SUBSTANCE AS LIGHT:
A PHOTOGRAPHIC ESSAY

INTRODUCTION

All we see is light. Everything seen is a source of light. Surfaces in shade, the sky, the water and bed of a stream are all part of the continuum of light sources ranging from dim to bright and from confined to broad. By regarding all substance as reflected light of a particular value and hue, a sensitivity to visual relationships can emerge, juxtapositions acquire significance, and causes of the feeling of space can better be understood.

While seeing comes without effort, understanding the causes of appearance requires a good deal of concentration. Nearly every surface commonly beheld is confused by superimposition of shadow or reflection. If we are to comprehend what we see, we are left to figure the sources of these images, the causes of illumination. The topic is relentlessly absorbing and, as a consequence, inherently distracting.

Appearance is the visually communicated description of both the qualities of an illuminating source and a surface's character as a medium for passing light. Substance modifies light, yielding appearance which is no more than a version of the incident light.

The nature of light sources is communicated by way of surface and form. Surface is the substance which light uses to gain expression. As substances vary in appearance while remaining constant in physical form, they reflect a changing character of light. The elements of architecture can be chosen and composed to reveal light, so that it may become expressive light, and the variety in appearance of substance may be emphasized.

continued on page four...
ARCADE

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ERRATUM

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COLUMN OF MANY ORDERS

Rebecca Barnes

THE IDEA FOR THE CALL FOR NEW WORK grew out of a series of efforts to find whether new work and fresh ideas exist in Seattle's design community. The design community needs encouragement to push designers to create a provocative design statement. Such a statement that evidences the designers' thinking. Did this group of architects manage to write the kind of letter that a group of famous designers brilliantly mixed in their reviews of the jury; for some, necessarily negative, or tuned into inappropriate questions. The Call For New Work was an effort to encourage, to fill in the critical areas of the academic set. Hired to direct the process of thinking of the local jury (including Norman Johnston and Sally Schuman of the University of Washington) was a Mr. Scully, who recruited and directed the work. The decisions were reported to be unanimous. Three proposals were granted semi-final status, which includes a $1,000 fee and the charge to develop the design according to some clearer program directions, for a final judging by the same jury on October 15. The finalists will be announced shortly before the ballot measure through which Bellevue voters will decide whether or not to fund projects for the Central Park.

ARCADE

Teapot of Michael Gravenes.

REMEMBER WHEN "MARKETING" was what your parents did on Sunday morning— "Dr. & P." or "Shining Star Marketing"? Instead of the newest fad in architecture it was the pastel colors and the cozy furniture in your home. If you're the kind of person who likes a comfortable, cozy home, you may want to ride along on the back of a brand new format. The Design and Building Industry's Awards Directory and Publicity Directory, a two-volume set complete with ads and published by Lord Cochrane, offers a variety of awards programs: selection requirements, submission processes, materials, timing. With these directories, and a few excellent projects, fame and fortune are just a Marketing Assistant away. Order your Marketing Assistant away. Order your "MARKETING" article from: ARCADE, Marketing Journal, Box 1316, Newton, CT 06281.

WHEN VINCENT SCULLY TOLD A Bellevue and Portland, they are the same

All the greatest images of course have their own destruction built into them, by their very power." was he warning the townpeople that their yearning that Bellevue will be put on the national design map as a consequence of this was a taste for forbidden fruit? Or was it a rationalization of a body of stars that among the 67 designs finally entered? Quite a few of the participants intended to submit a flavor of the quick wit and place-making characteristic of an academic set. Hired to direct the process of thinking of the local jury (including Norman Johnston and Sally Schuman of the University of Washington) was a Mr. Scully, who recruited and directed the work. The decisions were reported to be unanimous. Three proposals were granted semi-final status, which includes a $1,000 fee and the charge to develop the design according to some clearer program directions, for a final judging by the same jury on October 15. The finalists will be announced shortly before the ballot measure through which Bellevue voters will decide whether or not to fund projects for the Central Park.

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COLOR LANGUAGE

I was educated by individuals who considered the use of color an indication that they were in the wrong field of study.

