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Museums and Children: A Design Guide

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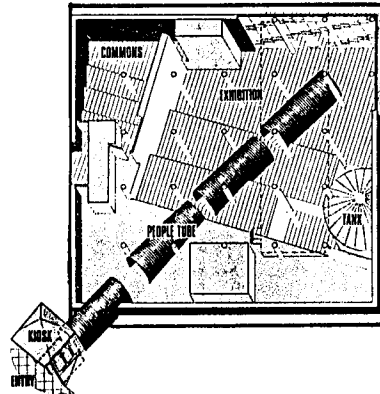
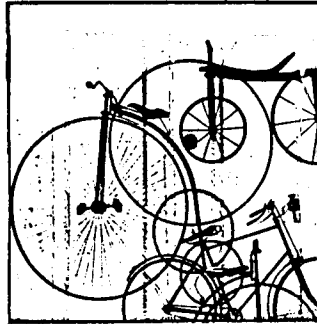
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MUSEUMS AND CHILDREN



A DESIGN GUIDE

URIEL COHEN AND RUTH MCMURTRY

**The School of
Architecture
& Urban
Planning** The
University of
Wisconsin
Milwaukee

MUSEUMS AND CHILDREN

A DESIGN GUIDE



URIEL COHEN AND RUTH McMURTRY

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Scotia, New York 12152

September 1985

MUSEUMS AND CHILDREN: A DESIGN GUIDE

Uriel Cohen and Ruth M. McMurtry

Abstract

The goals of this applied research project were to identify important issues and related design implications through the study of children's museums. Research methods included case studies, literature review and interviews with national experts. The analysis generated design principles generalizable to many museum types and related environments such as zoos, aquaria, and visitor's centers. This project was sponsored by the National Endowment for the Arts.

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MUSEUMS AND CHILDREN

A DESIGN GUIDE

SYNOPSIS

MUSEUMS AND CHILDREN is an applied research, translation and programming project conducted for the Design Arts Program, National Endowment for the Arts, Washington, D.C.

Context and Scope

Children's museums are a relatively new and popular phenomenon. Their spirit and programs of experiential opportunities for learning, coupled with magic and fascination are enjoyed by adults and adopted by other types of museums. Therefore, the ideas and principles of this book apply to hundreds of museums -- children's museums, specialized museums, and "ordinary" community museums.

The Problems:

The main problems encountered in pursuing this project were the lack of empirically-tested information on users of children's museums in relation to physical design, and the lack of design guidance and programs for settings which can serve as models for solutions.

Objectives:

The main objective of the project was to generate user-oriented and process-based design guidance applicable to a wide range of museum contexts.

Procedure:

The conceptual approach to the project was derived from an integrative model of research and design being developed by the project directors. The project team employed information collection, programming, and translation methods including: systematic reviews of museum research and design literatures, field observations, focused interviews with clients and users, review of similar building types, and experts' reviews.

The guide was structured to respond to major user and process issues. First, issues were explored, then information was analyzed, and relations between issues and design responses were established. Finally, key design principles were generated which synthesized all the information into generic -- and graphic -- design directives.

Significance:

This approach to applied research and translation is a further step in the continuing effort to bridge the information and communication gap between the behavioral sciences and architectural design. The main points of significance are:

- * Use and presentation of a wide range of information normally untapped by designers -- behavioral information, facility goals, and behaviorally-based design principles.
- * Program information which can be used at various levels and in various ways, approaching the problem either from the issue side, or the solution side.
- * A systematic and innovative format making the guide useful and accessible to designers, museum workers, administrators, community groups, researchers, and others crossing traditional disciplinary lines.
- * The use of evocative design principles and graphic communication to provide specific direction and information suggestive of a range of design solutions, thus stimulating the designer's imagination and intuition, while avoiding overly doctrinaire and absolute prescriptions that might inhibit design innovation.

Invisible, but Real

I can feel air.
Air takes up space around me.
I can push things with air.
I need air.
Air is inside me.
I can use air to make water disappear.
I get smells from air.
Some things that I drop can float in air.

Musement Park in the Wizard Wing
Concepts for four to seven year olds

The Musement Park Development Team, 10 September 1984
Jerry Johnson, Marion Metzow, Kate Tornehl, Lu Anne Thompson & Debra Haines

MUSEUMS AND CHILDREN
A Design Guide

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Finally our appreciation to the Center for Architecture and Urban Planning Research at the University of Wisconsin-Milwaukee and its director, Gary Moore, for helping with the Center's facilities, to the Office of the Dean, and particularly to Assistant Dean Mary Bates for her help and support, and to Janet Tibbetts and Steve McEnroe for responding to our odd requests at odd hours with patience.

Uriel Cohen and Ruth McMurtry
Milwaukee
September 1985

PART 1
INTRODUCTION



PROLOGUE

Museums and Children is a guide for all museums. It is not limited to places with "children" in the title, because the boundaries between children's museums, science centers, other museums catering to families, and the more traditional art, history, and natural history museums diminish.

More than guiding design for children, it is a guide for design that stimulates the child in all of us. The lessons learned from every museum type have much to offer to the others.

The spirit inherent in children's museums is an excellent catalyst for the design of all museums. Their goals, image, form, and organization are closer to the museum of the future than those of the conventional, traditional museums of the past.

Yet there is an accumulation of knowledge and wisdom that is imbedded in the design of many historical and recent high museums that can enhance the Children's Museum experience.

This guide is a selective synthesis of the best of all: lessons from old museums and new, a bridge between the natural child and the practicing adult.

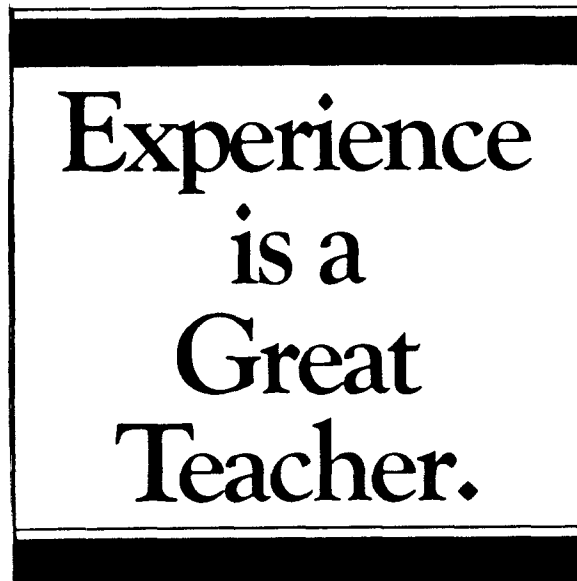
This book is intended to stimulate and inform those who conceive, program, plan and design museums of all types for all people. It is selective, not comprehensive, addressing some of the more important, or the more overlooked issues and concepts. It presents an abundance of examples so that the readers can learn, compare and select concepts which are appropriate for their own situation.

THE CONTEXT

Children's and youth-oriented museums are an emerging and growing trend. While their diversity defies a "standard" description, some of the prevailing spirit and features common to all are described in the following pages.

The spirit, mood, and activities of new and contemporary museums have a lot in common with children's museums.

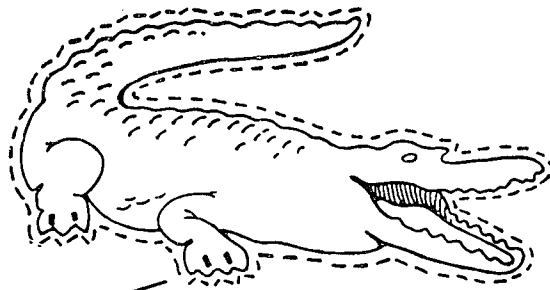
This shared territory is the context of this study.



A bold manifesto on a brochure for the Colorado Science Center.

Over leaf:

A composite of descriptions, goal statements and manifestos of selected children's museums.



Color, cut out and wear on your shirt. (Two alligators are better than one.)



Ontario Science Centre Toronto, Canada

We started with the idea that science and technology should be fun, so we devised exhibits and demonstrations to involve you in your world and yourself. We've designed games that test your perception... your memory... your agility and responses... and to show you how we can trick your eye and fool your inner ear. We want you to ask questions, that's why our young hosts are there to help you if you're puzzled about anything or lost. Watch for their white coats. They're very friendly and very knowledgeable. Try them. At the Science Centre you'll find an opportunity to do everything... to simulate a moon-landing, to try using mechanical hands, to ride a gyro platform... come once and you'll come back again and again.

CAPITAL CHILDREN'S MUSEUM

CCM is an exciting experience for all ages. Large scale props stretch your senses and challenge your mind. Three major areas—International Hall, Changing Environments and Communication—combine arts, sciences, humanities, and new technologies.

Paint with a computer... bake a tortilla... launch a satellite... crawl through a manhole... print your own poster... ride a police motor cycle... read an electronic newspaper. ENJOY! You can fill an entire day, but even an hour's visit is worthwhile.

CCM "is a world of magic... as captivating to adults as to children." (New York Times, April, 1981). Each year a quarter million visitors of all ages touch, taste, test, try on and talk to our exhibits.

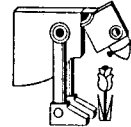
The Staten Island Children's Museum

is:

- an incredible journey through a 60' long boy to learn about the world's most amazing machine—the human body,
- a maze of colorful surprises about art and vision,
- an excursion through four centuries of history from an American Indian village to a turn-of-the-century arcade.

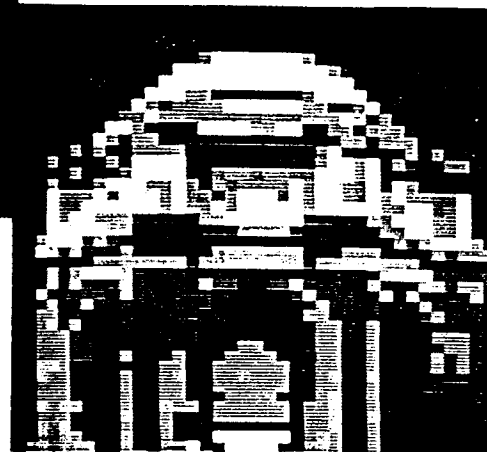
The High Museum of Art proudly presents SENSATION, a multi-sensory participatory exhibition. A music, art and state-of-the-art environment, SENSATION demonstrates our experience of the world around us through the five senses: how they work, how different experiences affect our perceptions today and in other cultures, how the arts enlarge our senses, and how technology acts as the senses' extension.

SENSATION is a unique and unprecedented fun-learning experience for people of all ages. Co-sponsored by Rich's and Izod, with The High Museum Members Guild, Heery & Heery Architects & Engineers, Inc., and many others. "Come to your senses. See, hear, touch, taste and smell the world around you. You are the sensation."



The Brooklyn Children's Museum collects, maintains, and makes accessible to children objects of lasting value and interest which reflect man's material culture and his natural world. Utilizing its collections primarily for teaching purposes, the Museum advocates a learning process predicated upon a high degree of visitor involvement with museum objects and resource persons.

Founded in 1899, The Brooklyn Children's Museum is the world's first children's museum. It has served as a model for other children's museums and has continued to initiate, explore and develop new ways in which to serve children.



"The Exploratorium was conceived to communicate a conviction that nature and people can be both understandable and full of newly discovered magic. It therefore provides experiential opportunities for learning that are difficult, if not impossible to achieve through school classrooms, books or television programs. The Exploratorium is not a substitute for other vehicles for learning, but it provides a fascination with learning that cannot be found elsewhere and which facilitates traditional teaching at all levels."

CHILDREN'S MUSEUMS

"MY KIDS LOVE IT," HE SAID, "BUT I DON'T KNOW WHAT THE EXPERTS THINK ABOUT IT." (Hall, 1984. p. 76)

Educators, child psychologists and environmental psychologists have promoted hand-eye manipulation, multiple gross-motor and fine-motor muscle movement, and multiple sensorial experiences in the exploration of the environment as enriching experiences for the physical and mental development of the young child.

Museums are natural places for child development because of the value of objects over writing and especially over words for children is their multi-dimensional, multisensory attributes. The communication inherent in the objects is thicker, often quicker, and individually interpreted, rather than abstracted and distilled through words by someone else. (Wittlin, 1970)

"Long before manipulative activities and the process of discovery were acclaimed by psychologists as motivations to learning . . . junior museums kept children in rapt attention while handling rocks, calling forth rhythms from African drums, and conducting simple experiments with magnets or inoffensive chemicals." (Wittlin, 1970, p. 235)

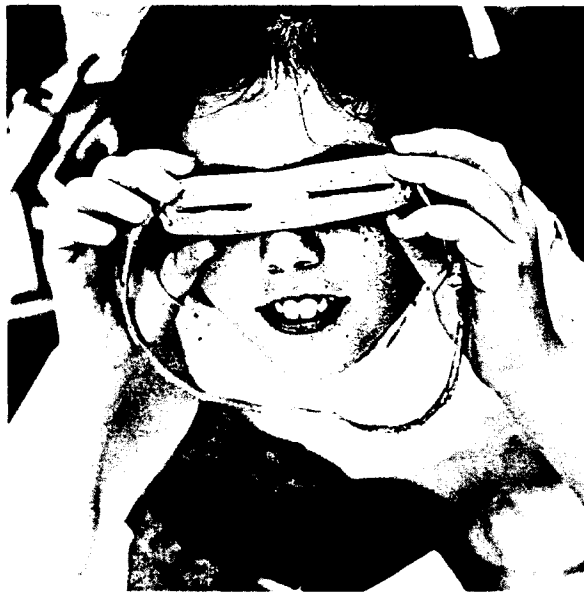
A common goal of children's museums is education through delightful play and hands-on experience. The preschool museum stresses the stimulation of the mental, physical, and social development of children through mediums that establish conceptual frameworks for more traditional learning later. Music, art, dance, role playing, and just playing in special environments and with special exhibits are employed to communicate, stimulate, and educate.

"Children are probably the best experts. They are smart enough and uninhibited enough to realize just how glorious science can be when you can leave fingerprints all over its lessons." (Hall, 1984, p. 76)

The notion of participatory exhibits in museums is based on the philosophy which stresses individualized and experiential learning. Its premises are that people learn what interests them, at their own pace, while using their own preferred learning style: some learn by reading, others learn by visual experience, and others yet learn through manipulative contact with objects and activity (Gurian and Kamien, n.d.).

People's natural curiosity makes them want to touch and interact with things. Handling objects is known as a developmentally important part of children's learning. It adds also to adults' positive experience of events and objects. Limiting this part of human experience in the museum is to limit the museum experience.

There are situations and objects that can't be understood without 'hands on' experience. One wonderful example is described by Gurian and Kamien:



"The best loved example...from our museum is the hand's on display of Eskimo snow goggles. It is difficult to understand how these wooden goggles can cut down the glare of the snow without trying them on; therefore, snow goggles are to look through not look at." (Gurian and Kamien, n.d., p. 3)

The value of social contact for preschool children who are in an intensely developing stage cannot be overstated. Often the children are isolated in homes with only a younger sibling for interaction. Even for children in nursery schools, the expanded range of stimulating activity and objects with which to play and share provide opportunities to practice social skills as well. The quality and amount of these experiences in the early years affect dramatically the physical and mental development of children. (Downs and Stea, 1977)

POTENTIALS AND CRITICISM OF CHILDREN'S MUSEUMS

The museums provide very young children with basic information about themselves and the social and physical work around them. As they grow, it allows them to experience the integration of science, technology, the humanities and the arts.

Although the main goal of children's museums is the physical and mental development of children through hands-on experience and interactive activities, the opportunity for learning and development is not limited to the children. Most encourage or actively promote the involvement of parents. The interaction of children, staff, docents, and students of child behavior is an opportunity for personal growth, to accomplish research, and explore the qualities of alternative communication and education. The children's museum is a user-friendly lab for everyone.

As we become less capable of accumulating and interpreting all the information that is increasingly necessary to survive, the techniques of the children's museum and science and technology centers can offer an alternative to the overly directive, interpreted and digested information that is processed through the more traditional sources -- television, newspapers, etc.

A criticism of the new interactive, informal spaces is their informal image. The popularity of the deserk, fleamarket facilities are in the freedom they allow. Children will play anywhere.

However, from the outside looking in, for the adult used to the traditional museum, the children's museum is anarchy -- a place crammed full of stuff and odd places within places where people are free to explore, touch, manipulate, and wear out the exhibits.

Do children learn anything at the museum or are they just having fun?

The qualitative measurements are not in. The wear and tear on the exhibits is high. A full-program museum must maintain a minimum, qualitative developmental threshold to maintain credibility within the museum field and with those professionals and the sectors of the public that provide support.

Image and standards are important because the need to become self-supporting, to be popular, to have a large headcount can lead to losing sight of the primary goals.

Quality can be further compromised by a dependence upon large school groups and especially the dependence upon the support of a school system's funding. The autonomy and the uniqueness of the museum experience can be lost, the creativity and flexibility stifled by the constraints imposed when dealing with school systems.

This does not mean that every children's museum must be a full-fledged museum, covering every aspect of life to its fullest. One theme, one narrow subject can integrate gross motor skills, hand-eye coordination, historical and social significance, science, technology, economics and humane themes, artistic display and artistic human expression. The simple theme may well do better.

THE NEW MUSEUM

Through a desire to be more relevant, to communicate more effectively, through questioning their value to the public in education and general enrichment, and to ensure their own survival, the "new museum" has developed a more democratic, open, multiple-service spirit. The visitor is as important as the objects housed.

Education: As our lives have become more complex, segmented, and specialized, as our known world has expanded, objects and events in the museum setting are a special form of learning and communication, for they connect aspirations, technology, aesthetics, trade and economics, environments, and processes, developments, histories. They are tangible symbols of complex relationships and abstractions.

"Adult education is the fastest-growing type of education today, and education is the most common adult discretionary time activity outside of the home." (Bloom, 1984. P. 25)

The unique learning experiences offered in an experiential context are valuable for people of all ages. The nonverbal way of communicating is a barrier-free approach to education. People can choose what they want and advance at their own pace without fear of failure. Culture, educational level, age, and language to not limit the learner as they do in the traditional learning environment. The broader-based children's museums, science and technology centers, history and natural history museums use the hands-on approach to learning as a part of their exhibit design. Besides:

"In a museum sense, there are some differences between children and adults. There are many more similarities. We have confused the differences and failed to note the similarities . . . I am invariably asked whether children

get something special from the tactile experiences provided in many children's museums. And who doesn't? Could you possibly believe that I want only to look at a piece of pumice?" (Pulliam as cited in Pitman-Gelles, 1981)

In support of the hands-on educational philosophy, other functions and services have been expanded, added, and redefined. Together, they have transformed the ritual of the museum visit and its image.

Historically, art museums have been the preservers of the high culture. The new ones are more transparent and friendlier. They provide educational programs and areas geared to children and special exhibits that are less pedantic and more fun.

The new programs are changing the shape and configuration of the museums. Entries and adjacencies, circulation paths and galleries have all undergone a reassessment as to their functions.

The restaurants, secluded courtyards, and events set within the shelter of the museum ambience take on a special quality.

Increasingly, the local and regional museum has become a symbol of civic pride, providing a sense of place and belonging. They are places to take the out-of-town visitor, a gathering place to celebrate a community event.

