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OASIS¹ : The Experiential Dimension of Architecture

“...a fundamental weakness in most discussions of architectural aesthetics is a failure to relate it to its matrix of experiential reality ... this leads immediately to serious misconceptions as to the actual relationship between the building and its human occupants.”

James Marston Fitch, 'Experiential Context of the Aesthetic Process', JOURNAL OF ARCHITECTURAL EDUCATION, Winter 1988.

Do students think of the spaces they design in experiential or sensual terms? Are students prepared by their education to imagine the experiential qualities of spaces as they create architecture? How can experiential quality be assessed? Even when developing a critical awareness of architecture, do students sense the quality of the light streaming in through the windows at various times of the day and of the year? Do they feel the cooling breezes which result of the manipulation of the section and openings. Do they feel heat baking the occupants of unshaded south facing windows in the summer? Do they hear the deafening roar of forced air through the ventilation ducts from HVAC systems desperately attempting to reach the setpoint of the thermostat? I would venture to say that the majority of students, as well as designers, never think in these terms.

One of the most difficult aspects student designers face is the development of spatial concepts from two dimensional to three dimensional terms. The experiential aspects of architecture -- light, thermal qualities and tactility -- extend the design process into a fourth dimension. Recognition of the experiential qualities of architecture can explode into the sensual realm. Working and thinking in the fourth dimension requires a differentiated approach to the teaching of design *and* technology.

Measures of the experiential -- light, texture, temperature and comfort -- prove difficult to assess in concrete terms. They are discussed in qualitative and subjective terms without benefit of standards or a

¹ *I am indebted to the Society of Building Science Educators for the original material and the inspiration which led to the writing of this paper.*¹ *The “Oasis” as a pedagogical teaching concept and as a project was the creative effort of an environmental education retreat held by the Society of Building Science Educators Group during the early 1990’s.*¹ *Versions of the Oasis project are used by professors of Design and Environmental Control Systems in Schools of Architecture across the United States and Canada.*

point of reference. In order to appropriate a discussion of the experiential into design education it must be able to be viewed in critical terms.

How can we enlighten students to think *critically* in experiential terms? Through the architectural notion of the “Oasis” we can create a critical discussion of the experiential nature of architecture by establishing a high standard for design. The goal to create a state of Oasis propels the students to create a sanctuary. It extends the assessment of “good design” to include issues beyond aesthetics, program and technology. The Oasis expands the realm of design into a fourth dimension -- an understanding of the potential inherent in the experiential nature of architecture and space. The essence of the Oasis connects the experience of built space to issues of comfort (both visual and physical) and its relationship to climate, (day)light and environmental quality -- the tactile and the aesthetic. The Oasis demands a tactile approach to design. Materiality can best be experienced by touching.

The Pedagogy of the Experiential:

The Oasis informs and connects the various disciplines of the design curriculum. The ideology of the Oasis initiates an attitude towards Design, expands to provide detailed concepts which enhance its application, and matures through redefinition and clarification through the Design Project.

The idea of the Oasis can form a critical springpoint in the education of the beginning design student. It introduces the sensual nature of heightened awareness. The Oasis forms the pedagogical basis for discussions surrounding the connection between architectural and environmentally sensitive design. There are intrinsic connections between the Oasis (sublime), Climate (regionally varied), Light (ethereal) and Materials (tactile) which can be measured in terms of ultimate Comfort (essential). The need for comfort is used to exaggerate considerations of climate, light and materials in the design of interior, exterior and interstitial spaces. The Oasis speaks to architectural invention whose purpose is to create *sublime* visual and physical comfort and a sensual experience of space. The definition of “comfort” in this proposal is elevated well beyond engineering terms.

“During the six years of my architectural education the subject of comfort was mentioned only once. It was by a mechanical engineer whose job it was to initiate my classmates and me into the mysteries of air conditioning and heating. He described something called the 'comfort zone' which, as far as I can remember, was a kidney-shaped, crosshatched area on a graph that showed the relationship between temperature and humidity. Comfort was inside the kidney, discomfort was everywhere else. This, apparently, was all that we needed to know about the subject. It was a curious omission from an otherwise rigorous curriculum; one would have thought that comfort was a crucial issue in preparing for the architectural profession, like justice in law, or health in medicine.”

Witold Rybczynski, HOME

This direction in architectural design speaks to goals far beyond the mediation or *correction* of the exterior environment. Oasis architecture achieves significantly more than SHELTER. The architectural design aspects of the Oasis include and extend adherence to program requirements and function. The goals of the Oasis demand that architecture be designed for the accommodation of the body as well as the soul, creating an architecture which is capable of refreshing both the physical and the spiritual...

The Experiential Report Card:

If experiential quality is a critical architectural goal, then, how may it be judged? In assessing the experiential performance of built space, what factors must be considered? Qualitative? Quantitative?