Like many architects of my generation, I was educated by individuals who considered the use of color in a presentation an indication that you were in the wrong field of study. This attitude was a offshoot of the Modern Movement which discouraged the use of color in all but highly functional applications, or in the true nature of materials. These attitudes toward color have an interesting history. A schism in approach to design education, for example, who would execute "telephone pictures" by calling color specification to a machine aesthetic of Purism. The appearance of natural unadorned material was an important feature of color associations in advertising and retailing, to employ this knowledge to a great opportunity.

The potential of color association in defining a corporate building. It is not surprising that color as a contextual medium for faith; gold and yellow represented the color theory principles of the past is in reincorporating values which allowed ideals and feelings, not just function and economy, in architectural expression, free of the exclusivity in Modernism. Architecture should represent both objective and subjective issues, and herein lies the greatest potential of color.  

Milen Agnihotrain
Galen Minah is Associate Professor in the UW Department of Architecture. He is currently on sabbatical, doing research on color and architectural expression.

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SUBSTANCE AS LIGHT ...

CAUSES OF APPEARANCE
Apart from hue, differences in the intensity, location, and extent of illuminating sources are largely responsible for the wide range of appearance of the same substance.

The range of light values within a context affects the way we interpret substance. What is considered as an illuminating source and what is interpreted as a surface depends on relative intensities. A grouping of brightly lit surfaces can appear to dissolve in light, unifying as a single source. At night, the surfaces within a porch illuminated by a concealed lamp can glow in a space bordered by dark walls denied the intense light. At the other extreme, a very dim space evenly lit and framed by bright surfaces can appear simply as a flat, dark surface. Space is momentarily denied. By revealing no dependence of the visual sense on materiality, these examples illustrate the nature of surface as a source of light. Ultimately the sensitivity of sight betrays the illusion, but fixed is an imprint of the ideal of that sense, the reception only of light.

The relation between surface orientation and illuminating source location is critical for resulting light values. Sunlight provides an intensity of illumination which varies continuously with the changing striking angle. The movement of the sun causes changing appearance through time while varied surface orientations yield a range of intensities at any moment. Any gently rolling surface is thus modeled by different quantities of sunlight, yielding legibility.

The dimension or extent of a source determines its presence, its influence in illuminating substance, and its tendency to resist interference. The extent of the outdoor source varies from the point source of the sun to the broad source of the clear or overcast sky. Sources of greater extent often occupy a significant part of the field of view.

Surfaces not oriented to receive light from an illuminating source will be in its shade. The extent of a source determines to what degree surface orientation is critical to resulting values. Under the clear or overcast sky, more surfaces are equally exposed than is the case in sunlight.

Under all light conditions, shadow results from interference with light from the principal source. Even the sky’s light on the grayest of days produces shadows. The extent of a light source influences the character and quantity of shadows produced. The shadow produced by a horizontal projection under the point source of the sun is well-defined. The shadow produced under the broad source of the sky grades in tone as a diminishing area of the sky lights the surface directly.

Most surfaces exhibit both specular and diffuse light-reflecting qualities. In possessing some degree of polish they are composed, in a sense, of two surfaces. By the dominance of either, appearance can change dramatically with the variables of intensity, location, and extent of the light sources.

On a cloudy day the sky will readily transmit its image in specular surfaces. The character of the surface beneath may hardly be communicated. When the sun emerges from the side, the intensity of its light overpowers the light from that part of the sky reflected from the smooth surface. Through diffuse reflection the sun sends a clear image of the character of the surface beneath.