The East Wing of the National Gallery of Art is a mini-university. The Dallas Museum of Art and The Atlanta High Art museum are more than civic icons; a visit is designed to be a delightful event. In a search for service and relevancy, the Portland Museum of Art, Oakland Museum, and the Miami-Dade County Cultural Center provide retreats and settings for public events. Each of these places represents some of the "new-museum" spirit.

THE PROBLEM

Although there is abundance of studies about visitor behavior, lighting methods, exhibition techniques and the like (Screven, 1979), the most common complaint by all professionals involved in museums and design is that there is not enough information which is usable for application (Smith, 1969).

The core of the problem is the lack of tradition -- in the design disciplines -- of planning and design guidance which is based on a systematic and critical analysis.

The lack of analysis applies both to the examination of basic issues in the museum environment, which require physical solutions, and to potential and actual design responses.

Part of the problem can also be explained by the newness of the phenomena -- children's museums, the new museum, and their emerging trends.

The development of the theoretical and conceptual base for planning and design of children's museums is still in its infancy. In our survey of two hundred children's museums, most respondents did not recognize the potential of the physical environment to act as a primary force in their program. The typical perception of the building is of a mere shelter, an envelope to protect a series of displays and contain the utilitarian services necessary for the functioning of the museum.

The contents of design and museum literature is an indication of the state-of-the-art: most of the professional publications, books and articles in journals such as Museum News address the topic of exhibitions and their design at the micro-level. Some publications (e.g. Brawne, 1965; Brawne, 1982; selected articles in Museum News) address technical aspects of the museum's architecture, e.g. circulation, adaptive re-use, lighting, security, and only a few abstract issues such as image and relations to the surrounding community. There is only one significant book and few articles about children and museums (Pitman-Gelles, 1981) and even these deal mainly with activity programs, design of exhibits, and related issues.

CHALLENGES IN DESIGN: THE ROLE OF THE PHYSICAL ENVIRONMENT IN THE MUSEUM EXPERIENCE

A comprehensive design solution can express an attitude and a philosophy about the way the museum should be experienced. It is within the power of a designer to create a symbolic as well as concrete and tangible statement that is central to the life and activities of the museum.

The primary challenge before the designer is to relate the building to the goals of the museum, its activities, and its contents. The place can and should be more than a neutral box, more than just an envelope for a set of displays. For after all, the quality of the museum experience is of primary concern.

This experience begins long before the front door, on the way to the museum. Some of the major factors that will determine the quality of this experience included:

- * The location and accessibility of the building
- * The form of the building and image it conveys
- * The organization of paths and circulation
- * The distribution of functions and their mutual connections
- * The relationship of indoor spaces to near and distant outdoor spaces

Consideration of these and similar factors must lead towards purposeful and qualitative directions. The designer must take a conceptual standpoint, and through the design process ask -- and answer -- questions such as the following:

Do the building's envelope and its interiors express the museum's purpose?:

Does the structure demonstrate or enhance what is being displayed and experienced?

Does the distribution of functions and their clusters contribute to a better understanding of the building and its internal logic?

Do circulation patterns create quality spaces for retreat, spontaneous meetings, variety and change?

The design principles and concepts that are developed in this book address these issues and they offer a wide range of options. Adopting the appropriate principles for a conceptual framework, a parti for a quality solution, remains the challenge of the designer.

OBJECTIVE AND RESEARCH PROCEDURE

OBJECTIVE

The objective of this book was shaped by the problems identified earlier -- the gaps in applied research, the lack of design guidance, and the need for evocative concepts and fresh approaches for the planning of children's -- and other -- museums.

Therefore the objective was to develop a selective planning and design guide for museums. The design guidance consists of user-oriented and process-relevant design principles. These principles are based upon research findings, and cumulative field experience.

RESEARCH PROCEDURE

The research process included seven basic steps:

1. Field Research and General Survey:

At an early phase of the project selected museums were visited. The field work employed techniques of post-occupancy evaluation (Reizenstein and Zimring, 1980). A sample of selected museums was identified from a national survey of children's museums conducted by the author in 1982. General museums were visited as well. Observations, interviews and other data gathering activities were conducted on each site.

2. Identification of Behaviorally-Based and Process-Based Design-Relevant Issues:

Sources included the research literature, field observations and on-site interviews, previous research experience of the principals, and consultants. Examples for issues were "way-finding in complex environments," or "image enhancement to increase visibility and accessibility."

3. Consolidation of the List of Issues into Three Significant Topics -- Image, Path, Display and Activities:

This process was accomplished through several iterations of natural clustering collapsing a long list into the most central superordinate topics.

Each topic covers a range of issues most relevant to this topic, e.g. "way finding" is analyzed in PATH.

The discussion is directional and makes the connection between the problem, e.g. "way finding," and a design principle which might reduce or solve this problem, e.g. circulation which overlooks.

4. Analysis of the Literature and Other Data: Information was Assembled for Each Issue and Subordinate Issues. A review of the literature included publications from the disciplines of design, museums, and related fields. Visitor surveys, behavioral studies, experimental research and evaluation studies regarding museum use and museum visitors were reviewed.

We did not attempt to be comprehensive and to cover every aspect of museum design. Rather we concentrated on selected issues which were identified in phase one as more significant.

The design literature and case studies were culled for examples of particular situations which represented alternative solutions for identified issues.

5. Generation of Design Principles:

Research findings and other conclusive information were used as the starting point in proposing general solutions -- design principles -- to the various issues. Some principles could be deduced directly from existing empirical research while other principles had to be arrived at inductively (working hypotheses) using selected examples of existing solutions to respond to the stated issues.

This process is further described in Cohen, McGinty and Moore (1978) and Cohen, Moore and McGinty (1979). (See Also: Design Principles--An Approach for Programming and Design).

6. Development of the Text, Approaches for Design, and Selected Examples for Each Design Principle.

The output from this process is a set of 15 design principles with supporting evidence, examples, and introductory materials.

7. Testing the Tentative Design Principles on a Real Design-Case-Study to Gain Further Insight and Receive Critical Feedback.

The Cleveland Children's Museum was used as a testing ground for most design principles. The facility which was in the process of programming and initial design development was consulted by the project's staff, and in return the museum director and architects provided a valuable feedback.

PART 2
HOW TO USE THE BOOK



THE USE OF THE BOOK

This book can be used in several ways by different users: design professionals can construct a building program and a resultant solution which are based upon, or enhanced by design principles. For example, "circulation which overlooks" can be the schematic and physical form-giver for a particular design solution.

The example case studies in the discussion about "circulation which overlooks" can be used as an inspiration for generation of concrete design alternatives, from which a selected solution or a composite scheme might emerge.

The examples for each principle were selected because they represented one or several aspects of the relevant topic in a special--or sometimes ordinary but skillful--way.

The examples are several in number, because it is clear that there is more than one right way to go about any given problem. The diversity of the examples represent also the spirit of children's museums which are abstractly and often literally topsy turvy.

The choice of examples, on the other hand, is not meant to imply that the illustrated situation is perfect and the recommended approach. Therefore, each case study from which the illustrated example was drawn is not necessarily flawless.

Museum planning committees can review the issues and decide which ones are high on their list, thus establishing an outline for a program with a hierarchy of priorities.

Museum curators and directors can review both issues and principles/approaches/ examples for design ideas while thinking about changes, renovations or even routine display changes.

Last but not least: in addition to programming and design, the book and its principles can be used for evaluation. Does the building evaluated have the qualities and characteristics which enhance performance and contribute to a better museum-experience?

The various topics in the book can be used as a checklist and qualitative criteria for examining case studies.

A key to an effective use of the book is a familiarity with the concept of Design Principles.

DESIGN PRINCIPLES: AN APPROACH TO PROGRAMMING AND DESIGN

An important part of any program for a building design is the articulation of the basic goals or issues to which the designed environment should respond. These issues should be generated from the global purposes of the museum or facility. For example, the mental and physical development of children can be a primary goal that is then further developed/expanded and then refined and defined to specific goals. The "mental and physical development of children" can be partially met by "learning through participatory experience," and further defined by the specific example of "manipulating selected variables."

A closely related process for organizing the programming for design is to identify the important, user-relevant issues and problems like museum fatigue or wayfinding, and to define its sources and overt manifestations.

Goals and issues form a strong basis for design principles. For example, given the issue of wayfinding, it is clear from the research literature that a coherent path can facilitate easier visitor's wayfinding. Two design principles that emerge from this issue are "understandable structure" and "circulation which overlooks."

Design principles suggest critical environmental factors, qualities and characteristics of those settings which will facilitate the goals or resolve the issues. For example, the main quality of "circulation which overlooks" is clear from its title: The visitor's commanding view on all or most paths from the initial point of entry or central location.

Design principles are intended to be abstract, general, evocative and suggestive of a range of design options.

A good design principle should evoke a number of equally good design alternatives, not just one solution.

Although architects use design concepts like "symmetry" or "central spine" as organizing tools, usually they are form-based, not issue or user-relevant. Seldom have they been evaluated, or questioned seriously. The design principles advanced in this book are much like that of Alexander's patterns (Alexander, Ishikawa, and Silverstein, 1977). They are based on behavioral issues that are derived from research of problems in the built environment and the myriad opportunities for enhancing people's lives. Some of these are from research literature on basic behavioral issues, others are from literature on children's environments and child development, and others yet are museum issues. The principles are several in number and testable. Whereas Alexander's patterns are often criticized as being too concrete, specific and dogmatic, the intention here is to communicate information which may provide a direction and a range of design options. The goal is to inform the reader, designer, to stimulate the imagination and intuition, while avoiding doctrinaire solutions which might inhibit design innovation.

The use of design principles listed in this book is meant to be selective and flexible. It is clear that several design principles, e.g. "distribution of services," are appropriate for some museums, particularly large ones, but not for others.

While some design principles are truly universal, a few principles might be conflicting with other, equally sensible principles. So which ones are really the proper principles to be used?

There is no simple answer to this question. Most are useful in any given situation, but like helpful tools in a tool box, not all are necessary or appropriate in each problem situation.

Design principles are indeed tools to aid in the design process, and guide the formation of the design environment. Therefore they should be used selectively, with care and flexibility.

KEY FEATURES OF THE DESIGN PRINCIPLES

The format for each design principle allows use by a variety of users--designers, museum workers, museum administrators, community groups, educators, parents, researchers and students of the above disciplines.

The principles are stated independently of each other so that programmers and clients can specify which principles are appropriate for their particular situation. This also allows the designer to develop a selective set of design principles.

As developed specifically for this project, each design principles has seven parts:

TITLE:

An evocative name that is memorable. It is stated in general terms, usually specifying some quality the environment should have.

DEFINITION:

An expanded description of the title.

ISSUES:

A statement of the problem(s) to be solved and the context for the principle.

QUALITIES AND CHARACTERISTICS:

A succinct statement of the basic qualities and characteristics the environment should have in order to solve the identified problem(s). The terms used are evocative and open-ended, but directional.

APPROACHES FOR DESIGN:

Basic approaches and design strategies to solve the identified problem. The approaches are generic and several in number.

A PREVIEW

A PREVIEW GIVES THE VISITOR OR VIEWER AN IDEA, CONCEPT OR IMAGE OF WHAT IS AHEAD, BEFORE ACTUALLY ENTERING A PLACE, A BUILDING.

THE ISSUES:
Humans, adults and children alike, strive for predictability in their environments by constantly interpreting what is around them and what lies ahead. A good preview of an activity can provide them with a taste of what the museum is all about, a sense of what is inside.

Fortunately, museums have the compatible need to advertise, announce, and invite. Although children's museums may be tenants in buildings designed for other purposes and others may be housed in neutral boxes, all need to project an image, set a mood, convey a spirit. This need can be satisfied by a good preview.

QUALITIES AND CHARACTERISTICS OF A PREVIEW:
A preview can provide clues or tangible evidence for the qualities and content of the place. A good preview can do one, all, or some of the following:

- introduce and inform about the inside;
- suggest the uniqueness of the place;
- invite, entice and attract, perhaps tease;
- set the visitor's mood;
- advertise and "push" a desired image, spirit, character;
- be humorous, playful, abstract or literal, non-threatening, descriptive, aesthetically pleasing, outrageous, elegant;

APPROACHES FOR DESIGN:

1. A SIGN
A simple sign provides an introduction; it communicates the name of the facility. If the name is also descriptive and evocative, e.g., "The Exploratorium," the word association can trigger the viewer's imagination.

3. HUMAN ACTIVITY POCKET.
The most powerful preview includes people--whether at work, play, or rest. Creating an activity pocket outside, where activity of the museum spills over into the street to get the attention of those passing by is an effective strategy.

Is it open? The presence of human activity can signal from a distance providing a non-verbal clue to the status of the museum.

There are many strategies for design of situations which become the catalyst for human activity that attracts others--the street corner store that attracts a crowd.

One example is the placement of a restaurant or museum store outside the museum proper. The advantages of externalizing them include their role as a symbolic sign as well as placing an active area upfront. Hot dog stands and street corner vendors are versions of a temporary activity that announce happenings. The Museum of Art in Santa Fe is aided in capturing attention away from the other attractions on the main square by the lemonade and hot dog stand on its corner.

EXAMPLES:

Selected case studies which illustrate the more important features of the approaches and characteristics above. The example are several in number and uniquely different from each other.

EXAMPLES:

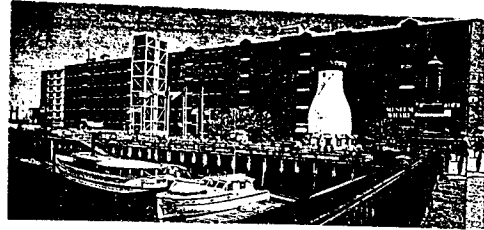
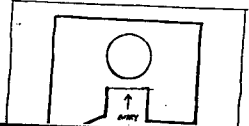
Museum of Modern Art, New York
Edward Durrell Stone & Philip Goodwin

A "Storefront" allows people on the street to view the inside; they can see a glimpse of the main or current "show." If they miss the sign, they can "know" the function of the interior or a whole building by what they view. This preview allows the museum to work after hours, capturing the attention of those passing by, and enlivening the streetscape.



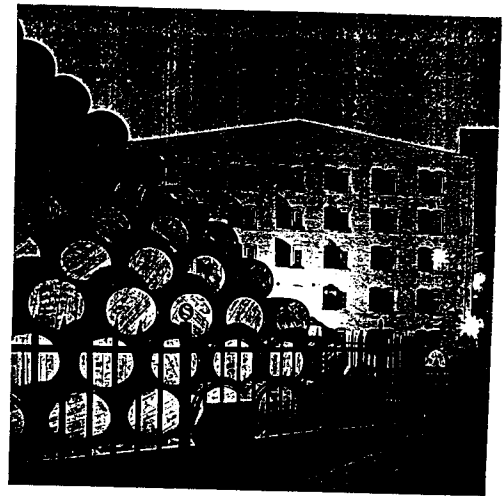
The New England Aquarium, Boston
Cambridge Seven Associates, 1965

Adjacent to the entry, a pool with seals basking in the sun provides a small show that attracts spectators in the public plaza, while at the same time introducing the thematic content of the aquarium and setting the mood for the interior.



The Boston Children's Museum,
Dyer/Brown and Associates, 1979

This landmark milk bottle is an indirect reference to the mood of the museum: old and collectible; a place for kids of all ages; a place for the unexpected. An everyday object...



The Seagram Museum Waterloo, Ontario
Barton Myers Associates, Architects
1983-84

The stack of barrels at the Seagram's arrival court serves as a massive, but elegant sign and a concrete tie to the main theme of the distillery museum.

RELATED PRINCIPLES:

Other design principles which relate either to this principle's issue(s) or overlap its solution(s).

RELATED PRINCIPLES:

- FOCAL POINT
- LANDMARK
- URBAN RESPONSE

PART 3
THE ISSUES



INTRODUCTION

This section includes discussion about three significant topics: image, path, display and activities.

Each of the topics represents an umbrella for a natural cluster of issues and needs in the museum environment.

The discussion of issues is the proper starting point for the programming and design process, because the issues explain and provide the rationale for the design solutions.

In addition to the description of the basic problems, each discussion refers to the relevant design principles. The organization of the book allows the reader to move from issues to design principles, and vice versa.

IMAGE

The image the museum portrays to the world is a composite of the tangible, visible, and the symbolic as interpreted by people who visit, pass by and hear about it. Although the goals of a museum are a combination of activities and display -- the program, the collection and exhibits, the overall museum experience is supported and represented by the image of a designed environment.

A clear understanding of the issues related to the internal and external image of the museum is necessary to translate its goals and program into a building form. The design and planning of the building and its environs can determine the dominant image.

Several important issues are involved in image-related decisions -- the museum's philosophy and attitude about the mood and nature of the "museum experience"; a need to attract usage; the museum's responsibility and accountability to the near and larger community; and the always present constraints of limited resources and budget.

Internal Image: The goals of the new museums and children's museums are to communicate and educate in a setting that is delightful, supportive and memorable. Environmental research in child and adult behavior has shown that all of us are drawn toward the complex and delight in the ambiguous -- to a point, for the brain seeks stimulation (Abbey, 1968). Providing enough complexity without overcrowding and overwhelming, and enough freedom for uninhibited play without trivializing the message are concerns for the broader issue of validity in the public eye (Parr, 1983; Parr, 1978).

Traditionally, museums focused on collecting, storing and displaying objects. Their ambience reflected this priority. Since the focus of the new museum is on education and communication through the use of objects, the nature and mood of the environment has changed. What was once a seriously organized environment for the protection of a collection has evolved into a delightful, memorable

spatial experience and a supportive learning environment. Yet, the old museums did a lot of things right. They were romantic, with mysterious hallways and ways to get lost without really getting lost or scared. For many children, it was the first time they were alone. They could discover their own thoughts and new ideas in their own time.

The old romantic museum did not mimic life. It provided glimpses of things not known or seen. It opened up new worlds. The dusty and dark, out-of-the-way galleries aided the imagination. It had smells.

External Image: Museums exist primarily to serve the public. This consists of providing programs and information for public use and preserving cultural artifacts and elements of the natural world. The particular mix or educational programming and preservation depends upon the focus of the individual museum; however, the internal and external evaluation of a museum's effectiveness in meeting its specific goals translates into a concern for the numbers -- "the headcount," volunteers, funding.

Museums need to attract and maintain a large constituency. No matter how small, well-funded, elite, its popularity is an index of success and a key to generate funding from the users directly as well as indirectly through government grants and private endowments (Hudson, 1975; Searing, 1982).

Parr is a staunch supporter of "enriching the urban milieu" and museum programs for more than the serious scholar; yet he warns against losing the public's esteem and support in the long run by focusing on "the numbers at the doors" and public relations at the expense of "the authoritative evaluation of truths, probabilities and significance" (Parr, 1978). In seeking a balance, the choice of site and careful design of the museum building and ground can set a mood, express intent and commitment to the public and to the pursuit of knowledge.

Setting the Mood from Afar: Although attracting visitors and receiving community and private support depends ultimately upon the quality and nature of the museum program, having a legitimate, appropriate image increases its visibility, attractiveness, and "presence" in the community and beyond.

