with a porch, a shaded patio or even a generous roof overhang.