"I discovered by working with actual glass models that the important thing is the play of reflection and not the effect of light and shadow as in ordinary buildings." — Mies*

Shadow and reflection are fundamentally related, yet essentially distinct. Each connects neighboring substances by superimposing shapes and images. Shadow results from blocking the principal source, while reflection sees everything as illuminating sources. The location of reflection is dependent on our position; the location and presence of shadow is not. It is surface character which determines whether shadow or reflection will be the means of superimposition of images. As the light-diffusing surface consistently reveals incident light from all illuminating sources, it can display shadow. The specular surface transmits true images of sources, because the effects of all the sources are never combined. The stillness communicated by strong shadows contrasts sharply with the dynamic character of reflection.
The tonal range of light-diffusing surfaces is limited in conditions without incident sunlight. By encouraging source-image reflection with specular surfaces, the light of the sky and of nearby sunlit objects can take a place within a surface. Value contrasts also result naturally from a polychromatic treatment of surfaces, using the variety in light-absorbing qualities of materials to supplement the limitations of the characteristic light. Under the sky's light, high values may be best in small quantities, as when they are dominant, the light cannot provide the life they demand. On a dark ground, high values are powerful even in dim light, as they bring life to a composition. In its limited extent and in contrast with the dark, the high value thrives.

Under the light of the sun, often the greatest contrasts in value occur without strong shadows. Surfaces of different orientations will be exposed to varying amounts of the sky source, and value contrasts will be low, but the surface may be clearly presented. Under this condition the subtlety of shadows can either emerge or be lost. Form can reinforce the breadth of the source and consequent softness of the light. The gently curving contour of a stone facing may strike such a balance.

The character of overcast light can also be reinforced if value contrasts are minimized. Other color contrasts may then be especially pronounced. Contrasts of hue and cool-warm contrasts may become unusually significant.

The conditions of illumination affect the impression of form, providing ideas for response and expression. Under the light of the sky, when objects are seen against the sky, the greatest value contrasts occur with the figure and ground. The edge of form attracts the eye. Looking south, the relationship of building and sky values is darker to brighter. The same is typical with all orientations under the overcast sky. The sky's ubiquitous presence emphasizes the significance of profile. Profile can flatten space and transform volume to shape.

Under the light of the sun, often the greatest contrasts in value occur within forms where shadows and shade cause juxtapositions of the brightest and darkest surfaces. On the sunny day our eye focuses on the complexities of forms rather than on profiles.

Diffusing surfaces lit by the broad source can describe themselves clearly without strong shadows. Surfaces of different orientations will be exposed to varying amounts of the sky source, and value contrasts will be low, but the surface may be clearly presented. Under this condition the subtlety of shadows can either emerge or be lost. Form can reinforce the breadth of the source and consequent softness of the light. The gently curving contour of a stone facing may strike such a balance.

MOVEMENT AND CHANGE
On the sunny day, light induces shadows and diffuse reflections dominate our attention. Tones are fixed, and perspective takes over as the expression of movement. We are aware of objects on view. Tones are influenced more by the slower movement of the sun. An understanding of our position comes from reference to the location of the principal source.

Under the overcast sky the low values separate objects from the brighter sky-ground so that successive objects are unified and the space seems continuous. As strong values do not separate the observer from the sensed space, it has an intimate and accessible quality.

In sunlight, the bright source generates an extensive range of values. The ground plane takes on great importance, and in receiving shadows, it generates a multitude of distinctly felt spaces. Space may seem more discontinuous and apart from the observer. The background may seem very distant. At the same time, however, sharpness of detail can bring distant objects nearer.

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CONCLUSION
A purpose in understanding light contrasts lies in awareness. A consciousness of what is all around reflects back on us, generating focus, ultimately revealing continuity and connection. Light is symbolic of focus. It provides the means for identity and the reference for location of the material world. Beyond enabling vision, light holds much potential for expression. Regarding light as something which can be expressed and supported by the surface and form of architecture may allow the two elements of light and substance to assume an equality which reflects their interdependence, reinforcing our connection to the spaces we inhabit.

Bill Haas


Bill Haas is currently employed by Bousillon, Christofferson, and Schairer. His Master of Architecture thesis, from which this article is adapted, received the Architecture Thesis Citation Award from the University of Washington College of Architecture in 1984. The work evolved partly from research funded by the National Endowment for the Arts undertaken with a colleague, Kathleen Flynn, in 1981. The support of thesis advisory committee members Galen Minah and Tom Bosworth is gratefully acknowledged.
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26
Michael Graves Victory Tour Comes to Seattle! 8 pm, Kane Hall, Room 130, UW sponsored by the Seattle Art Museum. Order tickets from SAM, Architecture Now Lecture Series, Volunteer Park, Seattle 98112. $120/4 tickets. (Dqs, wrong Michael. 94 students, 95 members, $7 nonmembers.)