Economic Constraints: Even if money were no object, the precedents established by The Exploratorium, The Boston Children's Museum and other museums that have their beginnings in the retrofitted, recycled, adaptive reuse buildings echo the underlying philosophies of environmental and community relevance and awareness. Constraints can be opportunities; translating the serious intent yet playful atmosphere of the adaptive-reuse beginning home into a new building reverses the usual design experience. Incongruities and limited square footage are easier to manage in the old.

Positive Self-Image: Attracting volunteers is as important as attracting funding. In the more interactive museums, docents are the backbone of the program. Indirectly, an appealing, attractive, and unique physical image attracts volunteers and influences the morale of the staff.

THE RIGHT LOCATION suggests a variety of solutions for high visibility, accessibility, and a compatible context -- even if the actual context is seemingly incongruent.

A LANDMARK deals with high visibility and symbolic prominence. Its approach offers alternatives to relying on the right location or a special building.

Ruder (1984) argues that exposing the inner workings of the museum to the public establishes a more intimate relationship between visitors and the body of the museum. The rate of volunteers and contributions from the public at large increases with the amount of intimacy.

The Exploratorium in San Francisco is based upon the fundamental belief that science and technology should be demystified through displays and activities that are simple and honest. In addition to the interactive displays made of basic and rough materials, the making of them happens on the public's floor. This reinforces the message that the visitor can do it too.

VISIBLE BACKSTAGE explores the ramifications of placing the curatorial staff on stage as well as the more passive forms of exposing the inner workings to the public.

Setting the Mood Near at Hand: All museums have the need to advertise, announce and invite. The image after hours, views for the uncommitted passersby, special hints for special groups are passive yet effective forms of communication.

Often, children's museums are tenants in buildings designed for other purposes. Many others occupy buildings that are neutral boxes. All need to project a particular image, set a mood, and convey their own unique spirit. If the museum does not appear from the outside as a place for children, the uncommitted passersby will not venture in when dragging children in tow.

A PREVIEW addresses anticipation, the role of introducing, stimulating anticipation, and advertising the character of the museum through previews for return visitors as well as the uncommitted passersby.

Civic Role -- Not Another Roadside Attraction" The first museums were private castles and palaces; they housed treasures. As museums have become more public, they have become valuable anchors in neighborhoods, communities, and regions. Their democratization has evolved into a rich assortment of images and programs in response to their context. Serving the public has proven valuable for the museum as well. It brings people to the door and presents an intangible positive image.

The Portland Art Museum responds to its physical context and completes an urban space. The Oakland Museum makes urban space; the Stuttgart Museum enriches a pedestrian path.

In a reversal, the location of the museum can make accessible parts of the urban milieu and the natural environment that would otherwise be remote. Parr (1969) stresses the value of the environment for stimulating the mental development and enriching the well-being of children and adults. As a part of image, the setting becomes a theme for the museum.

PREVIEW discusses the double function of events and objects for the museum preview that also enriches the urban milieu.

OUTDOOR EXTENSION explores the many approaches that apply to civic role and the opportunity to use the larger context as a part of display.

Making a Difference: At the larger scale, no matter how specialized and private a museum may be, all have a certain level of public and civic responsibility. As our society becomes more complex and pluralistic, the museum setting offers an opportunity to learn from and celebrate the differences (Bloom,).

The Children's Museums and science and technology centers are at the opposite end of the continuum from the traditional treasure house. Trying on another culture through role playing and playing with people from other neighborhoods is an added dimension of the civic role that has been integrated into the children's museum program.

The Capitol Children's museum in Washington, D.C. has an international hall providing an extensive Mexican setting. The Kohl's Education Center in Wilmette, Illinois, uses the setting of Jerusalem for role play with a rich cultural mix.

The new museums can provide a more formal setting for interaction. They can provide a locus for activities -- community and neighborhood meetings along with the performing arts. They can be a catalyst for neighborhood development, new friendships, and a sense of fellowship (Parr, 1978). The Atlanta High museum is a recent example for a place which doubles as a symbol of community pride and as an event of community.

THE RIGHT LOCATION expands on the opportunities for community enrichment through the choice of the site.

LANDMARK discusses the phenomenon of neighborhood and community pride.

PATH

Paths do more than direct the flow of visitors through a museum. "A" path and "the" path can be an exhibit. The manifesto of children's museums demands that the path be delightful and mysterious with unexpected views near and far, high and low. In the new museum they are an integral part of the total experience. The rationale is that a relevant and delightful experience solves the problems of museum fatigue and communication.

The main issues of path and circulation are people-related -- headcount, wayfinding, orientation, information overload and object satiation (Borhegyi and Hanson, 1964; Downs and Stea, 1977; Elliott and Loomis, 1975) and the design-related -- never enough square footage (Curtis, 1983) and never enough money (Danilou, 1976). Decisions about the central path set the mood and determine the major museum experience. Its overall design can solve most wayfinding and orientation problems. Its articulation provides rich experiences without a major investment in ornament. The amount of space designated for circulation competes with the always too little room for exhibits, staff, and storage, on one hand, but can double functions with activity space and contribute to it, on the other hand.

"Museums, forget it! My feet always hurt and my back aches." Too much of a good thing.

Discovery and exploration changes to physical fatigue and information overload if one has to depend upon signs, consult maps, travel through areas that are not of interest. On the other hand, simplistic, monotonous paths may seem deadly in a shorter period of time.

Headcount: Museum fatigue is detrimental to the image of museums (Brawne, 1982). Increasingly, museums depend upon public support and return visits for their revenue and for their survival. Visitors that get lost, overextend their stay, lose track of distance and time, or become frustrated and insecure because they can't find their way easily are less likely to return.

Traditionally, the issues clustering around the subject of the path have dealt with the problems of wayfinding, orientation and places to rest along the way.

RETREAT AND OUTDOOR EXTENSION discuss the value of pacing and variety.

PREVIEWING and UNDERSTANDABLE STRUCTURE deal with the issue of coherence and orientation from the outside to the inside.

CLEAR CIRCULATION WHICH OVERLOOKS concentrates on those physical solutions that provide navigable and predictable paths.

POOLS OF LIGHT and FOCAL POINT deal with the problems of orientation differently. They incorporate pacing, variety and change to counter monotony.

Navigating in the Three Dimensions: The study of circulation and routes has dominated visitor behavior in museum research. Literature on turning right and visitor paths in galleries abound (Screven, 1979).

Although paths are usually explained in plan, the experience of moving through space and finding one's way are multi-dimensional and multi-sensory. Time, cadence, the sensation of going up or down, and the opportunities for different points of view must be included.

Vertical circulation poses special conditions. Elevators, stairs, and ramps can enhance or detract from the experience of the path. They are transitional elements. They can capture a large percentage of the budget and the floor area.

Budget: Expanding the path into the out-of-doors conceptually and physically, and circulation which serves multiple functions increase the total square footage while enriching the experience.

Variety and Change: New and far views, unexpected views through, views from high and low, from one level to another, even mirrored ones provide built-in richness. They expand the impact of exhibits and give more than simple wayfinding.

Of course, paths can work in conjunction with exhibit spaces, are incorporated into them, and are spaces themselves. LARGE SPACES AND SMALL includes a discussion on the qualities of spaces that applies to the experiences of path.

The sequence in which exhibits are viewed or encountered will tend to imply a hierarchy whether intended or not; at least, they present an opportunity for continuity. (Brawne, 1982). The degree of conceptual structure depends upon the individual program -- the type and size of the museum, the permanence of the exhibits, and the sheer number of visitors. The carefully orchestrated route need not be permanent or obvious. It can present many alternative routes while maintaining a dominant path that aids in general orientation and an opportunity to bypass. There is no one ideal. There is also the conflicting need for complexity: Although a clear, dominant path is useful for basic orientation, alternative pathways should be available. They can provide mystery and discovery that may not happen otherwise; they can provide some privacy for concentrated focus, and experimentation perhaps beyond the individual's skill level that would not be attempted in a large open space (Cameron, 1968).

CLEAR CIRCULATION WHICH OVERLOOKS describes some of the approaches which can be adopted to deal with wayfinding issues.

Pilgrimage and Journey: Setting the mood for the museum begins before the front door. Getting there can start down the street, at the corner, in the parking lot, at the edge of town, at home. In addition to the physical presence, the conceptual path is part of the museum image.

Saying Goodby: Leaving the museum is taken for granted. Museum fatigue has been traditionally confined to the experience of the internal path and displays. How do people leave? What do they need and what do they see as they exit? On arrival, full of anticipation, the focus is the museum. On departure, finding the car, getting a taxi, the bus stop, subway, the weather are a part of the exit experience.

Saying goodbye is an opportunity for summation, conclusion, and grand finales -- an unexpected view back into the museum, an overview, a breathtaking view on leaving.

Using the larger context for the arrival and departure transition expands the square footage of the museum. The East Wing of the a National Gallery of Art captured the area in front of the entry including the street with a focal point and a heavily gestured surface. It is a gathering and waiting place where cars and pedestrians mix comfortably. It provides a grand sense of arrival and place.

COMING AND GOING addresses entering, exiting, and the activities associated with them.

Civic Role: Museum paths can be an extension of the city and neighborhood. Responding to issues or image and return visits, civic paths serve multiple functions. From a simple arcade to a sculpture garden they can provide special experiences along the way actively or passively. They can be shelter, provide previews of what is inside, access to exhibits even when they are not open, and public service. A civic path leads the uncommitted visitor to the door.

THE RIGHT LOCATION and PREVIEW point out the inherent in civic role.

DISPLAY AND ACTIVITIES

Central to the museum experience is the interaction of people and exhibits. Path supports the activities and display. It provides access to and context for the "real things" that make museums unique. In the long run, the visitor's lasting impression of a museum is based upon the meaningfulness of its exhibits.

The context from which the spirit and theme of a museum arises is based upon the philosophy and attitude of the museum, the nature of the collection, and the characteristics, the motivations and the sheer number of the people who visit.

Museums do more than collect and inform. It is a setting that can support and encourage exploration and discovery for the individual, a living lab for children and adults, a place of gathering and community. Activities and display are more than tools for educating and informing. They are the elements of the total environment that make a particular museum experience unique.

"I.Q. and scholastic achievement probably have considerably less to do with the ability to create and enjoy happiness, than the milieu has to do with I.Q. and Scholarship." (Parr, 1969b)

Just Another Sunset: Museum professionals are concerned about the potential trivialization of exhibit content in the campaign to win public support. Hands-on experiences, the interactive computer, or a video film on the life of the artist is not always appropriate. The new museum need not be touchy-feely; the amount of interactive displays and the degree of formality depends upon the nature of the collections and the goals of a museum. Serious education has never been the sole goal of most.

Humane and relevant experiences can be aesthetic, uplifting, and inspiring; the elegant is just as necessary to the human spirit of the young and old as the playful. Providing experiences that improve the passing moment, providing settings and opportunities for contemplation, retreat, an alternative point of view, or a few new thoughts are services whose value can not be easily measured. They may do no more than improve the passing moment -- another beautiful sunset. (Parr, 1969a)

Meaningful Information: The "participatory," "active," and "hands-on," activities can be valuable or meaningless. Pushing a button to activate a light is not developmental nor very satisfying. It can be more dynamic than just staring at a display or it can be distracting.

The real contribution to development and learning is the interactive display that activates many variables so that one is challenged to think, try, analyze, make choices, synthesize, and play roles. With these come learning and internalization; besides, it's fun.

ACTIVITY CORE discusses depth, participation and involvement in the design of micro-environments and larger places within the museum. It contains two in-depth examples.

Information Overload and Remembering: Whether the exhibits are in-depth activity cores or a series of objects, museum fatigue interferes with enjoyment, learning, and understanding. The most relevant exhibit is meaningless if the participants are overloaded from too much of a good thing -- too much activity, too many exhibits, too many objects. Taking a break rests the mind and the body. The integration of quiet retreats, places to overlook human activity, to talk with friends, and views of the near and far landscape enhance understanding and aid remembering by pacing the amount of information.

RETREAT discusses the many aspects of museum fatigue -- mental and physical, the role of retreat in pacing and providing a change in mood and activity.

Activities and displays need to be punctuated and framed. Variety and change and breaks between exhibit clusters aid in comprehension, provide opportunities for the mind to process information, and aid in recall.

LARGE SPACES & SMALL discusses a variety of spatial sizes, inherent opportunities for display, and their role in pacing the museum experience.

FOCAL POINTS explores their use in conjunction with display to aid in summation and recall and to prevent object satiation.

OUTDOOR EXTENSIONS includes their role in pacing and pauses in the overall museum experience and in providing special opportunities for display.

POOLS OF LIGHT deals with visual fatigue and establishing hierarchy within and between displays.

DISTRIBUTION OF SERVICES discusses the relationship of exhibits to support services.

Building and Display: Given a finite amount of money and therefore limited square footage, the kind of building that is chosen will affect the nature and number of exhibits, and the task of exhibit design.

To complicate matters, museums change over time; they experience unexpected growth and quite often change their direction. Although the strategies of multiple functioning spaces and built-in flexibility are a response to possible changes in the future, they are a major determinant of the complexity of the exhibit design -- negatively and positively from the present onward.

The choice of building type -- undifferentiated shed, adaptive reuse, or a new building -- offers a variety of opportunities and constraints that directly affect exhibit planning and design. An anonymous covered space is indeed flexible, yet it requires more planning and materials for orientation, variety and change, contrasts, noise and light control, and differentiated space.

What often appears to be a compromise -- the adaptive reuse building -- has proven to have many advantages: it is a context to respond to -- exploiting its qualities and using its limitations to advantage: the rhythm of the structural grid in the Boston Children's Museum has a unifying affect; the dimension between members in the old warehouse is wide enough to work with the requirements of the exhibits.

UNDERSTANDABLE STRUCTURE includes examples of design and organizational strategies that exemplify the many possible arrangements.

Allocating Resources: Beyond the issue of budget, the new building for children's museum seems somehow incongruous. Perhaps the emerging image of what a children's museum should be is so solidly rooted in its humble beginnings, and the philosophical basis for them is so tied to recycling and environmental sensitivity that the fit into a new building is less appropriate. It is difficult to "design in" the spontaneous, delightful spirit that is present in the left-over buildings.

THE RIGHT LOCATION discusses the related issue of the advantages and disadvantages that usually come with the building type.

Larger Context and Display: The exploitation of the surrounding context can stretch the exhibit space by increasing the actual square footage available and expanding the display through perceptual augmentation -- distant views, sounds, smells.

ACTIVITY CORE AND OUTDOOR EXTENSION include discussions on the potential of the larger context in design.

Integration: Although the primary focus of museums is on exhibits, the overall goal of the new museum is to provide a positive museum experience.

While the other instruments are support, an object in an exhibit and an activity area can be powerful focal points, motivators for movement through the museum. The "City Slice" of the Boston Children's Museum is an activity core that serves this multiple function.

Circulation and Display: A major issue in the design of museums is the area required for circulation. Integrating the path with activity cores and displays, and arranging exhibits with far previews and postviews from the path doubles the functional use of the area required for circulation while enriching the experience of path.

The rich and varied nature of activity cores provides opportunities for enriching vertical circulation. A major stairway, escalator, ramp, or see-through elevator adjacent to a many-level, interactive city slice can provide a changing point of view on a very complex scene while moving through space. The same exhibit seen from afar gives a different perspective.

VISIBLE BACKSTAGE presents another opportunity for double-functioning space.

Numbers at the Door/Traffic: The general organization of the museum and its ambience will be greatly influenced by the sheer number of visitors, their ages and whether they come in groups, families, or alone. A heavy constant flow of traffic requires a more dominant path and limits the amount of integrative, in-depth activities.

Although the "blockbuster shows" have brought notoriety to museums, their real value for raising revenue and consistent attendance is debatable (Noble, 1984). The main criticism of the push to be popular is that it will negatively affect that very quality of the museum experience that they are trying to portray.

LARGE SPACES AND SMALL discusses the relationship of large flexible display space to the museum experience.

Providing in-house programs for school systems requires major organizational strategies. Their demands on space and impact on the museum ambience should be thought of in terms of several busloads at a time. Although Cameron (1968) argues against large group trips to museums for learning, as

introduction programs the numbers can have a profound influence. Special entries and gathering areas, the wear and tear on exhibit areas, the size and accessibility of exhibit areas are all affected.

COMING AND GOING deals with the basic planning for large groups of school children.

Civic Role: The broad issues of the civic role of the museum are covered under "Image." Exhibits and displays reinforce those connections to the neighborhood, community and larger environment through their themes and spirit.

ACTIVITY CORES presents a compelling argument for the value of role playing and in-depth cultural exhibits for cross-cultural understanding.

THE RIGHT LOCATION

THE RIGHT LOCATION ENHANCES THE MUSEUM EXPERIENCE AND CONTRIBUTES TO ITS RATE OF USE BY PROVIDING PUBLIC VISIBILITY, ACCESSIBILITY, AND A POSITIVE CONTEXTUAL IMAGE.

THE ISSUES:

A primary index of a museum's success is its "head count" -- the number of users visiting the museum. Although the quality and quantity of the museum's contents will influence the rate of use, the museum's location has a critical impact upon the number of visitors and the way in which they use it.

Use depends upon the accessibility of the museum, the real and the perceived. Although cars and buses, public transportation, walking, and biking are modes of arrival that open opportunities for various user groups, they require particular adjacencies and arrangements.

A major function of a good location is to provide physical visibility from near and afar. Even a central, accessible museum must have a visible presence to attract attention -- especially of the non-committed, incidental passersby and the tourist. This is related to the museum as a symbol of civic pride.

Every museum's location provides a setting, a context, and opportunities to establish the museum image: a serene, rural site evokes the image of retreat; a college campus location suggests scholarship and research; a site that is nestled in a residential neighborhood suggests and provides a direct connection to a community and its residents. Although associations of a neighborhood with crime, neglect, or other negatively perceived or real handicaps can affect usage, particularly when children are involved, the inherent negative image of a location poses a special design opportunity and a social challenge.

Economy in the construction of a museum is a major consideration in determining its location. The cost of a new site may place many areas of the city out of reach; and economic opportunities for building conversion, conservation and renewal may exist in certain areas that are otherwise less desirable, that conflict with the standards set for accessibility, visibility, and image. The final decision about location is usually a trade-off between several conflicting conditions.

QUALITIES & CHARACTERISTICS:

The variety of qualities found in the right location includes several that are diametrically opposite each other. The appropriateness of the choice depends upon the established hierarchy of goals and values. The right location provides:

- * A potent human attraction -- an existing landmark, a cluster of museums, a busy city center, or a pastoral refuge in the countryside.

- * Physical visibility to the public.

- * A pathway that is easy to identify and to use -- accessible to pedestrians and drivers with appropriate and ample parking; connected to public transportation.

- * A meaningful setting -- one that is distinct, preferably with a positive image, either compatible with the museum's spirit and form or contrasting it: a place of adventure and active participation, a place of retreat and pilgrimage, a place of research and scientific investigation, a place that is mysterious or incongruent -- an old factory, a warehouse district, a ship, an experimental laboratory.

APPROACHES FOR DESIGN:

1. SYMBOLIC RELATIONSHIPS:

Many cities concentrate their cultural facilities in a relatively small area which is accessible and manageable in a walking tour. The Museum Mile on

Mannattan's Fifth Avenue and the Smithsonian Mall in Washington, D.C. cluster a rich collection of museums and other cultural landmarks within a walking range.