Comfort is the connecting thread between the idea of the Oasis, Design and the teaching of Building Technology and Environmental Control Systems. What constitutes comfort? Olgyay's annotated version of the psychrometric chart and comfort zone from the classic text "Design With Climate", provides students with a conceptual means to assess the manipulation of the thermal quality of space to achieve comfort. A deeper understanding of comfort extends to the detailed analysis of traditional climate appropriate building types for the four primary bio-climatic regions, as defined by Olgyay¹ and clarified by Fuller Moore in his text "Environmental Control Systems"². Traditional vernacular building types exploit thermal qualities/problems, solar/light characteristics and regional materials. Bio-climatic images and attitudes need to be included in the basic vocabulary of the student. The bio-climatic state of a building must be considered at the outset of a design project in recognition of appropriate regional aspects that must be accounted for during conceptual development of the design. Issues of thermal comfort and light determine the form and material nature of buildings.

"The dynamic natural process of sun and wind, light and shade, heat and cold, are the ever present forces that the architect must address in enclosing or defining space. An understanding of these forces is essential in interpreting and responding to place. In a world of increasing concern about global environmental problems, the architect's understanding of natural climatic forces is essential in order to design buildings that belong to a place, that minimize the reliance on fossil fuels, and respond to the rhythms of nature for the well being of man."

Steven Dent, Associate Dean, 'Portfolio', Third Annual Publication of the University of Mexico, School of Architecture and Planning. March 20,1991.

Accentuating Contrast and Transition

The Oasis highlights an architecture that is based upon contrast and transition. Mediation of the climate creates a contrariety between the interior (built) space and the exterior environment. The envelope that

contains the interior space, in the way it is architecturally pierced with openings, determines the nature of the transitional experience from exterior to interior.

The architectural notion of the Oasis that forms the basis for the Fourth Dimension of Architectural Design arises out of an analysis of the iconographic image of the desert oasis. The water and shade naturally provided by the desert oasis are symbols both of life and comfort. Their provision is in direct contrast with the harshness of the climate. They derive their sublime nature out of this dialectic. Much of the comfort and serenity of the Oasis result from contrived (architectural/built and natural/landscape) thermal and lighting situations which directly oppose the harshness of the climate: a cool breeze in scorching heat; shade rather than hot sun; dryness amidst humidity; warmth in a blizzard. The comfort of the Oasis strongly associates with sensual experience (thermal) and with visual characteristics (quality of light).

“The inherent value in the Oasis lies in awareness that thermal transitions are an essential element of our daily rituals. Special moments are recalled through associations with thermal and other sensual experiences- certain smells, breezes, sounds or tactile textures which define the uniqueness of a point in space/time, marking a transitional experience. In direct or subtle ways, we purposely seek relief and familiarity in the oasis. The value and richness of thermal variations in our day-to-day lives allows us to appreciate (and design for) meaningful experience of the built environment.”³

If physical discomfort can be characterized by spaces which are too hot, too cold, too humid or too dry, then bodily comfort is achievable by climate responsive thermal variation. If visual/psychological comfort arises out of darkness or glare, then proper manipulation of the solar aspects of building orientation can provide comfort and revitalization.

Teaching the Experiential: Designing the Oasis

As with any aspect of design teaching, the incorporation of the sensual and experiential into design methodology connects to both theory and praxis. There must be rich examples to emulate as well as project based work with which to experiment. The nature of the design work and exercises must ask students to develop built space in two, three and four dimensions. There are drawings, images/imaginings and models linked to materials, light and thermal experience.

“Imagine yourself on a winter afternoon with a pot of tea, a book, a reading light, and two or three pillows to lean back against. Now make yourself comfortable.....”

Christopher Alexander, author of A PATTERN LANGUAGE, as quoted in Rybczynski's HOME.

Although the pedagogy of the Oasis assumes an eventual assimilation into the general design process, it is initially necessary to highlight the idea as the main form/plan/material determinant in the Design Project. The “Oasis Project” was initially designed through the inspiration of the Society of Building Science Educators as a focused means to highlight thermal experience in architectural design. The project discussed within this paper is an evolution of the original Oasis project, whose intent has expanded to include issues of texture and light. It is intended that this project be given during the foundation year of the Architecture program.

The foundation level project is designed to highlight the intrinsic connection between climate and building. Although the University of Waterloo is situated in a cold climate⁴, it is recognized that graduates must understand climatic design implications of alternate regions. For this reason, the students also create Oases for hot-arid and hot-humid climates.⁵ Temperate climates have proved difficult to address within the scope of the Oasis because of their moderate nature, and so are not included. The project is goal oriented based on the idea of “contrast and transition”. The pieces tend to reflect a thought process and experiential research rather than result in finished architectural piece. The project is seen as a learning process. Since students will each design an Oasis for a specific climate zone, presentation is essential to provide an opportunity to discuss work and experience all climate situations. In this way the students examine the human experience of the environment; how comfort and variety of sensation can be controlled architecturally; how light varies by time of day, season and latitude; and define a detailed relationship of climate and site to building.