2

9
"Medicine Bundle" A group show of collaborative works by visual artists and poets of the Northwest and Northern California. Show will run at the Jackson St. Gallery 9/6-9/25.

16
Valerie Wilson, "Oregon Portfolio": Color intaglio and color prints done to poems of John Riley, at Davidson Galleries 9/6-10/3. Works in prisma-color pencil on paper by Gregory Foster, and computer prints by C.T. Chew.

3

10
Harvest Moon
Sir John Soane, architect, born 1753. A 2-day seminar on project management at Batterie designed to help managers and superintendents understand and effectively deal with their pbs. 9/10-11. Call 527-0642 for information.

17
32nd PA Awards postmark deadline. See June Progressive Architecture.

23

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4
Competiton: House for the for the 1990s. For info send a 8x10 trial house. Inland Architect, PO Box 103 Seattle Landmark's Board i the Governor Building. Call 625-4501.

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14
Salmon Derby for Artists: deadline 9/1 to enter designs for 1986 sport salmon fishing license stamp. For entry forms call (206) 753-6592, or write Salmon Stamp Contest, WA Dept. of Fisheries, Rm. 115 General Administration Bldg., Olympia, WA 98504.

20
"Current Trends in Japanese Wood Frame Construction," a seminar sponsored by the Center for International Trade in Forest Products, will cover traditional Japanese wood frame construction, as well as 3-story platform and lam beam construction in Japan. Mr. Yas Naga, Tokyo architect and Vising Critic from Nihon University, will speak at the UW College of Forest Resources, 22 Anderson Hall, 1:30-3:30 pm.

21
"Art of the Architects": Exhibition of drawings and models by local architects and designers, at the Design Concern Gallery, through 8/31.

27
Photographs by Peter Millet at Donnally/Hayes Books, 8/23-9/18.

28

29
The City as Collector (art, from the Seattle City Light Pot at the SAM Pavilion, Seattle Center Elliot Bay Marine. Public will have a chance to vote for the 1990s. For info send a 8x10 trial house. Inland Architect, PO Box 103 Seattle Landmark's Board in the Governor Building. Call 625-4501.

32
George Gershwin, melting musi...
Out-to-Lunch Concerts in downtown Seattle, through summer (officially, summer lasts into September). Call 624-3040 for a schedule.

"Gardens": a presentation by artist and landscape architect Martha Schwartz. UW Architecture Hall, Rm. 207. Sponsored by the College of Architecture & Urban Planning, and COCA. For information, call COCA, 624-6384.

Eileen Gray, architect, born 1879.


Onibake: another ghostly tale at the SAM. 7:30. (See box.)

Wild Beauty: Photography of the Columbia River Gorge. Exhibition opens today at SAM Pavilion, Seattle Center. Earliest photo documentation of the gorge, which is currently under new pressures for development and preservation. Through 10/21.

Kurosawa: marrying samurai, murder, black cat, and a haunted bamboo grove at the SAM, Volunteer Park, 7:30.

Theo van Doesberg, de Stijl architect, born 1883.


"Architecture on the Move" is what you'll have to be to attend this year's Northwest Regional AIA Conference in Portland, 9/6-8. Neil Goldschmidt, once-Mayor of Portland, will keynote with an address on "Portland, Architecture and Transportation." Transportation is the theme of this gathering that will get you all around this good city. Wrap it up with tours of Timberline, Mt. Angel, the Gorge, "Belluschi," and/or local vineyards.

Bumbershoot 1984: 8/31-9/3 See the Broad Street gang's photo exhibit by Sonja Erel, artist & architectural student, and Pacific Science Center/Art Center gate by Joseph Musco, architect, designed for the festival.

Wooden Boat Show, Port Townsend, 9/7-9.


"The Birth Project." Judy Chicago, continues at the Jackson St. Gallery (and at The Bumgardner Architects). 6 new ones this summer through 8/26.

Pierre Chareau, architect of Maison de Verre, 1931, born 1883.