2. DEPENDENCE ON A PROVEN LANDMARK:

A museum that is near or adjacent to a prominent building or landmark gains visibility and attraction through association. Many museums are built right on or around an archaeological dig or a place of contextual significance which then serves as the museum's landmark. The Roman-German museum in Cologne is lying literally in the shadow of the city's great cathedral. The flow of tourists and visitors can barely overlook the presence of the museum.

3. THE MAIN DRAG:

Locating a museum within a concentration of cultural and commercial facilities adds a special quality to the density of events and things to do. The resulting milieu attracts visitors for potential scenarios of an evening in town, a family outing, a shopping trip or a study trip.

A vibrant downtown in a city is a large scale example. I smaller scale example is the museum in a large shopping mall. The museum can share the amenities of the mall's eating places, services, and high accessibility; it achieves public visibility through the physical association; and in return, the museum contributes a richness to the ambience of the mall.

4. PLACES OF ADAPTIVE REUSE:

Many children's museums begin in an existing building which was designed for an entirely different purpose. The candidate buildings can range from old schools, stores, churches, clinics, train depots, and post offices to Victorian houses and even restaurants. The Boston Children's Museum is housed in a recycled warehouse on the waterfront; the new Cleveland Children's Museum will be housed in a former Howard Johnson's Restaurant.

The location of these buildings provides opportunities that can challenge the designer on many fronts. Since there are often in older areas of the city, or in business and industrial district, the image, accessibility, and context of the sites are inherently special and can set the stage for a very unique museum experience. The Temporary Contemporary Museum of Art in Los Angeles is a high style example of an industrial building turned into a temporary quarters for a museum: a unique physical image, evocative name, positive site features and other factors make this museum a memorable success.

5. IN ADDITION TO OR WITHIN:

A children's museum can be associated with a larger "parent" museum. If a section within the original building or a wing is designated the children's museum or youth area, the accessibility, image, and settings are provided by the larger museum. The Curiosity Place in the Chicago Museum of Science and Technology and the Sensations in the High Art Museum of Atlanta exploit this intimate relationship.

An identifiable addition to an existing museum building, with its own special entry and physical image, can exploit the positive "parent" relationship and yet retain more autonomy.

6. ON THE ROAD:

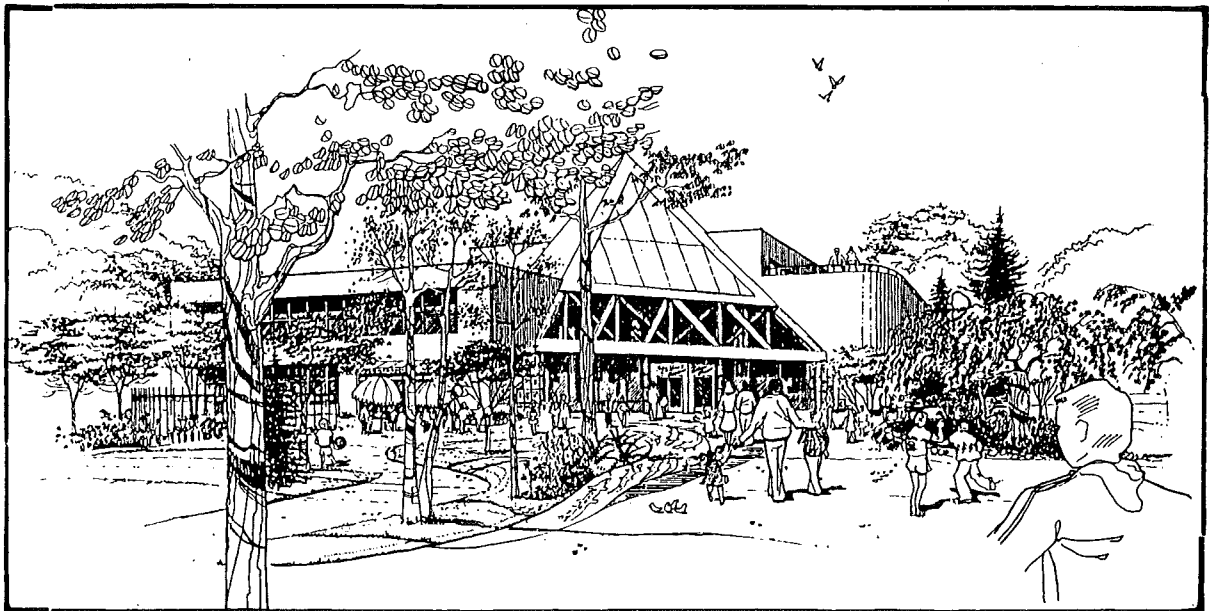
In contrast to the highly accessible and proximate central location, the decision to locate in an out-of-the-way place that requires a circuitous route can open many opportunities. Besides supporting the museum theme, a distant, serene, rural location can offer a memorable, pastoral image that extends the museum experience along the path to and from the museum.

Within an urban framework, the out-of-the-way setting exposes and informs visitors about an area that would not be visited normally. The journey can be an adventure.

EXAMPLES:

The Children's Museum Denver
Barker Rinker Seacat 1984

The museum is located across a major interstate highway from the stadium and adjacent to a river walkway. It is highly visible and accessible to the regional population.



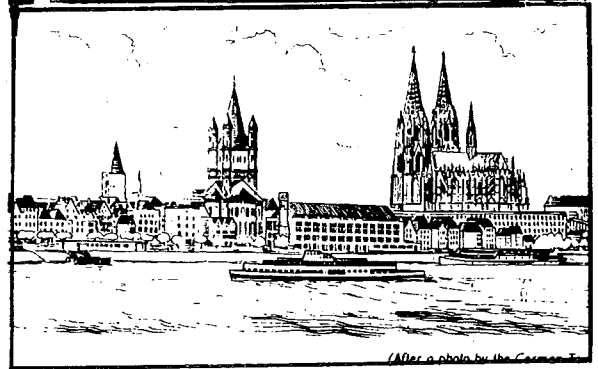
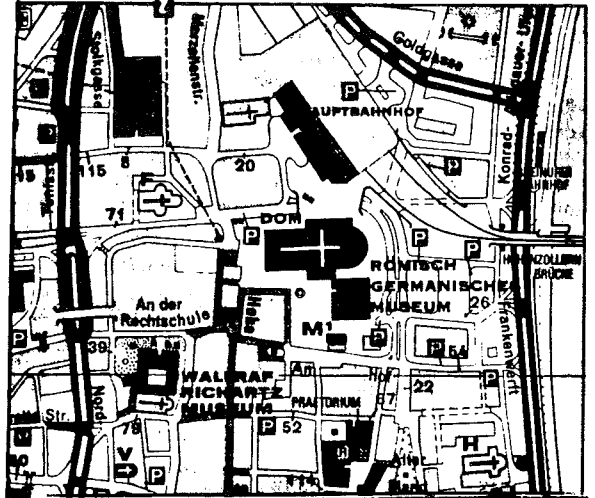
Franklin Institute's Museum on the Mall Philadelphia

Actually a science demonstration in the gallery space at Market East in Philadelphia, the outreach program brings art, science, and history to the market place and its shopping crowds. In return it gains recognition and visibility.



The Roman-Germanic Museum Cologne

Located in the midst of downtown Cologne on the same plaza as the world-famous cathedral, this physically low-profile museum reaps the benefit of its crowds.



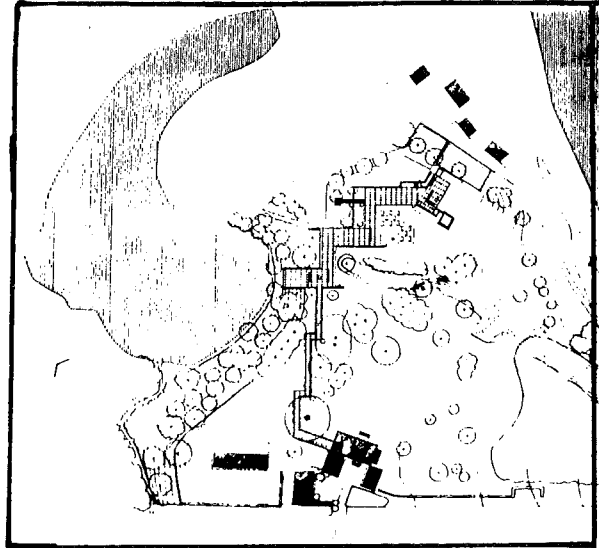
Pompidou Center Paris Piano and Rogers 1971-1977

A dramatic contrast between this high-technology structure and its 19th century structure and its 19th century residential neighbors enhances the museum's visibility. It has become a landmark in its own right.



Louisiana Museum Denmark
Borgen Bo and Wilhelm Wohlert
1958-59

The Louisiana museum is nestled in a classical rural setting: far removed from cities, it is situated between two lakes, rolling fields, trees and lush grass -- a real refuge in nature.



RELATED PRINCIPLES:

- * A LANDMARK
- * URBAN RESPONSE

LANDMARK

A LANDMARK ATTRACTS ATTENTION AND ESTABLISHES A PHYSICAL OR SYMBOLIC REFERENCE POINT FOR THE MUSEUM EXPERIENCE. A LANDMARK CAN BE A PLACE, A BUILDING, OR AN OBJECT. IT IS IMAGEABLE, MEMORABLE, AND SIGNIFICANT.

THE ISSUES:

Museums serve the public, but public usage of the museum determines to a large extent the survival of the facility. Larger "head-count" is a major concern and a legitimate goal for museums.

Although attracting visitors and receiving community and private support depends ultimately upon the quality and nature of the museum program, having a unique image increases its visibility, attractiveness, and "presence" in the community and beyond.

A museum with landmark qualities has also benefits that accrue from a positive self-image. The results of an internal pride are expressed in the attitude of the staff and radiate on the museum's activities.

The reputation of a museum, whether through its programs or through its physical image, can play a larger role for a neighborhood and a city. The design of the building can make the headlines and be a source of civic pride; however, the advantages of designing a building for a reputation alone can present big problems in balancing use with looks. When dealing in tradeoffs of the utilitarian and the aesthetical, in the long run, how well the building works in its entirety far outweighs the possible benefit of a unique form.

QUALITIES AND CHARACTERISTICS:

Landmarks vary in their form and character. However, they achieve their status through some, or all of the following characteristics:

* Physical prominence -- establishing its importance in the landscape and serving as a visual guide to attract attention and woo the uncommitted; dominant, unique, overwhelming, out of scale, incongruous -- a petunia in an onion patch.

* Symbolic Imagery -- whether as an abstract, evocative form or in an important association with an historical, prehistorical, or current event.

The St. Louis Arch is an example of a symbolic design. The site of the Cannery Row Aquarium integrates historical relevance and a connection to nature.

* Memorable and Distinct -- to aid in recall and separation from similar symbolic and concrete landmarks -- bold, aloof, touchable, contrasting its surroundings.

* Compelling and Exciting -- stimulating the imagination by providing a connection to another time and place or a place not otherwise accessible; providing a connection to a visceral experience such as the image of a roller coaster that evokes a feeling of anticipation.

APPROACH FOR DESIGN:

The qualities of a landmark can be achieved through the design of the building's envelope, of an interior experience, or an object or event that is permanent or temporary, external or internal to the building:

1. ONE-OF-A-KIND FORM:

The form of a building can make it noticeable and memorable. Although the materials and colors of the East Wing of the National Gallery of Art are the same as its neighbor, the spectacular form is identifiably unique and compels visitors to touch. The touch sets up an intimacy between visitor and building that transcends the formal nature of the museum's programs.

Pompidou Center in Paris is incongruent with its neighbors in every respect -- form, materials, colors and usage -- and it is indeed very noticeable.

2. SHIFT IN SCALE:

Something out of place, out of scale, bigger than life, or miniaturized catches the eye and focuses the imagination. Oversized objects and large things fascinate children and adults alike. At least within the Western culture there is a preoccupation with "the tallest" or "largest", or "most" of anything. The Empire State Building is known to the world primarily because of its height. It is clearly one of America's best landmarks.

Yet, not to be overlooked is the something small and special. The tiny filling station shaped like a Chinese pagoda can overwhelm the huge factories of its context.

3. SYMBOLIC IMAGE:

The building form, some of its elements, or a separate object that is associated with it can evoke emotions and create mental associations from its own special powerful imagery or those that are connected to traditions, folklore, a special cultural element.

The Shrine of the Book, at the Israel Museum in Jerusalem exhibits the remains of the Dead Sea Scrolls. The structure recalls the shape of the jar's cover in which the Scrolls were found. The form of the building is derived from an historical event. It gains its status through its contents and its imageability from its form and placement within the complex of pavilions.

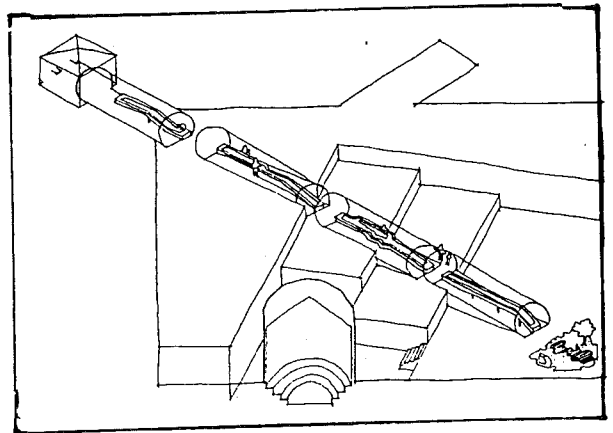
4. PLACEMENT:

Prominence can bestow landmark qualities upon a place or an object. And a landmark that is prominent serves as a visual guide.

EXAMPLES:

Brooklyn Children's Museum
Hardy Holzman Pfeiffer Assoc. 1975

The novelty of the internal organization -- especially the unique entry sequence creates an unforgettable experience. A neon-lit, dark, corrugated steel culvert surrounds the circulation ramp. A stream of flowing water adds another sensational dimension.



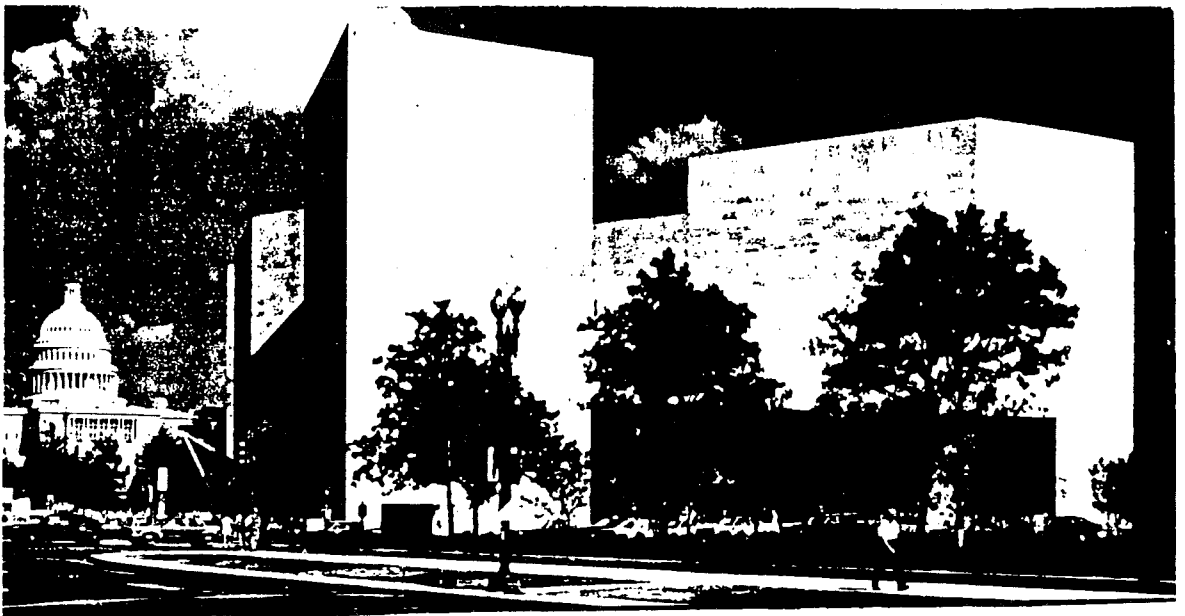
Boston Children's Museum
Dyer/Brown and Associates 1979

The exaggerated scale and special character of the oversized milk bottle in front of the converted warehouse make it recognizable. It serves as a symbolic sign and a visual guide. Doubling as a snack bar makes it intimate -- related to the individual on the waterfront plaza.



Mona Lisa at the Louvre, Paris
Leonardo da Vinci

Better known than the Louvre, this painting overshadows the building and institution which houses it. The La Gioconda unfailingly attracts hordes of visitors every year and clearly plays the role of a landmark.



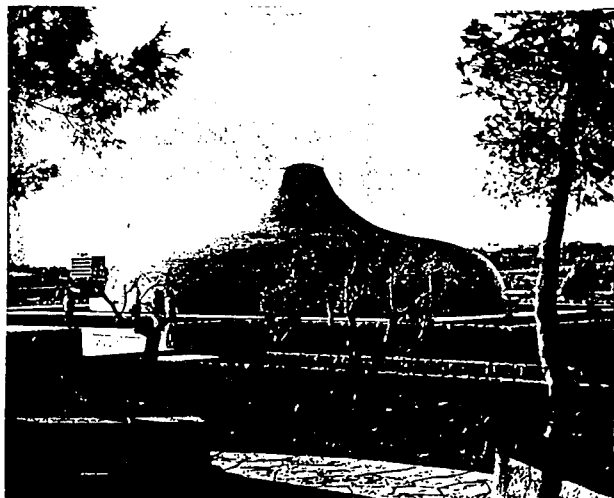
The East Wing
National Gallery of Art
Washington D.C. I.M. Pei 1978

The spectacular external and internal form of this building is powerful and thrilling to the touch. The form is supported by a most prominent location and the physical and conceptual connection to the well-known West Wing of the Gallery.

The Shrine of the Book
The Israel Museum
Kiesler & Bartos

Jerusalem
1965

Both the contents and the unique form of this "building" give it a landmark status. It is a powerful symbol within the museum and beyond.



RELATED PRINCIPLES:

- * A PREVIEW
- * THE RIGHT LOCATION
- * FOCAL POINT

A PREVIEW

A PREVIEW GIVES THE VISITOR OR VIEWER AN IDEA, CONCEPT OR IMAGE OF WHAT IS AHEAD, BEFORE ACTUALLY ENTERING A PLACE, A BUILDING.

THE ISSUES:

Humans, adults and children alike, strive for predictability in their environments by constantly interpreting what is around them and what lies ahead. A good preview of an activity can provide them with a taste of what the museum is all about, a sense of what is inside.

museums have the compatible need to advertise, announce, and invite. museums may be tenants in buildings designed for other purposes and others may be housed in neutral boxes; all need to project an image, set a mood, convey a spirit. This need can be satisfied by a good preview.

QUALITIES AND CHARACTERISTICS OF A PREVIEW:

A preview can provide clues or tangible evidence for the qualities and content of the place. A good preview can do one, all, or some of the following:

- introduce and inform about the inside;
- suggest the uniqueness of the place;
- invite, entice and attract, perhaps tease;
- set the visitor's mood;
- advertise and "push" a desired image, spirit, character;
- be humorous, playful, abstract or literal, non-threatening, descriptive, aesthetically pleasing, outrageous, elegant;

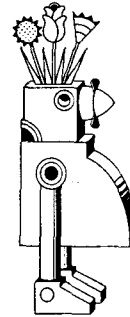
APPROACHES FOR DESIGN:

1. A SIGN

A simple sign provides an introduction; it communicates the name of the facility. If the name is also descriptive and evocative, e.g., "The Exploratorium," the word association can trigger the viewer's imagination.