The students use sketches, writing, photographs and/or collage to describe their oasis in a specific climate region as assigned. The Oases are created out of real or imagined places using memories of tactile experiences. They are asked to address the following issues:

- How does the oasis differ from the general environment? What separates and defines the oasis from its surroundings?
- What architectural features influence perception and sensation of thermal conditions?
- What architectural features influence perception and sensation of light?
- What other sensory clues (sight, smell, taste and touch) provide information linked to corresponding thermal sensations? How are they experienced? How is heat/cool experienced?
- Think about ideas of daily and seasonal variation. To what extent do these reinforce the sense of oasis and how do architectural elements contribute to these ideas?
- What is the purpose of this place and who visits it when?
- What elements of contrast based seduction are designed to invite people to the oasis and insure their comfort?

- What is specific about the climatic region that is reflected in the oasis?
- What symbols or icons of thermal significance and light are encountered here and what is their place in creating an oasis?

The student is asked to set aside issues related to the visual descriptions of plans and facades and prioritize tactile sensations as they are facilitated by architectural components. How does the specific orientation, size and shape of a window modify the space? What does the sound or experience of water and wind do to your psychological experience of space? What does warm sunshine feel like on your body through a window on a frosty winter day?

The project is used to explore the tactile realms of architecture -- how do you (literally) *touch* the building and how does the building touch you. The experiential context of the architectural space designed primarily focuses on the attainment of sublime comfort through the contextual manipulation of the thermal environment, the use of natural light, and the visual connection between interior and exterior. Through this exercise we approach an appreciation for the way spaces/places are experienced and begin to understand how the architect is influenced and inspired by the notion of Oasis. A byproduct of this project is a broadened appreciation about architectural significance and an increased interest in design related to issues of thermal comfort and daylighting.

Outcomes:

Teaching of Oasis principles is essential to the beginning design curriculum and the sequencing of the subsequent curricular content. The Oasis project is followed in the subsequent term by a study of “Skin Piercing” which examines more closely transition through the envelope and the experiential impact of window/door openings. An appreciation for sublime comfort provides students for a critical viewpoint when assessing the success of a building design. The Oasis initiates a positive link between Design and Environmental Control Systems by illustrating applications of vital concept based climate and solar criteria. The architectural issue of “comfort” experienced in the Oasis prepares the student to integrate the more detailed technical aspects addressed in Environmental Control Systems courses. At the very least the pedagogy of the Oasis should help early design students to understand the need for thermal and visual comfort in buildings; to learn how to orient their buildings to take advantage of the sun; to provide control of the sun and design shading devices; to take advantage of natural ventilation practices; and, to recognize both the potential and limitations of the climatic region in question.

“The interaction between light and climate is multidimensional. It has to do with the spirit of the place, with thermal comfort, and also with culture, since climate affects people, their habitats, and their rituals. The character of light, its colors and rhythms, is one of the great contributors to genius loci. ... Light can convey a visual message that transforms the uncomfortable realities

of a particular climate condition. For example, the admission of even a small beam of sunlight into a building in a northern climate on a cold winter day can add a sense of vitality and sparkle to the interior. ... there are many buildings in northern climates that exclude sunlight, or conversely, admit it unrestrained so that it presents a visual burden due to its intensity and the glare conditions it creates as well as a thermal burden through the heat that accompanies it.”

Marietta S. Millett. LIGHT REVEALING ARCHITECTURE. p. 17

Notes:

¹ Olgyay, Victor. Design With Climate: A Bioclimatic Approach to Architectural Regionalism. New York: Van Nostrand Reinhold, 1963, 1992. p.17-23.

The text refers to the global classification of climate as Cold, Temperate, Hot-Arid and Hot-Humid.

² Moore, Fuller. Environmental Control Systems. New York: McGraw-Hill, Inc., 1993.

Moore's text, although strongly based on Olgyay, focuses on a clearer designation of the climate zones in the continental U.S. and annotates vernacular design solutions for the various climate types.

³ The Oasis Project Outline: The Society of Building Science Educators.

⁴ Admittedly much of our Technology Curriculum concentrates on cold climate design. It is essential, however, in introducing not only principles but detailed design information, to address global issues. Students read international journals which have great influence on their Design Studio work. They need to acquire the skills to critically assess the climate related suitability of building designs of other regions to their work. Graduate Architects seek internationally employment, for which they also need to be prepared.

⁵ The architecture of the Oasis thrives on contrast with the climate. Temperate climates pose difficulty in this regard as the evenness of the temperate climate is easily seen AS an Oasis rather than requiring one... Temperate situations that have worked were designed for the cool rainy season -- solved with a hearth-based space.