"Woodworking" lecture by Yoshihumi Shimoto, 8 pm at UW Architecture Hall, Rm. 207. Sponsored by the College of Architecture & Urban Planning, and the Northwest Gallery of Fine Woodworking.

Japanese Carpentry Workshop taught by Yoshihumi Shimoto today through 8/12, at Northwest Gallery of Fine Woodworking. Call 625-0542 for details.

Round Peg Fits Square Hole: Sacred Circle Gallery moves to Mutual Life Building in Pioneer Square. Contemporary art by native Americans, including paintings by James Leavelle, Wally Walls, through 8/25.

Jack Lenor Larsen, Seattle 1984. Exhibition of textile design and personal collection of one of the world's leading designers. A Seattle native and UW alumnus.

"Landmarks": Photographs of distinctive masonry buildings in Portland, exhibited at The Architecture Gallery, 615 SW Park Avenue, Portland, 8/6-29.

Pietro Belluschi, NW's favorite architect, born 1899.


Walking Tours of Historic Tacoma begin at Tacoma Community College Downtown Center at 1 and 3.


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Izasky: See and/or buy his drawings — not of his buildings — but of the city, in one of the Seattle AIA Gallery spaces at 1911 First Ave., during the month of September. Call Peter Miller for details. 623-5563.

The Seattle Arts Commission is seeking an artist to design Seattle Water Department hatchcover which will be placed on sidewalks in the downtown and other areas of the city. Deadline: 10/5. To obtain a project prospectus, write: SAC, 305 Hanford St., Seattle, WA 98109, or call (206) 625-4223.

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REGIONALISM AND THE NORTHWEST PALETTE:

Warren Hill and Roger Williams

Roger Williams: We've probably gone beyond regionalism, actually, than it has ever before. It's the first time ever that regionalism has been so closely tied to the design vocabulary is breaking away, and it's the regionalism. It wasn't a particular style. The materials, the forms, and the clients in particular were quite alike. And the colors were also alike and imitated the natural environment -- to extremes. That's changing, and one begins to ask, "Why are colors changing? Is color just applied to whatever is in style, or is it more fundamental than that?" I think it is. All of the former design vocabulary is breaking away, and color is being carried along. You need to be stuck in browns and greens and tans. When I first came here in the sixties, this area reminded me of Scandinavia in its use of primary colors set in a natural, low-chroma environment. But Scandinavia's connection of palette to geography and culture is constant. American palettes change with time and taste. The press has a great deal to do with that, even more in this region than others. Some designers could use some tips on the style-following. Form or decoration or a client may not have much to do with it. There's not enough color experimentation. I'm not sure if it's regionalism, but our clients may not have much to do with it. We had them in direct sunlight, and they were very much like that material. They didn't know that color reflected a desire for anonymity. Suppose you want to change that.

WH: I attempt that at school. I keep persuading the students to look at their heritage. The one thing that was interesting was Portrait and Miklóssy's book, Color for Architecture. One article was the Enco study, in which the French government asked for a study of the various areas of France to find indigenous color. They took trays of soil for each area, and bark, and leaf, and then man-made color, or the use that people put color to. It was very different from north to south. The indigenous use of color is both harsh and romantic, in certain places and austere and puritanical in others.

RW: In that study, the color of the soil predominated. One of the mistakes of that kind of exercise is that you get one equal amount of each color, rather than understanding that there are more burnt umbers than there are violets. A: What that study promoted was that if you had a building that you wanted to hide or camouflage, you colored it the same color as the ground. That's what's happening there. We allow architecture to become indigenous colors, some people use color with the environment as a model, some people use color to be indigenous of color usage. It's anonymous only in that people don't want a working vocabulary of color. They don't know that color can mean something, except our signs and symbols. Those things are ingrained.

We have a real opportunity as designers to break the mold of anonymous color usage.

Warren Hill and Roger Williams took place at Williams' home. Williams teaches Visual Design and Color at the University of Washington, and is a principal with Wyatt Stapper Architects. Hill teaches Interior Design and the History of Interiors and Furniture Design in the UW Architecture Department.