And signs can contain pictorial graphics--either in conjunction with the name or in place of it.

A logo for a brochure of a children's museum. It is suggestive of technology, nature, and fantasy. It is playful and joyful, a child's dream. This type of sign transcends the limits of expressing the built environment. Used on letterheads, brochures, posters, and maps, it can become the "corporate image"; by greeting the visitor at the airport and along the highway it is an extended preview!



2. "LETTING THE VISITOR IN" BEFORE ENTERING.

Having a glimpse of the exhibit, or a good view of a significant and special part of the inside without actually entering can introduce, entice, inform and stimulate both the intended visitors and others who go by.

A store-front, or glass wall along a busy sidewalk is one way to provide this inside-outside connection. (Proper lighting and the clever use of contrast in lighting can make these situations very dramatic).

3. HUMAN ACTIVITY POCKET.

The most powerful preview includes people--whether at work, play, or rest. Creating an activity pocket outside, where activity of the museum spills over into the street to get the attention of those passing by is an effective strategy.

Is it open? The presence of human activity can signal from a distance providing a non-verbal clue to the status of the museum.

There are many strategies for design of situations which become the catalyst for human activity that attracts others--the street corner store that attracts a crowd.

One example is the placement of a restaurant or museum store outside the museum proper. The advantages of externalizing them include their role as a symbolic sign as well as placing an active area upfront. Hot dog stands and street corner vendors are versions of a temporary activity that announce happenings. The Museum of Art in Santa Fe is aided in capturing attention away from the other attractions on the main square by the lemonade and hot dog stand on its corner.

The sales kiosk in the form of an oversized milk bottle in front of the Boston Children's Museum serves as a symbolic sign at a distance, and at closer range has the added dimension of providing refreshments--attracting, satisfying, and memorable through more than one sense.

A preview of children at play, whether inside or outside, is enticing, stimulating, and reassuring. It can be a preview of an interior activity through a storefront or a peephole. From a distance a gross-motor activity play area can serve as an extension of the building, signal the entry, or provide a sculptural element in the landscape. An example of this is the playground of the McDonald's Restaurant chain. It is up front, connected to the building, functioning as symbol and as an activity pocket.

4. EXTENDING THE INSIDE, OUTSIDE.

An actual element of an exhibit or activity of the museum can be placed outside the building to provide an introduction, continuity, and clues to its contents.

It can be an object, even a fresco on the facade of a building that houses the permanent collection of a particular artist;

It can be an "event", such as the seal pool in front of the New England Aquarium in Boston which provides a clear and dynamic indication of what is inside;

It can be a temporary object or activity that is "on" when the museum is open, and not necessarily the same one at all times: a totem pole when the special exhibit is on Indians of the Northwest; a cobbler plying his trade when a traveling craft exhibit is in town; or it can be a gross-motor activity area that functions as a symbolic sculpture when the museum is closed and as a focal point of children's activity when the museum is open.

5. REACHING OUT.

Establishing satellite displays, whether in malls or in other museums or even retail stores can provide a preview that requires less commitment than traveling to the museum proper. They can be direct as in the Franklin Institute's demonstrations in shopping centres; they can be subtle as the Chicago Museum of Modern Art retail store on Michigan Avenue.

6. A SYMBOLIC SUGGESTION.

Providing a preview that is not directly related to the context, that is an abstract connection or clue to the museum's inner workings is a more challenging design task.

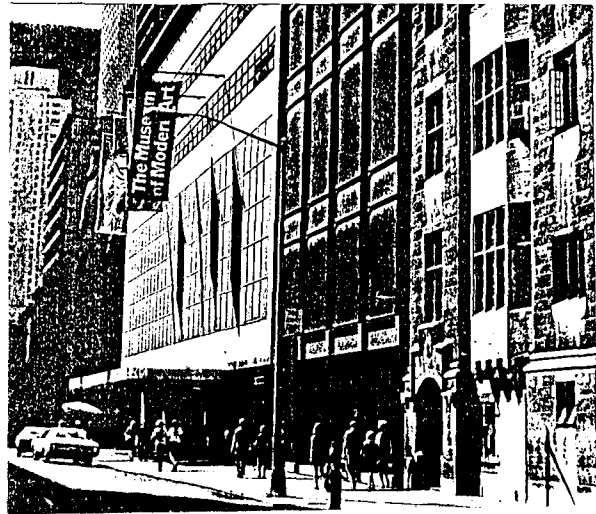
For example, in the Boston's children's museum the oversized milk bottle on the waterfront expresses many qualities of the preview concept. It is a playful collectible object; it evokes memories of childhood and earlier times. It is also a sign. Its form at that size is unique, outrageous; it is out of context; and it is memorable. Through the years it has become a Boston landmark.

A children's playground--sans children, or a sculpture can capture the mood and provide an association that stimulates a connection and triggers curiosity and anticipation.

EXAMPLES:

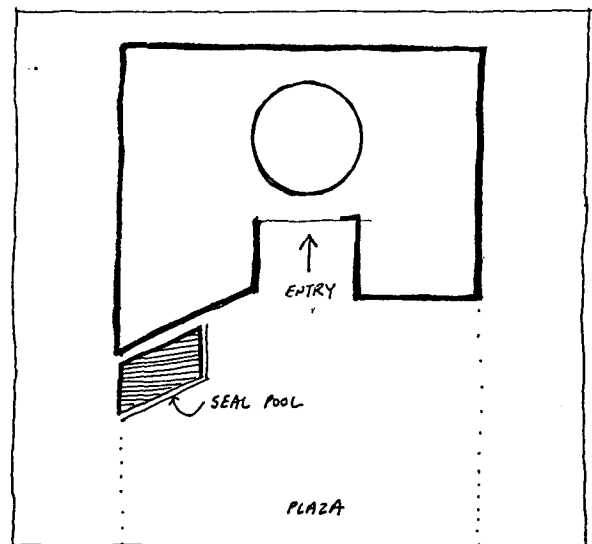
Museum of Modern Art, New York
Edward Durrell Stone & Philip
Goodwin

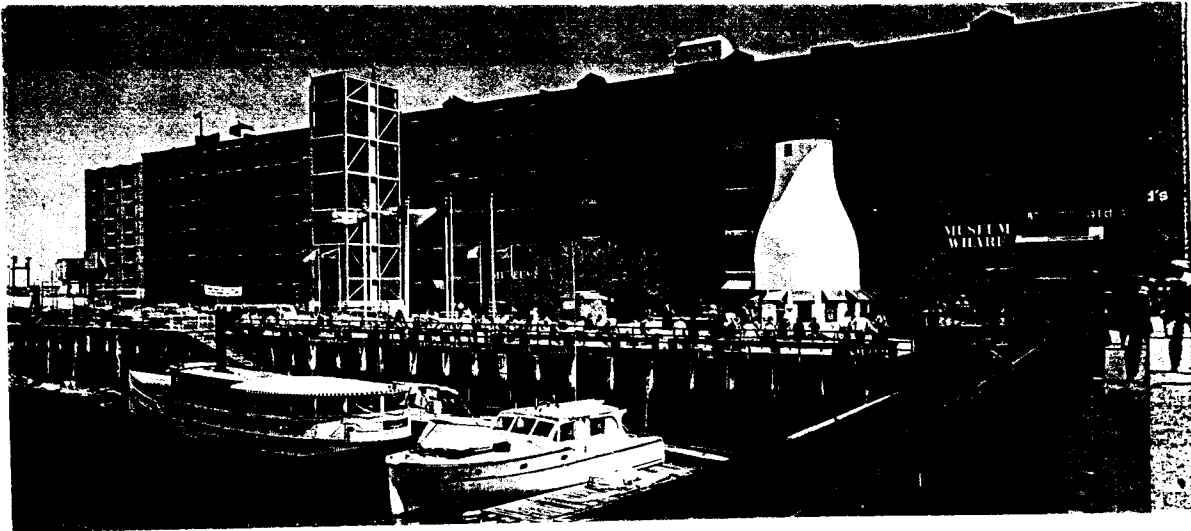
A "Storefront" allows people on the street to view the inside; they can see a glimpse of the main or current "show." If they miss the sign, they can "know" the function of the interior or a whole building by what they view. This preview allows the museum to work after hours, capturing the attention of those passing by, and enlivening the streetscape.



The New England Aquarium, Boston
Cambridge Seven Associates, 1965

Adjacent to the entry, a pool with seals basking in the sun provides a small show that attracts spectators in the public plaza, while at the same time introducing the thematic content of the aquarium and setting the mood for the interior. The pool is permanent, integrated into the design of the building. It lets the visitor in, extends the inside outside, directly samples the contents, and enlivens the urban milieu.





The Boston Children's Museum,
Dyer/Brown and Associates, 1979

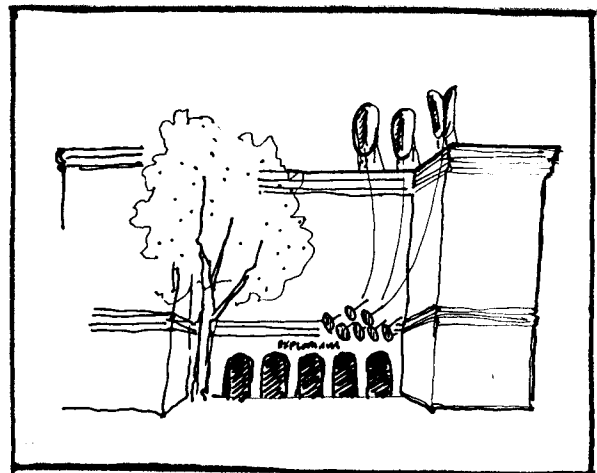
This landmark milk bottle is an indirect reference to the mood of the museum: old and collectible; a place for kids of all ages; a place for the unexpected. An everyday object out of context, out of scale, it hints at the improbability that the warehouse in the background is just a storage place. This is reinforced by the evidence of human activity surrounding it.

The Exploratorium, San Francisco
Original Structure:
Bernard Maybeck, 1915

In an abstract way, the wind-music sculpture perched over the entry represents the nature of the displays inside: scientific, creative, and fun.

The building was designed for another time and another kind of exposition, its style expressing a staid, formal image. The wind sculpture contrasts this, symbolically expressing the new approach to a usually very serious subject--science.

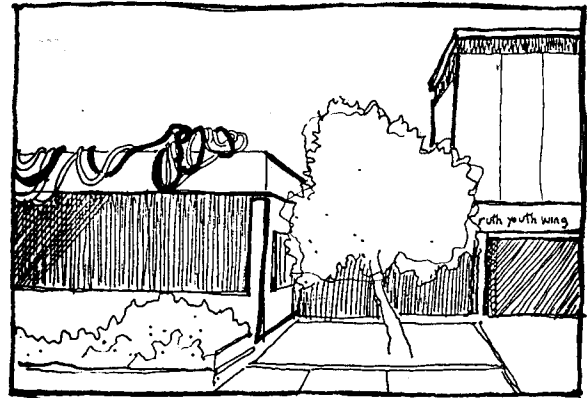
By locating the sculpture over the doorways, the abstract sign also signals entry, its music making it an event.



The Ruth Youth Wing
Israel Museum, Jerusalem
Alfred Mansfeld and Associates, 1966

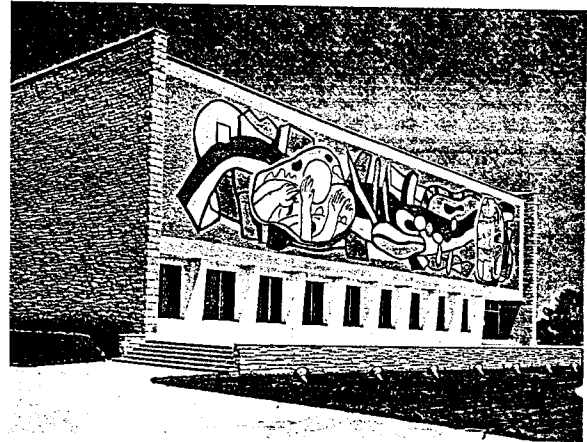
This multi-colored, octopus-like, playful, very different, abstract sculpture, an unlikely thing to be lying on a building, suggests the children's artwork that happens inside.

It is an element that sets apart this pavillion as unique among all the other repetitive pavillions in the Israel museum's campus. It "tells" the story about what happens inside.



Ferdinand Lejer Museum,
Maritime Alps, France

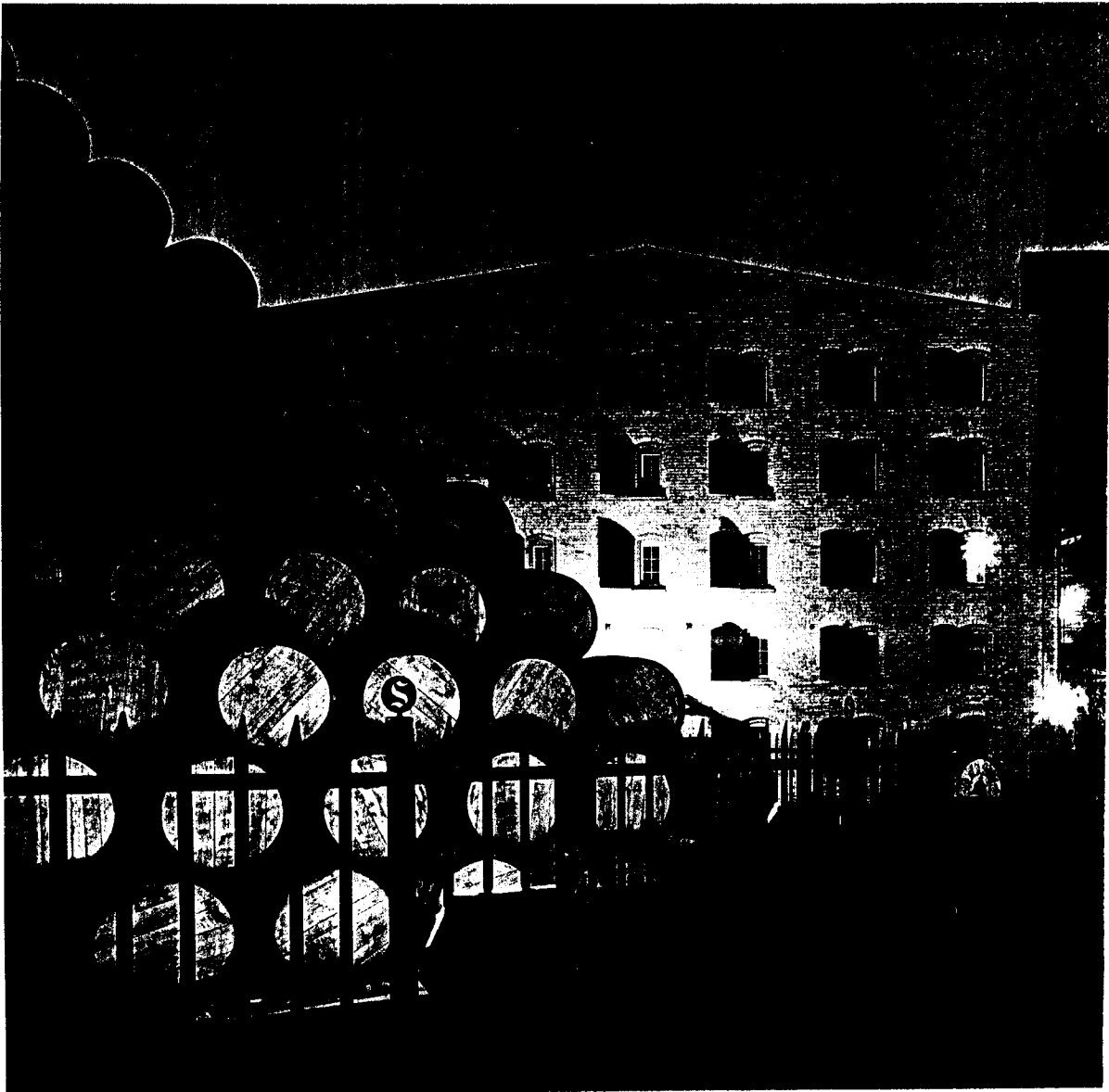
The museum previews Lejer's sculpture on the building's facade. An enormous colorful piece of his work is an integral part of the front elevation. By bringing the inside outside, the museum building functions as a backdrop to art; it is an element of display.



Grandville Island Renovation,
Vancouver,
Norman Hoston Architects, 1978-80

The water play area of the development provides a dynamic sign that announces a change in the pattern of use of the old wharf area.





The Seagram Museum Waterloo, Ontario
Barton Myers Associates, Architects
1983-84

The stack of barrels at the Seagram's arrival court serves as a massive, but elegant sign and a concrete tie to the main theme of the distillery museum.

RELATED PRINCIPLES:

FOCAL POINT
LANDMARK
URBAN RESPONSE

UNDERSTANDABLE STRUCTURE

UNDERSTANDABLE STRUCTURE ENABLES THE VIEWER TO GRASP THE ORGANIZATION, OR THE "MAP" OF THE BUILDING INSTANTLY BY LOOKING AT ITS EXTERIOR AND/OR INTERIOR.

ISSUES

The problem of orientation -- knowing where you are -- and wayfinding -- getting to your destination -- is a major issue in museum design. The problem is more acute in larger museums.

Understanding the building reduces uncertainty, increases predictability in negotiating the environment, thus making navigation easier or effortless even to first-time users.

Reducing wayfinding anxiety can begin even before entering the building by exposing the visitor to building elements that are easy to "read." Upon entering, a quick look should reveal the lay-of-the land, the order of spaces, how the building works.

QUALITIES AND CHARACTERISTICS:

- * Provides primary information about its overall form, parameters, and floor plan organization
- * Provides an image, or tangible information about the contents and mode of operation as a system
- * Provides clues about paths and circulation systems
- * A better solution will reveal the above instantly from an external point of observation before entry, or from an internal vantage point, without the need for further exploration.
- * A good understandable structure will still retain variety and change, opportunities for surprise and some mystery. It should not be a boring building.

APPROACHES FOR DESIGN:

1. EXTERIOR, OR BUILDING ENVELOPE, REFLECTIVE OF INTERIOR ORGANIZATION:

A building's facade or external elevations can give clues to the way the interior spaces are organized. For example, the externalization of the spiral, shell-like path at the Guggenheim Museum in New York provides a complete grasp of the structure's parameters, beginning of path, and its progression.

2. SIMPLE, REPETITIVE GEOMETRY:

Repetitive geometry makes for predictability, even if only part of the building is in view. It is sufficient to see a beginning of a sequence of rooms along the linear spine to "guess" the overall structure. A symmetrical geometry is even more predictable, such as the case with the Hirshhorn Museum in Washington, D.C.: a simple circular plan within a void in the center has almost perfect symmetry and perhaps too much simplicity.

3. TRANSPARENCY:

The ability to literally see the inside organization from the outside or from an internal vantage point increases the understanding of the plan and interior of the building.