Seattle skyline. Photograph by Roger Williams.
When we do public color, it should allow for all of the personal colors that people bring. It should not be elitist.

W.H.

Why are colors changing? Is color just applied to whatever is in style, or is it a fundamental thing? I think it is.

R.W.

RW: That's a problem with the design of the building. I think the colors represent risk-taking, and I really applaud them. The colors work as a scheme, but it's that old problem: you lay them out on a board in front of you and they don't work. They don't work applied in context with the surrounding and the light.

WH: I think there should have been a little humility on the part of the architects and designers, because it is part of Seattle Center. It could have been a building remarkable in its own way, but still more at home with what was around it.

RW: It's knitted into the Center, yet it isn't. Actually it's tied to the QRC across the street better than it is to Seattle Center.

WH: And more to the product shelves than to the building itself.

RW: Particularly the vegetable bins.

WH: The Jolly Green Giant!

A: Could we talk about reflective buildings?

RW: I don't think they work in juxtaposition. It becomes a hall of mirrors, and I find it a little spooky. They also look terribly temporary to me, because of the wavy reflection and resultant distortion.

RW: It's a false argument to say we are good neighbors because we're reflecting the surroundings. It simply says you don't have enough courage to use materials with their own color and texture, and claim that piece of ground as a place.

WH: I don't know how many times I've heard a designer say that the value of the reflective glass buildings is that they disappear. It's exactly the opposite of what they actually do.

RW: Or what a building should do.

A: That's something I've never understood about Columbia Center; that it will slither away.

WH: Well, it doesn't disappear in the view from within.

RW: I keep wanting to come back and find out whether there's a Northwest color palette.

WH: You have a camera? Take a trip to an unpopulated area, like parts of the San Juans, and just photograph the rocks and the lichen and the madrona. Some really amazing things happen that are absolutely natural. Like the stoncrop, a succulent which has blue-green leaves, a pink stem, and yellow flowers. That's all in one thing! And it's beautiful because they are adjusted perfectly. And yet your sensibility wouldn't allow you to block those three colors together in any composition. They're small against a large mass of neutral, but richly-colored stone.

RW: We do have the mass of varied, neutral-colored buildings as a downtown backdrop: the blue-green Norton Building, the dark terra cotta of the Seattle Tower, and a variety of bays. Now we can begin to introduce to that small amounts of intense, polychromatic color: the stoncrop.

A: Earlier, you were drawing the conclusion that any regional palette would have to come from light effects, not substance.

RW: There is something in that which establishes a very different color palette from other places. We are not New Mexico. We are not New England. But we do have unique light. Central California coast is magenta light. Southern California is very blue, white light.

WH: It's the light coming through the poplars!

RW: It's green. We're all very green.

A: It's always green here. For all our talk of what a grey climate it is, there are things blooming all year round.

RW: Bob Buchanan [painter and UW professor in landscape architecture] is convinced that everyone in the Northwest takes the grey for granted. It is such a major portion of our color scheme. It's like the sky. We don't think about the blue sky or the grey sky. We don't think about the green. It's just background to everything else. And it tints everything. The reflection off that green on every other color is significant. We have another very strange phenomenon: many times in the winter, we have spectacular sunrises and sunsets, because we are under clouds but our flanks are not. We set this intense orange light, hence the apricot room that you have.

WH: And of course we have such long twilights here. Almost every day at twilight I look across to the Olympics, and there is a thin sliver of beautiful silvery light. It sort of tells you, "It's over." It's very exciting, that glimmer.

RW: A favorite picture of mine is of downtown Seattle with a blackened cloud sky behind the city. And all of these yellow-beige, boring buildings are a spectacular whole palette is identical. If we had as many blue-green buildings as Houston or LA, we wouldn't have that. That homogeneity with that light is wonderful. It's a double-edged sword. I think that's the lesson: that maybe there is no palette; that the palette is going to change.

A: The buildings are almost the canvas for the light to paint on. Oh God, how poetic!

WH: That's all right, I like that.

RW: That's an interesting theory, because where do you find color in that fairly monotonous downtown core? You find it at the street, as flower stands, as hotdog stands, in people's dress. You see it moving about. That's the variety of downtown. The texture is the people, the cars, and the flower stands, and maybe the buildings can be these canvases.

WH: When we do public color, it should be color that is going to allow for all of the personal colors that people bring. It should not be elitist.

RW: Where do people get their color taste from?

WH: You know those people in New York who sell packets of this year's color — for quite a lot of money.

RW: The Color Advisory Board?

WH: I think they ought to be banned. I think color as fashion should be absolutely ignored.

A: Are you aware of what it is?

WH: It's a program.

RW: "They" do it to you! Auto industry, paint representatives, interior designers, architects, carpet mills, clothing manufacturers, ...
LIGHT AND SHADE: Three Houses

A strong technical solution can lurk behind a subtle, sophisticated design. The correct and imaginative use of light and shade is fundamental to the making of architecture.

Buildings which utilize shading accurately need a specialized control device also can communicate strong visual images. Although we contend that shading is a secondary, modifying force in architecture, still it has great potential as a means to achieve expressive, symbolic form. By seeing shading in the larger context of technical issues in design, we can understand its inevitable integration with other forces acting on the building form. This holistic approach provides the basis for a productive method of inquiry in teaching architectural design, and is a model for a more immediate integration of formal and technical issues in design.

Shading is a fundamental design strategy wherever overheating occurs. Architects have at their disposal a multitude of forms with which to shade buildings. The shading approach can reinforce and enhance the formal content of a building, and in some cases may be the primary form-giver to it. Some forms will provide similar protection from overheating but will affect other design considerations, such as view, privacy, daylight distribution, and connection between inside and outside, very differently.

Design is prioritization and integration, not segmentation. Architecture is the confluence of forces realized in form. We have recently completed a set of building case studies initiated in a seminar with a group of architects and designers. The choice of the case-study method was critical in forcing the exploration of Form, Technics, and Building Task simultaneously. Buildings were chosen by criteria ranging from the ideal to the pragmatic.

The approach involved a number of different study methods. Photographs, publications, documents and.ACCESS to physical buildings were consulted. Working drawings were used to construct models, although Turnbull's office generously loaned us their model of the Zimmerman House. The drawings of this house and of which Gropius is an exponent of Form, Technics, and Building Task are similar in this way. By being chosen for purposes. It fits our life like a glove.

The blight of ornamentation has fallen on all our immediate surroundings. Modern architecture represents the vital reaction to this chaos of pretension — a courageous attempt to rid us of these hopeless nudes and to find again a true expression which may mirror our very life of the machine age.

The Gropius House is an expression of Form, Technics, and Building Task as it was to be lived in. The lessons spring from traditional functional, allowing hot air to rise through the west living room window, where the relation of natural ventilation, views, and direct access to the outside through the south and horizontal roof, but the shape is totally new. The nearly half circle plan and varying-depth horizontal overhang are the server, not the served.

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In all cases we studied, shading is not deterministic; it is not conceived of as a singular driving force in the building, nor is it divorced or separated from the expressive quality of the building. These architects have challenged the notion of the shading device over the continuous south wall for shading proved insufficient. Gropius provided a single-purpose metal roll-down blind. While this approach does not represent an integrated reinforcement of the architecture, it at least seems compatible with the underdeveloped machine aesthetic of this house and of which Gropius is an advocate.

The Gropius House is an expression of elegance achieved by spatial simplicity and efficiency of purpose. It conveys a certain confidence, a sense of daring and openness, reinforcing the basic importance of shelter, but without restricting its occupants. Shading has been used and adapted here to express a particular aesthetic: Gropius has adapted to any conception of beauty. It is revealed as the server, not the served.

Shading and daylighting effectiveness were studied by testing the models in a Seasonal and diurnal daylight distribution simulator. Assessments of the shading were made through graphic analysis techniques. Seasonal and diurnal daylight distribution was plotted graphically from the model measurements and was compared with visual observation in forming assessments of daylight characteristics.