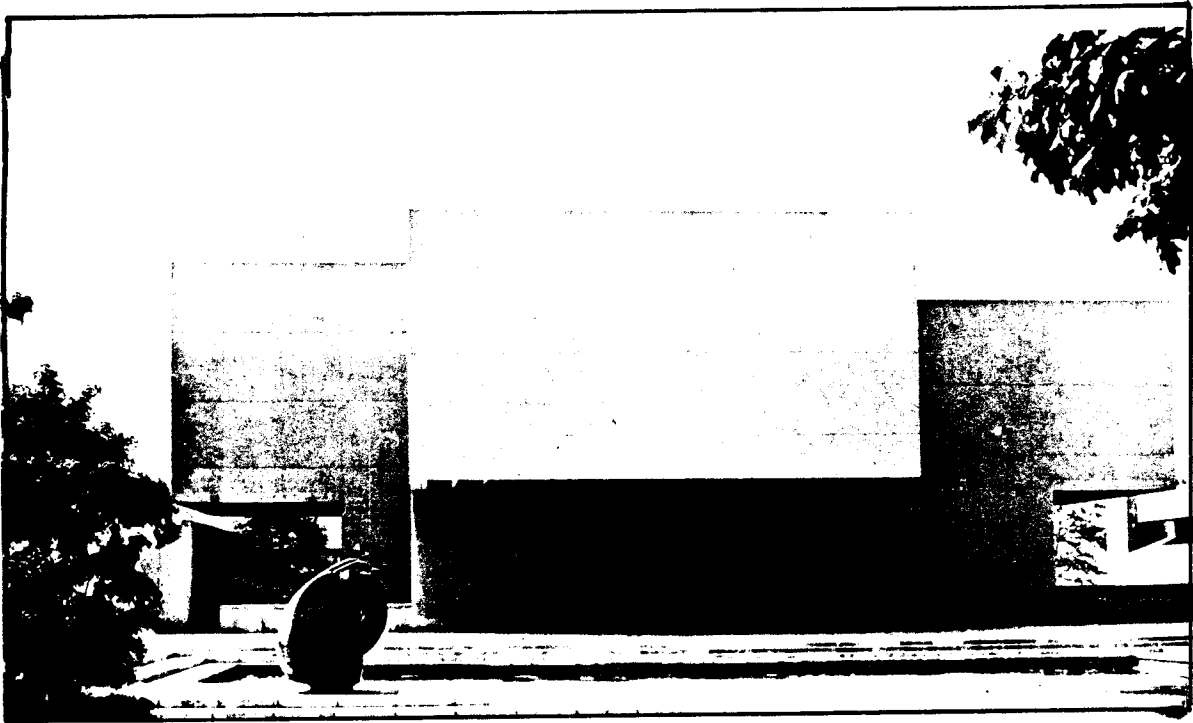
A storefront, glassed approach such as at the Museum of Modern Art in New York provides partial, "first floor" understanding. At the Visual Arts Center in Norwich the entire two opposing sides of a monumental box are exposed to the outside and are completely transparent.

4. DOMINANT INTERNAL PATH:

The appropriate strategy for beginnings and endings of the visit depends upon the nature of the internal path. Internal streets, indoor towns, concentric rings, one-way paths, romantic meanders, rational classics, informal yet majestic, and the rabbit warrens all have special qualities and demand particular treatment for coming and going. If any of the above is a dominant physical feature, it can become another element in an understandable structure: for example, the vaulted skylight above the "internal street" at the Boston Fine Arts Museum is a clear circulation which overlooks the entire wing; it explains the structure of the wing and the way subspaces branch from the path.

5. DIRECTIONAL SYSTEM:

Where building design is not an option in making the museum structure understandable such as in the case of an existing or recycled building, a clever and sophisticated but simple directional system can repair some of the problem, by giving the viewer a graphic, pictorial or abstract reference to the environment. This can supplement any of the other approaches also.

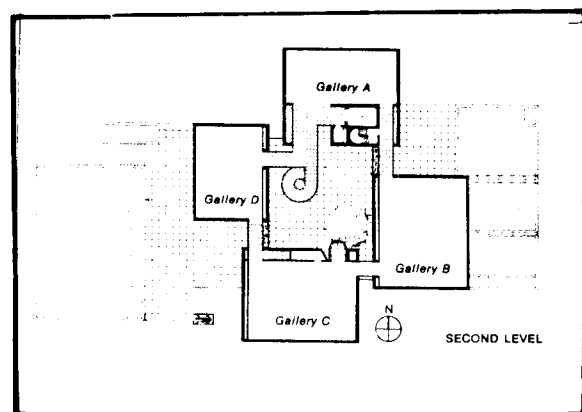


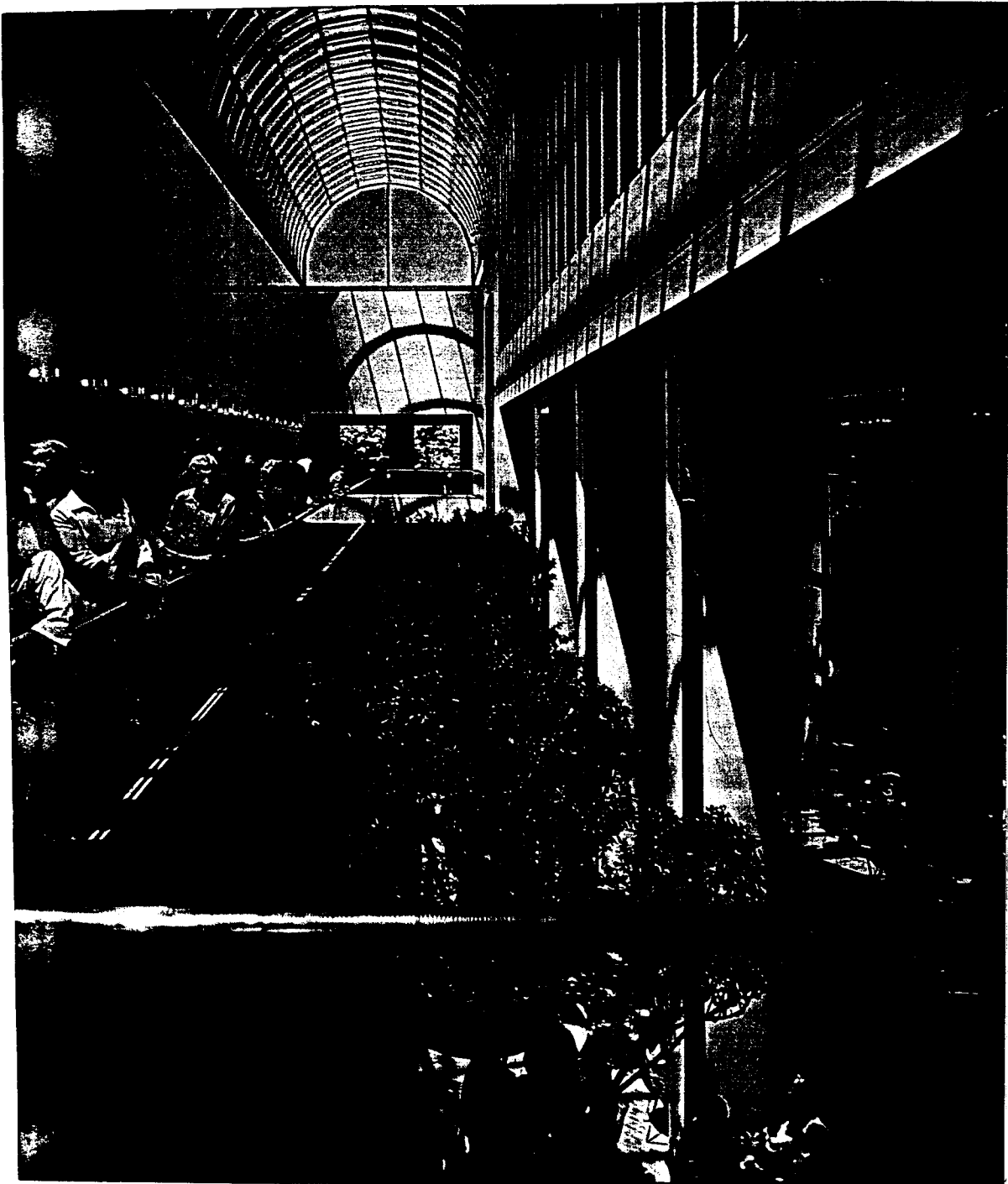
Everson Museum of Art
Syracuse, New York
I. M. Pei 1961-1969

The simple, repetitive geometry of the four wings surrounding an internal courtyard is as clear from the inside as well as the outside.

Second Floor Plan

The regularity and repetitive geometry makes for an easy understanding and comprehension of the internal organization, despite the variations in gallery sizes.





Boston's Fine Arts Museum
I. M. Pei 1982

The internal street is the most dominant physical element in the new wing.

The 250-foot-long vaulted skylight is visible inside and outside. The galleria is the social and activity center of the wing, and a main path.

Center National d'Art
Georges Pompidou
Piano & Rogers

Paris
1971-1977

The obvious external structural expression explains both the circulation system and the layer structure of this multi-story, monolithic building.



RELATED CONCEPTS:

- * CIRCULATION WHICH OVERLOOKS
- * A PREVIEW

COMING AND GOING

ENTRY, EXIT AND TRANSITION PATHS AT THE MUSEUM ARE CENTRAL TO ITS FORM AND TO THE MUSEUM EXPERIENCE. ITS BEGINNING AND ENDING DO NOT HAPPEN AT THE DOORWAY NOR DO THEY HAVE THE SAME QUALITIES.

ISSUES:

The experience of exiting is not the same as that of entering because the context is different. Time has passed; new ideas and museum fatigue have changed the visitor's point of view; logistical requirements are different.

Setting the Mood: Entering requirements include finding the museum, understanding the parking, and finding the front door. Aggravation at this stage probably works counter to the image the museum wants to create. On the other hand, a graceful arrival, thrilling procession to the door, or the sneer impact of the entry sets the mood.

Before proceeding upon the path, coats and extraneous bags, restrooms, a preview of what lies ahead and general information about the internal organization aid in getting ready, planning the visit, and choosing the right path.

Path Resolution: The organization of the main path within the museum determines how the entry and exit interact and provide a theme for their treatment. One-way paths and informal browsing suggest different approaches.

Good Memories: A poor exit experience establishes a postview that can taint an otherwise great time. Fighting the energetic surge of visitors coming in the door, being dumped abruptly on the street -- especially in a different place than where one entered -- can be disorienting and overwhelming, certainly interfering with the immediate past which is the primary museum experience. Postviews are important too.

Waiting: The place of exit is the natural gathering place for people waiting for others. A place to watch other people come and go is a form of retreat that can support a sense of community -- a place to meet casually and to be part of the action.

The mode of arrival and departure and the size of the groups affect the specified arrangements. Busloads of children require a large volume of space for unboarding and boarding and for orientation and waiting. Their activities can clog the entry and the beginning pathways in the museum. The support spaces for them may require a separate entry and exit area.

Controlled access: Security and admission fee collection require most museums to have a primary and single entry and exit location. The control function can be intimidating; however incorporated with other service functions it can present a friendly face.

QUALITIES AND CHARACTERISTICS:

The entering experience is an opportunity for setting the mood and previewing; the exiting experience is an opportunity for summations and conclusions, reflections, and for unexpected views back into the museum.

For both, the protracted transition can be a processional -- elegant, with grand stairs and ramps, a sequence of portals, and gurgling water, near and far, long and short views; or mysterious -- perhaps tunnel-like, dark and compressing with little hint of what lies beyond. It can be a series of spaces as in the traditional and classical design of entry/transition proceeding from the portal through the small space through the graduated large. These depend upon movement through space over time.

In contrast, a transition can be a space that has a strong impact, creates a particular ambience, or a contrast between coming and going. A decompression chamber, the choice of a restaurant by the door, a sculpture garden stroll are alternative entries and exits.

Both can begin long before the door that separates the inside from the outside.

APPROACHES TO DESIGN:

1. THE DREAM BUBBLE:

If the entry and the exit are the same door visitors are backtracking when they leave. Shouldn't the museum experience be reflected in the termination of the path? An

abrupt entry is not as shocking as an abrupt exit. A strategically placed restaurant, store, reading room, waiting area provide an opportunity for lengthening the decompression from museum to street.

2. ALTERNATIVE PATHS:

The Indianapolis Children's Museum processes busloads of children through a special lower level area. The entry and exit gathering areas are divided by a wall that contains numbered coat racks. Each one holds a whole busload of coats and hats. They slide both ways. Besides convenience, the storage strategy is one last meaningful, fun exhibit.

3. WISER BUT TIREDER:

The dramatic difference between entry and exit is not always efficient or desirable. Maintaining the same general location symbolically provides summation and a reorientation to the outside. A slight difference reinforces the changed perspective.

Logistically, it separates the flow of human traffic and provides a spatial opportunity for storage, retreat, and vertical display.

4. THE GLORIFIED EXIT:

Many Disneyworld exhibits have totally separate entry and exit points. This sets up an opportunity for another perspective on the larger context and additional new input. It can be intriguing or stressful, unfolding and challenging.

5. INTEGRATING THE PATH:

Considering the arrival and departure sequence as extending beyond the confines of the museum proper provides opportunities for longer transitional spaces and integration of the surrounding outdoor context into the museum experience.

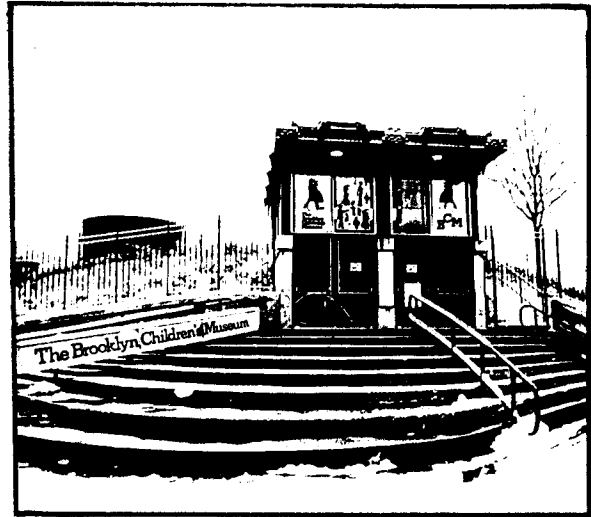
6. INTERNAL PATH

The appropriate beginning and ending strategy depends upon the nature of the internal path. Internal streets, indoor towns, concentric rings, one-way paths, romantic meanders, rational classics, informal yet majestic, and the rabbit warrens all have special qualities and demand particular treatment for the coming and going.

EXAMPLES:

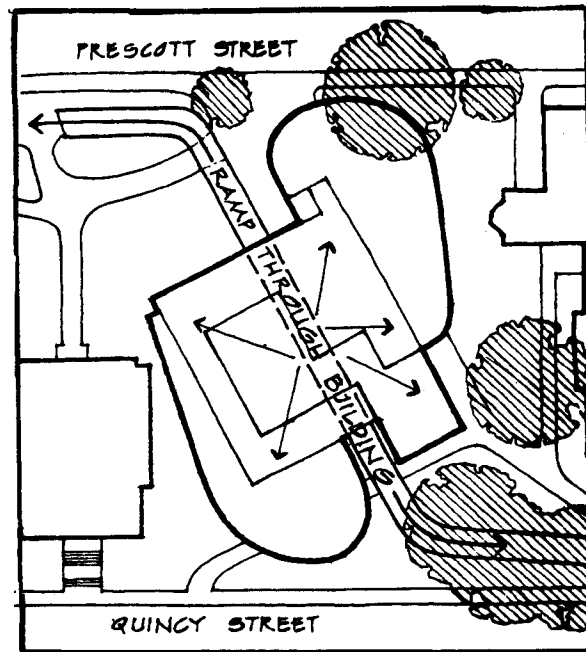
Entrance
Brooklyn Children's Museum
Hardy Holtzman Pfeiffer 1975

The recycled entry to an old New York subway station is used as the most dominant element of the museum, facing the street. This entry doubles as a preview and a display in its own right.



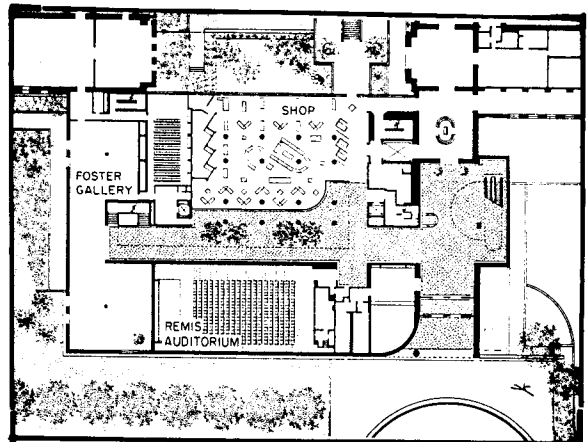
Carpenter Center for the
Visual Arts
Le Corbusier

A pedestrian path is elevated to become a ramp which passes through the building.



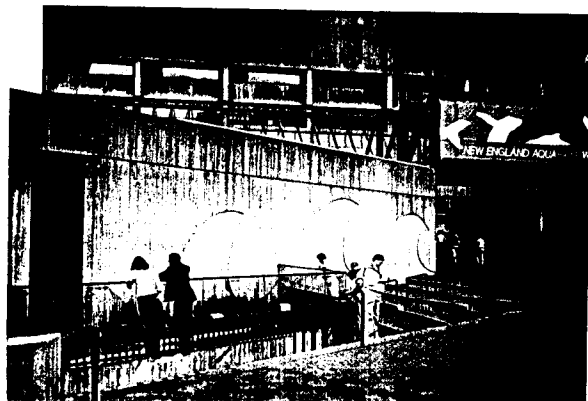
Internal Street
Boston Museum of Fine Arts Boston
I. M. Pei & Partners 1981

The vaulted street ties the entrance to the main exhibit and activity areas. Services are in proximity but not obtrusive. The path is also a place of retreat -- waiting, orienting and an "outdoor" cafe; it serves also as a lobby for the auditorium, which might be opened -- and controlled -- when the museum is closed.