The Solar Hemicycle is unique. Wright wrote to the Jacobs: "We are about to make you 'the goal' for a fresh enterprise in architecture. If you don't get what is on the boards some other fellow will. So watch out. It is good. I think we have a real 'first' that you will like a lot." Wright was speaking about a building which derived its form and its character directly from its relationship to the sun. It uses some of Wright's characteristic signatures of stone, wood, and horizontal roof, but the shape is totally new. The nearly half circle plan and varying-depth horizontal overhang are the server, not the served.
The Zimmerman House

The Zimmerman House, Tacoma, METW/Turnbull Associates, 1974

Now my aim is clear: I must show that the house is one of the greatest potentials of integration of the thoughts, memories, and dreams of mankind.

— Gaston Bachelard

The Poetics of Space

The Zimmerman House is a house within a house. The house proper nests inside a second skin of wood lattice wall and translucent fiberglass roof. Openings are incised in the screen to frame views. The form is derived from a number of dialectical concerns: the wife’s desire to have a house filled with light (a contradiction); and the hot, Virginia mouggy summers. There is a need for shading and for maximizing ventilation at the same time. These paradoxes have been translated into a unique form in which the exterior shell is a porch which is a shading device allowing both ventilation and a damming patterning of light. The form of this house is a result of the unique circumstances acting on it, and it is not the product of a set of rules of order. It is outside the modern idiom, perhaps outside any idiom, never universally ideal. In Frank Lloyd Wright’s words, “There is all the difference when we work with style and not for a style.” It is created of its desire to be and its architect’s ability to have it be both light and shade.

Passive environmental controls have great expressive potential. One of the key potential needs to be considered early and as part of the conceptual design. Environmental controls should not be thought of as an engineering problem to be addressed, but rather for a style. It is individually, not part of the conceptual design. Environmental controls should not be

Hemicycle House. Photo courtesy UW Architecture/Art Library.

The vertical mullions of the single great aperture mark the times of the day; the horizontal that indicates the year; and the changing reflections of the curving glass firmly establish the sense of fixed place in relation to the constant motion of the sun.

Wright has here supplied a unique twist on the traditional picture window. He has redirected the sun rather than admits the sun during the period of the summer solstice. He establishes its presence through its absence. He has designed the building coincident with the sun’s most beneficent aspects, and celebrates the light, shade, and shadow it provides.

A great American poet once asked the architect, “What slice of sun does your building have? What light enters your room?” as if to say the sun never knew how great it is until it struck the side of a building. — Louis Kahn

“Light is the Theme”
AN INTEGRATED LIGHTING DESIGN APPROACH

CONSIDER

Essential Design Issues and Goals

Conservation

Absorb daylighting in conceptual building design.
Consider daylight in the context of overall energy balance.
Design for reasonable levels of illumination.

Delight

Eliminate glare.
Refine the view.
Accentuate the plan.
Complement the structure.
Celebrate the daylight.
Create a mood.
Break the rules.

ANALYZE

Existing Exterior and Proposed Interior Conditions

Building Type

Establish the overall feasibility of daylighting.
Define the thermal characteristics of the building.
Consider the relationship between daylighting and the thermal environment.

Climate

Determine the major climatic conditions that will influence the building.
Identify the critical or determining design conditions.

FORMULATE

The Built Response to Existing Conditions

Site

Determine sources of light.
Locate elements that obstruct and reflect light.
Locate elements that filter and absorb light.
Identify means of modifying the site to improve daylight quality and distribution.
Determine roughly building location, orientation, and shape.

Activity Zoning

Analyze visual tasks to select qualities and quantities of illumination.
Locate activity areas within the building shape.
Integrate lighting (daylight and electric) with other building systems (structural, mechanical, electrical, acoustical, plumbing).

DEVELOP

Enclosure to Relate Exterior Conditions and Internal Demands

Envelope Definition

Determine roughly shapes and locations of openings.
Estimate the approximate area of opening required.

Locate activity areas within the rough building shape.

Consider the relationship between daylighting and the thermal environment.

MODIFY

Light by Refining Enclosure and Interior to Provide Appropriate Illumination Quality

Interterior Components

External control devices, fixed, moveable, automated.
Building envelope.
Gazing.

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