The New England Aquarium Boston
Cambridge Seven Associates 1965

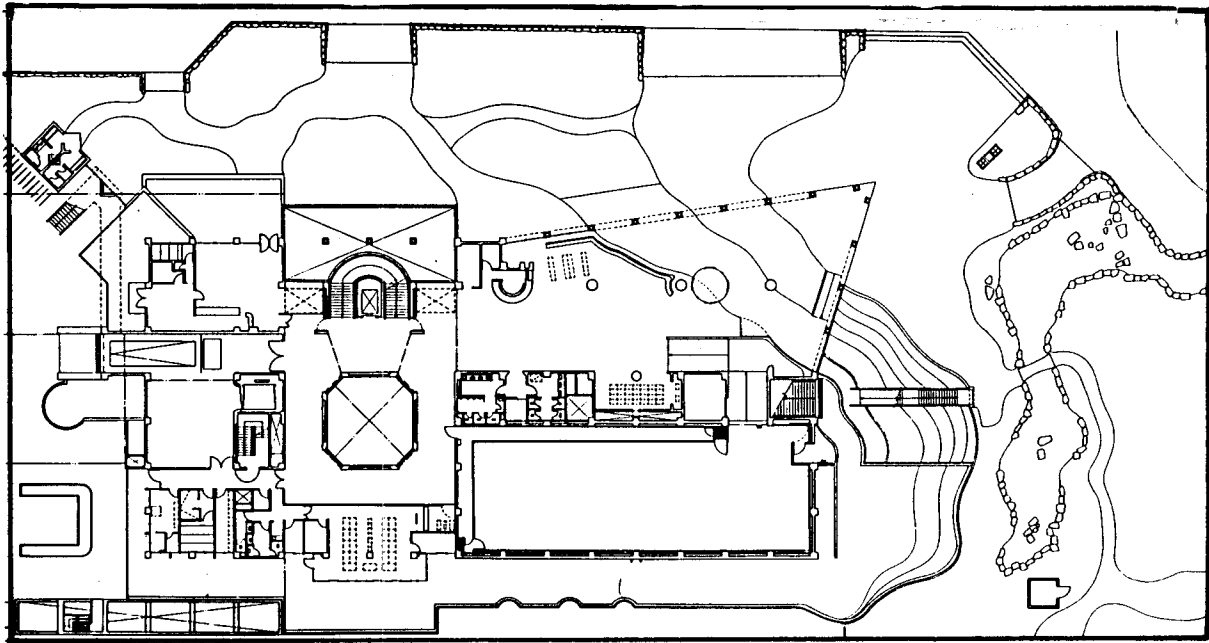
A small outdoor pool with seals serves as a preview for the Aquarium's contents. The same entry-sequence in reverse is also a summation and a post-view.



Museum of Modern Art
Saitawa
Kisho Kurokawa

Japan
1982

The entry and exit experience are enhanced by the dramatic connection between indoors and outdoors, achieved by the park's penetration into the building at the entry zone.



RELATED PRINCIPLES:

- * CLEAR CIRCULATION WHICH OVERLOOKS
- * PREVIEW
- * OUTDOOR EXTENSION
- * FOCAL POINT

LARGE SPACES AND SMALL

LARGE SPACES AND SMALL PROVIDE VARIETY AND CHANGE IN THE OVERALL EXPERIENCE OF THE MUSEUM AS WELL AS DIFFERENT OPPORTUNITIES FOR EXHIBIT AND DISPLAY.

ISSUES:

Variety and change in spatial experiences are primary to combating museum fatigue -- the mental and the physical. A tediously uniform repetition or monochromatic character of the museum's paths, displays, and "rooms" contribute to fatigue, object satiation and directional disorientation. (Melton, 1931; Neal, 1976.) Providing pacing, a cadence, or an exhilarating break requires different techniques in spatial modulation. The same design strategies can create a variety of experiences -- intimacy, power, awe.

Large Spaces: Many new museums and children's museums rely heavily upon rotating exhibits and roadshows from other museums to enhance their own collections, renew interest, and to attract new visitors. The rotating exhibit spaces should be near the entry or, at least, easily accessible, highly visible, and flexible enough to accommodate the large and the small, the many and the few, whether objects, interactive exhibits, or people.

This implies a need for moveable partitions, an area not limited to standard ceiling height, an area for grouping people, a space that can change its ambience with the tone and subject of the particular exhibit. Who knows when a totem pole may come to town?

Fixed Spaces: The importance of the flexible area should not overshadow that of the more permanently designed spaces. After all, the object larger than room may be a permanent guest. An airplane wing, water tower, or ship's hull all require not only the extra height but also an appropriate spatial volume from which to view them.

Smaller Spaces: Although the amount of fixed display space depends upon the particular goals of the museum and its attitude toward collecting, the defined, smaller, more

permanent display or theme area can provide a texture, a framework, a substantial context for the museum experience that a hollow box -- no matter how elegant -- can not do alone.

There is never enough room for display or storage. Where do you put the too-good-to-refuse donation -- the submarine? or the thousand small objects collected by a generous donor? Storage for storage sake is hard to justify when square footage for exhibition space is limited. The solution lies in creative and selective placement.

In a small gem of a museum or even a strong, simple form, the addition of needed space can wreck havoc with the original image, at worst, alienating the public; at the least, difficult to achieve without architectural gymnastics which may defeat the pristine, original concept. There are solutions to the major addition.

QUALITIES AND CHARACTERISTICS:

Moving from a large space to a smaller one and the converse are opportunities for contrasting and complimentary experiences. For a smaller space is intimate and sheltering, potentially quieter, compressing, providing a focused, detailed view; an adjacent larger space provides a summation or overview, a sense of magnitude and release. Either can be a prelude to the other.

Enclosed pathways are intimate. They contain natural opportunities for focusing on detail and arousing expectations of what lies ahead. Larger, more open circulation paths provide long and broad views. Large spaces allow for grand promenades and magnificent rotunda.

Small spaces nested within larger ones directly contrast one another, reinforcing the smallness of the small one and the largeness of the large one.

The shape of large spaces can be determined by the required depth of view. Distant viewing will depend upon the configuration of the large object or the nature of the events occurring there. Even at the intimate scale, some space is required to prevent a sense of crowding and pressure.

APPROACHES FOR DESIGN:

1. THE BIG BOX:

The building with a universal space allows for objects that are as large as the building's height, width, and length. This strategy was deemed appropriate for the modern art museums that anticipate a high rate of rotating exhibits but can not project their demands.

The major drawback of this building type is the difficulty in zoning and gaining privacy for conflicting activities and providing pacing and framing. To counteract the lack of variety and change in an undifferentiated large exhibit area, nooks and crannies and specially designed spaces can be employed in the surrounding support areas -- the restaurants, outdoor retreats, theatres, and seminar rooms.

The advantage of permanent exhibit areas is the ability to anticipate and design in the right angles for viewing, variety in spatial experience, and as interesting and understandable circulation.

2. THE SMALL BOX:

Some times small can be enough, and little gems can be all that is needed. One-room museums, or one object/one theme museums such as the Shrine of the Book at the Israel Museum have enough energy and power to sustain interest. These places do not need large spaces, and benefit from being a small box.

However, most museums do find unanticipated and compelling need to expand.

At the small scale, using transition spaces for visible storage or framing a view of a totem pole which is actually outside are strong strategies for expanding the small box. The totem pole does not need to stand alone as an object banished due to its size. It can serve as visual retreat, an object in a series that begins on the inside, or as a contextual backdrop to an activity core.

3. USING ADJACENT OUTDOOR, FREE SPACE:

A special outdoor extension can solve the problem of the submarine. In the Museum of Science and Industry in Chicago, a tunnel -- an umbilical cord -- leads from the museum into the submarine. Experientially, one does not leave the museum. Instead of being an object to be housed or stored, the submarine is instead a prepackaged annex. It could have

been further exploited by providing a view of the outside or from the out-of-doors. The Museum of Transportation in Lucern houses its large airplanes and trains in the largest room the museum can afford -- the outdoor "room."

4. VARIETY AND CHANGE:

A size continuum -- the combination of variously sized spaces may range from many small and one large to few small, several medium and few large, depending upon the needs of a particular museum, yet following an orderly geometric relationship. This is best exemplified by the classical Beaux Artes museums such as Chicago's Museum of Science and Industry and New York's Museum of Natural History. (Huxtable, 1976).

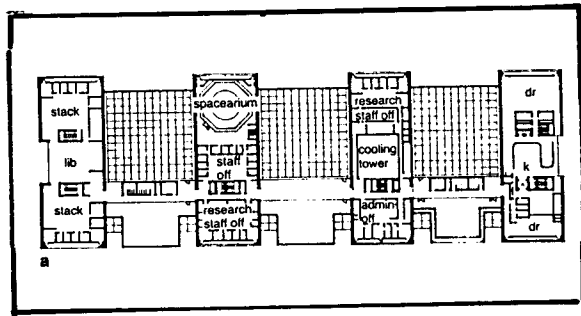
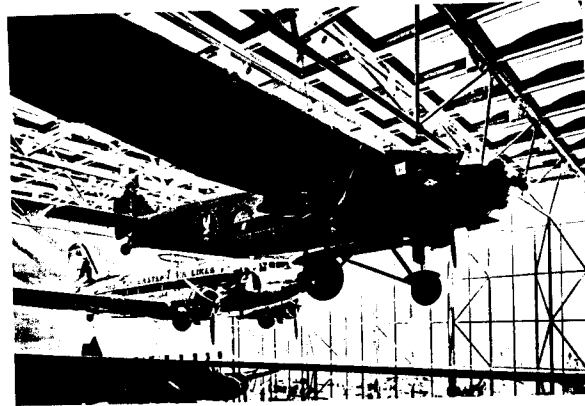
A variation on the continuum is the gradual, progressive size change with proportionately equal increments added to each succeeding bay or wing size. This can be based upon permanent collection that progresses in size physically or conceptually. The Portland Museum uses the proportions of a small gallery as its conceptual base, creating a geometric progression of larger sized spaces.

A more classical version is using modular or semi-modular construction techniques. A variety of bay sizes and volumes is realized by combining multiple modules into a common space. The potentially rigid and stagnate spaces can be avoided by combinations with other forms. Hollein combines modular systems to resolve the need for large flexible space with special, organic form in his Municipal Museum in Abteiberg, West Germany.

EXAMPLES:

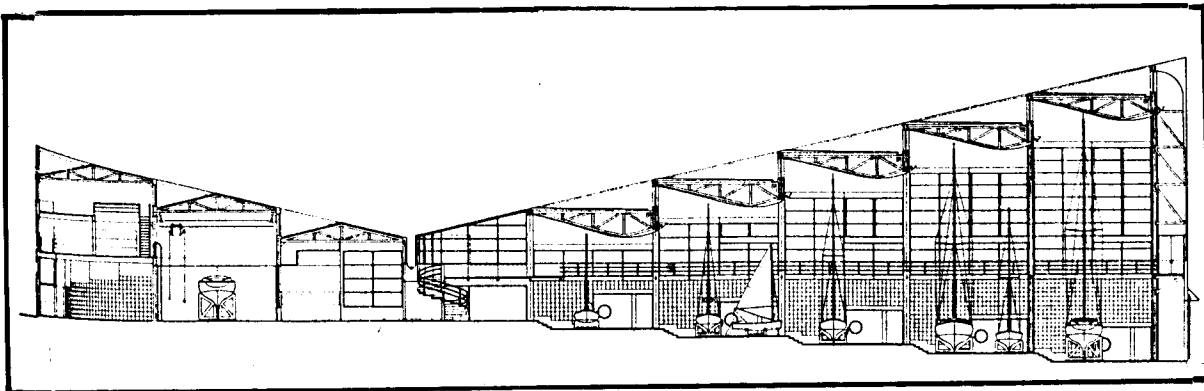
Air and Space Museum
Washington, D.C.
Hellmuth, Obata & Kassabaum 1976

The building's modular plan creates three galleries, two stories high. They are vertical spaces that house real, fullscale airplanes and rockets.



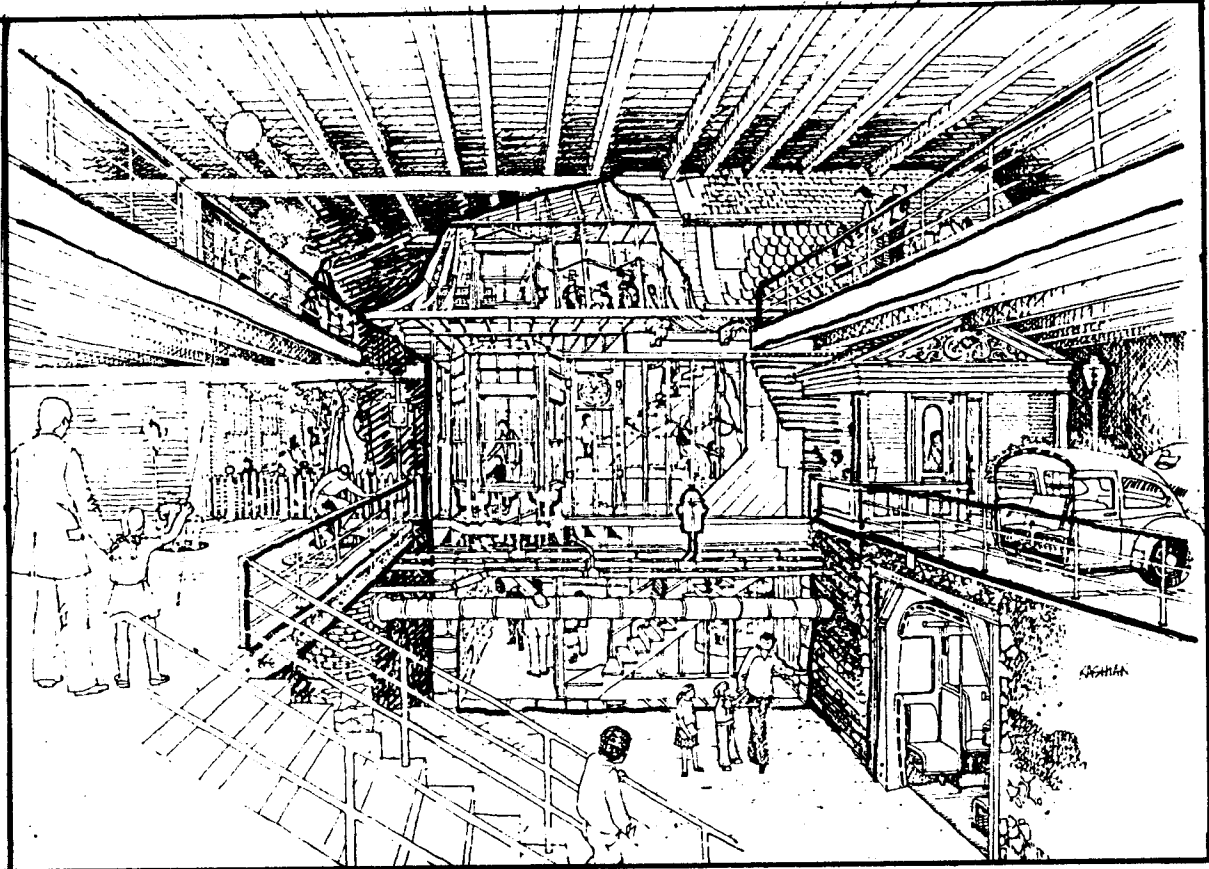
Herreshoff Yachting Museum
Bristol Rhode Island
E. C. Schwartz 1981

The progressive increase in height and length of each bay accommodates increasingly larger boats -- an example of designated, fixed displays within a continuum of spaces from small to large.



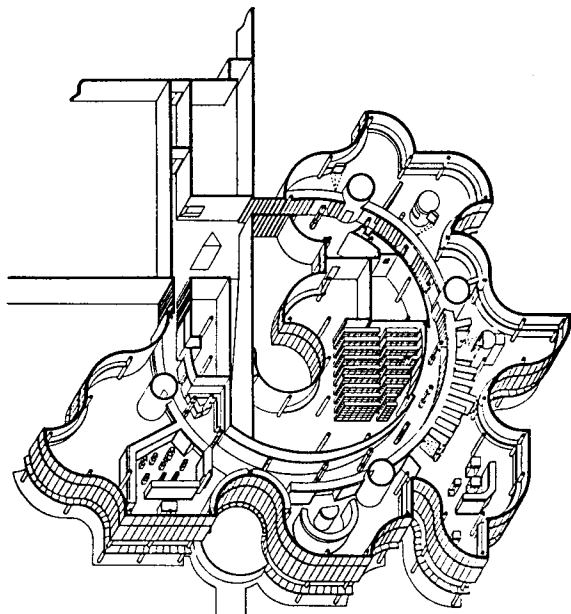
Boston Children's Museum
Dyer/Brown & Associates 1979

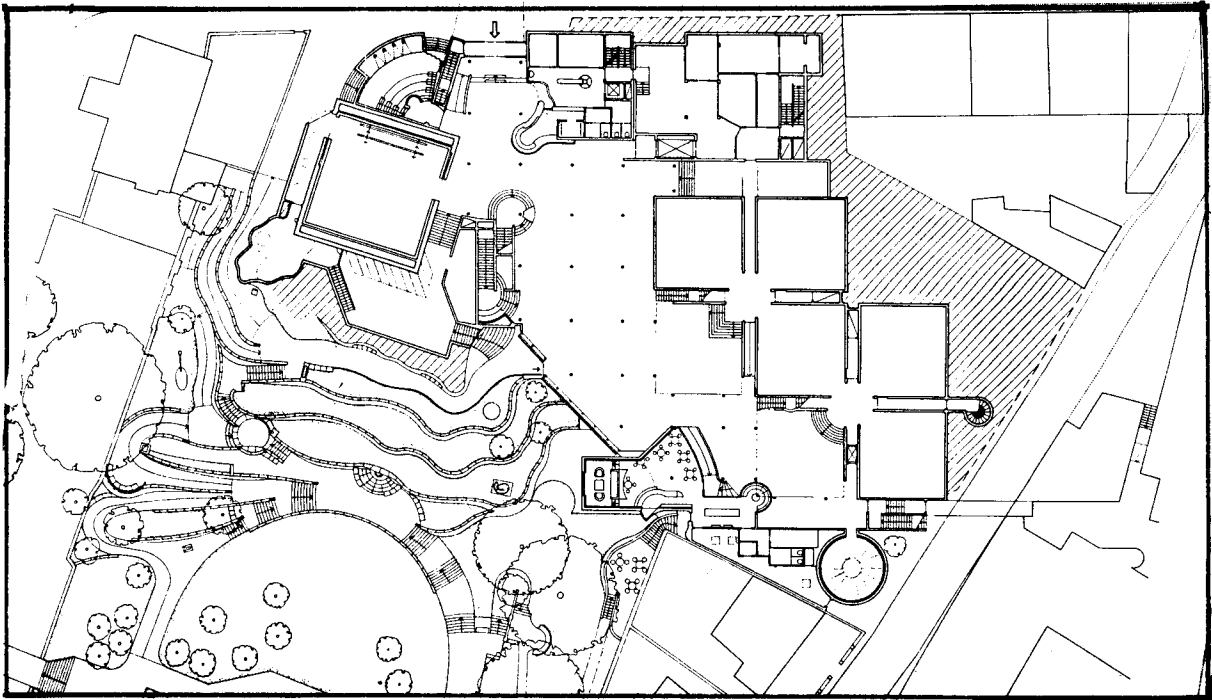
A multi-story vertical space accommodates a large "city-slice" exhibit of a full-sized Victorian house. In addition, the space provides sufficient horizontal distance to view the house from high and low, near and far.



Corning Museum
Corning New York
Gunnar Birkerts & Associates

The specialized museum of glass displays an extensive, permanent collection ranging from the ancient to the modern. The size and shape of each gallery was determined by the size of the collection of the particular period it housed.



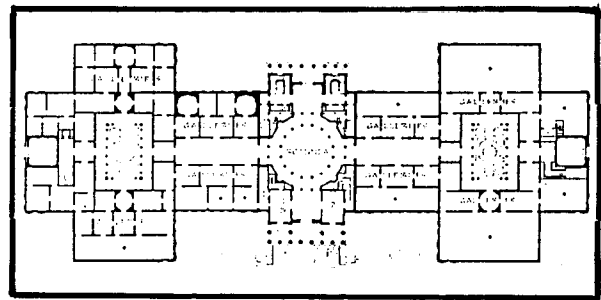


Municipal Museum
 Abteiberg-Monchengladbach,
 West Germany
 Hans Hollein 1973-1981

The temporary display space is made up of square, three-story galleries arranged around central service nodes. The large permanent display area is a rectangular box allowing for free patterns of movement. The smaller, special shapes of the restaurant and domed gallery invite, divert, and provide a retreat.

National Gallery of Art
 Washington, D.C.
 John Russell Pope 1941

Although the classical plan follows a formal hierarchy of space based upon a geometric series, the sequence of the entry and the rich yet controlled variety of spatial experiences -- the magnificent, imposing rotunda, intersecting high corridors -- offer a variety of exhibit opportunities as well as experiential ones.



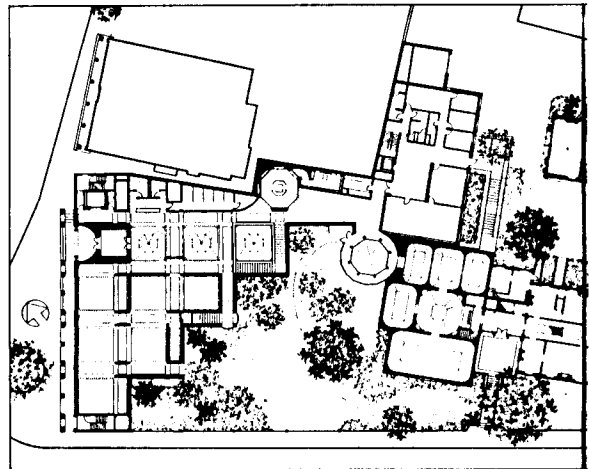
Center for Visual Arts
Norwich England
Foster Associates 1977

The museum is a large, undifferentiated box. The thirty foot high space can accommodate the full spectrum of displays, from cozy work stations to two-story objects.



Charles Shipman Payson Building
Portland Museum of Art Maine
Henry N. Cobb of
I.M. Pei & Assoc.

The Portland Museum uses the proportions of a small gallery as its conceptual base, creating a geometric progression of larger sized modules--progressing from one to two wide and two high, three wide and three high, and ending with four wide and four high modules.



RELATED PRINCIPLES:

- * OUTDOOR EXTENSION
- * ENTRY TRANSITION
- * RETREAT

ACTIVITY CORE

ACTIVITY CORE PROVIDES A PLACE FOR DISPLAYING COLLECTIONS IN A CONTEXTUAL ENVIRONMENT OF RELATED ACTIVITIES, AND, WHEREVER POSSIBLE, FOR CULTURALLY APPROPRIATE ROLE-PLAYING.

THE ISSUES:

Non-engaging displays have a limited impact on viewers. They rely primarily on a visual interpretation. On the other hand, the multi-sensory, interactive displays and the event-based exhibits stimulate learning, increase understanding, and reduce museum fatigue and object satiation.

As the contemporary museum practices change, more emphasis is being placed on participatory and interactive displays. Several basic types of exhibits can be identified:

1. The Glass Case: Non-interactive Exhibit

An object in a glass box, inaccessible painting, object on a pedestal, and no motivation provided for exploration. There are themes and where an authentic item simply can not be handled because it is too complex and fragile, e.g. elaborate doll house. A touchable reproduction would be a poor substitute for the evocative, delicate and rich originals. The object in a glass case is appropriate when it is a highly valued, unique item of refined grace, which is of great significance to society. These kinds of objects are often better appreciated when viewed from some distance, being in a glass box on a pedestal, literally and figuratively speaking.

2. The Single Input/Single Output Interactive Display

The simplest and easiest interactive exhibits to design, operate and maintain are the single input/single output exhibits, e.g. the user steps on a scale/the scale shows how much the user weighs.

These exhibits tend to be less engaging and more superficial since there is only one question to be asked and only one answer to be answered.

3. The Multiple Input/Multiple Output Interactive Display

As exhibits grow in complexity and the number of variables increase, so does their applicability: the number of options or alternative ways of negotiating the exhibit increases, too. The opportunities for pacing, e.g. providing a variety of entry points based on the user's age, previous experience and interest, allow for open-ended experimentation.

A very important issue in display design is the "pacing" of the interpretation -- how to allow different people, of different ages, backgrounds and experiences to deal with the display from different "entry points."

Another issue is how to convey the meaning of the display in its fullest, as related to its physical and cultural context; and how to increase the authenticity of the situation.

Activity Core provides the qualities which respond to these issues: it is a setting for multiple input/multiple output displays and events; it provides opportunities for pacing, and it has the potential to convey a rich and full experience.

QUALITIES AND CHARACTERISTICS:

The following description of an example for activity core illustrates vividly many of the qualities and characteristics of an activity core. The description is of the "Japanese House" at the Boston Children's Museum, written by Gurian and Kamian:

"our Japanese Home is a two-story city dwelling which was inhabited for many years in Kyoto until its installation at the Children's Museum three years ago. Like every traditional Japanese home, the tatami mats which cover the floor and the paper shoji walls are replaceable . . . visitors remove their shoes and enter the home to gently explore this new environment and the interesting materials of which it is made. Activities such as paper folding, learning to use chopsticks, and trying out Japanese bedding can also take place here. The religious items, the Butsudan and the Kamidana, however, are irreplaceable as they are specific to this house. The Kamidana is above reaching height. The Butsudan, which is installed at floor

level, has a clear screen in front of it so that the visitor can see it in its authentic location but not touch it.

The environment surrounds and keeps the interest of the audience, and begins to bring some of the subtle cultural constraints into focus. For example, sitting on the floor on traditional cushions (zaboton) allows the visitor to understand that different muscles are used than in our Western chairs and that skill is involved in sitting. The audience begins to speculate what family relationships must be like if one shares the same room with one's family. How much noise is allowed? A level of cooperation or a hierarchy of roles can be speculated about who makes the decisions about going to sleep?

The subtleties of cultural understanding are the most difficult to transmit because each person looks at another from his own cultural point of view. The intermingling of environment, hands-on and hands-off, add to the ways we can understand another culture. When one adds role-playing to this mix, especially when the interpreter is well-trained in both theatre techniques and cultural information, one has gone a step further." (Gurian & Kamian, n.d.)

The qualities and characteristics can be summarized as follows:

- * Accessible, visible to users from main routes
- * Has visual and auditory buffer, to protect neighboring displays and activities.
- * A buffer to keep external distractions out.
- * Allows seating or standing room for a small group, for passive involvement (lecturing, demonstration) or active events (participatory experiments, etc.).
- * Objects and displays which allow seeing, smelling, touching, holding, using, manipulating, and experiencing.
- * An environment which integrates the objects and display components into a unified cultural and physical context.

APPROACHES FOR DESIGN:

Approaches for design deal primarily with the size and location of the activity core, and its connections:

1. LARGE SPACE OR SMALL ROOMS:

One model for an activity core is a complete, full-scale room or house within the museum's envelope. It is also possible to have the activity area displayed through a sequence of small rooms.

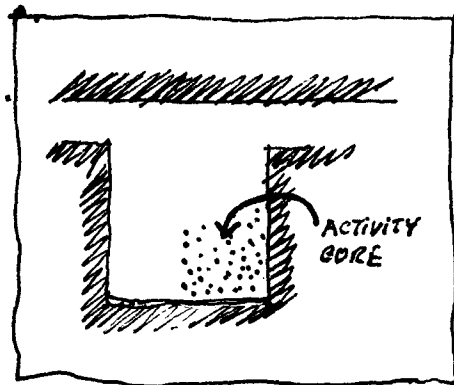
2. CONNECTION TO THE PATH:

If the activity in the core might disturb the natural flow of visitors nearby, an appropriate connection is needed between the path and the activity core.

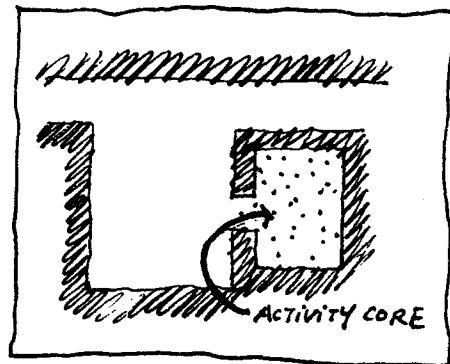
3. THE RIGHT LOCATION:

There are many possibilities. Some typical opportunities are:

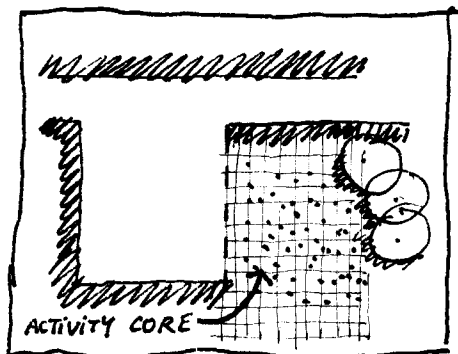
(a) A corner in a gallery



(b) A room adjoining a pavilion



(c) An outdoor room adjoining a pavilion



EXAMPLES:



City Slice,
Boston Children's Museum

A three story Victorian house is cut on one side to allow for a better understanding of its structure and the way buildings work. The authentic furnishings provide opportunities for touching or even role playing, e.g. trying on period clothes found in a foot locker at the attic.

The Japanese House
Boston Children's Museum

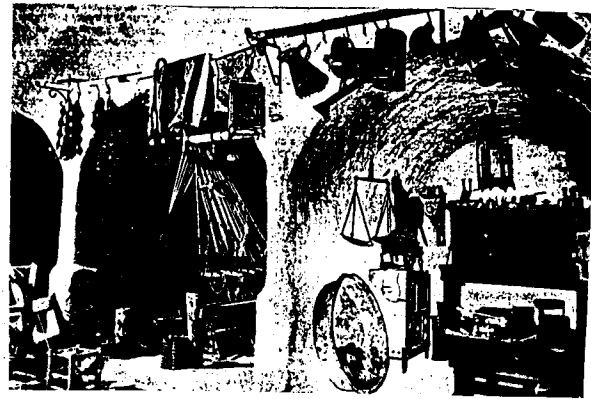
An authentic Japanese dwelling comes complete with furnishings. Visitors participate in the house daily "events" of the house, can touch and use its furnishings, and can even "role-play" with the help of a museum guide.



Potter's Workshop
Museum Haaretz

Tel Aviv

A bazaar dedicated to different trades is housed in an early Middle-Eastern shopping mall, complete with vaulted stores, furnishings and "store Owners" performing their skills. Visitors are allowed to touch and try tools and materials.



RELATED PRINCIPLES:

- * FOCAL POINT
- * OUTDOOR EXTENSION

FOCAL POINT

FOCAL POINTS AID IN ORIENTATION, PROVIDE INTERNAL PREVIEWS AND MOTIVATE THE VISITORS' PROGRESSION THROUGH THE MUSEUM.

ISSUES:

Monochromatic and exhaustive displays, even-looking and undifferentiated paths, and poor spatial orientation lead to object satiation and museum fatigue, and to problems with orientation and way-finding.

Focal points can provide one design tool to deal with these issues which center on the topics of paths, displays and activities.

The worst path is one with no end and no special events along the way. Whether monotonous or chaotic with no underlying logic, the main issue is the visitor's inability to establish a personal hierarchy of significance. Focal points aid in making decisions about which path to take, which exhibit to view. As importantly, they aid in recall: what did I see?

A criticism of many children's museums is their apparent lack of a coherent conceptual organization or connection between one exhibit and the next. Although the Exploratorium's fleamarket of interactive exhibits has proven to be very successful, the complex programs and the varying characteristics of the population served by many museums eschew this solution.

Wandering from one seemingly unrelated exhibit to another, or even worse, from one wing to another without an opportunity to make connections or conclusions reduces the potential to see the museum visit as a unified experience.

QUALITIES & CHARACTERISTICS:

Focal points can be visual and conceptual. They can punctuate, be points of reference in the museum landscape, and provide goals for progression. They can be objects, major events, near and far views, or a special place. Yet seen from below, an enticing overlook can be the object of a journey.

Whether they be symbols for a theme, a decision point along a path, or a gathering place, their success as a focal point depends upon their ability to be imaged and described simply. What they stand for must be understood, meaningful, and memorable. In many ways, focal points are interior landmarks and can serve as internal previews for adjoining displays.

APPROACHES FOR DESIGN:

A focal point is more than a bust in a niche. The successful ones weave together a variety of attributes.

1. A PROMINENT LOCATION:

At the largest scale, a central organizing space, the geographical center of the symmetrical plan can be the main strategy for orientation and wayfinding. The rotunda of a classical plan is a major crossroads and a great opportunity for a large focal point. Meaningful placement in the traditional sense is the center as the statues in plazas of Europe establish reference points. An eccentric location is more dynamic.

2. A MAJOR "EVENT":

The Chicago Museum of Science and Industry has converted its huge, classical central space into a mix of events. Within that space the coal mine serves as a clear focal point: it has physical presence -- tall and massive -- it is unique, and the event it houses is conceptually powerful.

3. NEAR AND FAR VIEWS:

Contrasts in viewing distance provide visual relief. A focal point at the end of a path provides a goal within reach. Those along the way punctuate,

providing pacing. They can double as the figurehead, or a prime example of the beginning of an exhibit cluster -- an abstract guide, an internal preview. The concentric organization of the exhibit areas in the Corning Museum is a series of graduated galleries ranging from displays for the general viewers to those of interest to researchers. The series is divided into twelve chronological eras. Announcing each era along the innermost path are twelve masterpiece columnar displays containing an exquisite example from the related exhibit.

An outdoor extension can include a special vista such as the Capitol Building of the United States viewed from the end of the "street" at the Air and Space Museum. Repetitive views of the same prominent focal point is a strong device for spatial orientation.

Focal points and retreats are highly compatible.

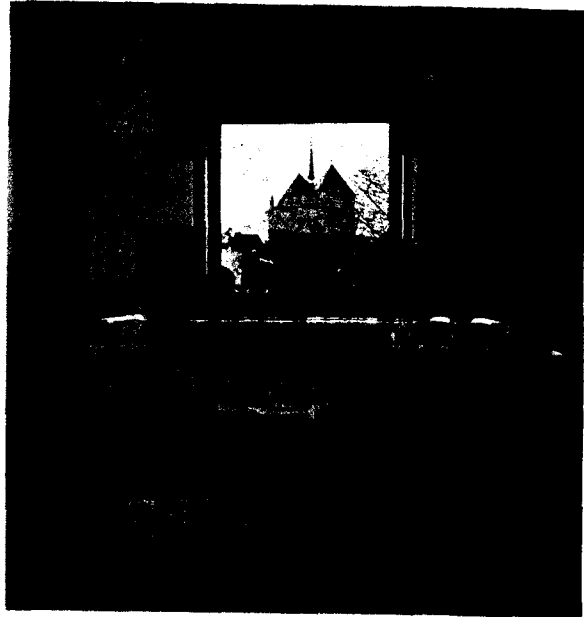
A given one such as the apse of the Monchengladbach cathedral provided Hollein with a framed view in a natural setting for a restaurant retreat. I. M. Pei created his own for the restaurants along the underground connection between the east and west galleries of the National Art Galleries. An external sculpture and fountain is an internal focal point as much event as object. People climb around.

The Louisiana Museum uses a sequence of landscapes as focal points along the path in a restful yet rich relationship of indoor to outdoor to path.

EXAMPLES:

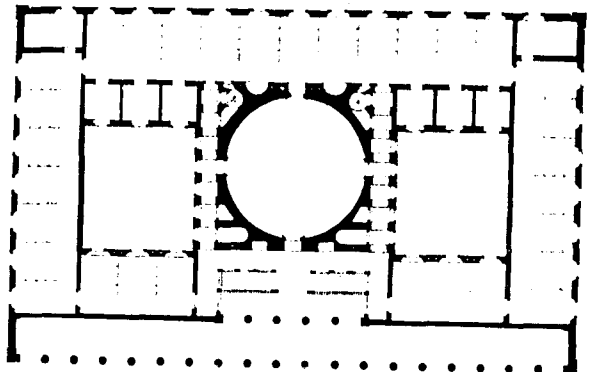
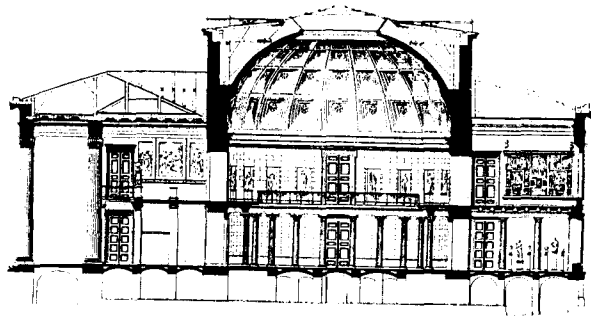
Municipal museum
Abteiberg-Monchengladbach,
West Germany
Hans Hollein 1981-1982

A special retreat in the museum
restaurant provides a framed view
of the greatest treasure of the
community -- the cathedral.



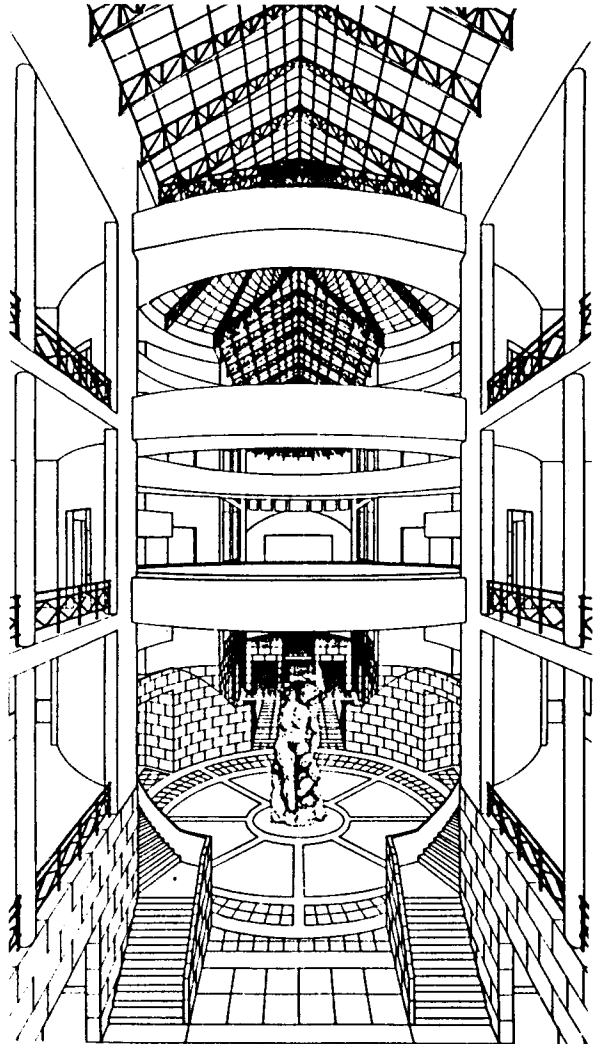
Altes Museum Berlin
K. F. Schinkel 1823-30

The classical rotunda is the most
dominant place in the museum. It
is centrally located, at
intersection of major paths, and
enhanced by a sky-lit circular
dome.



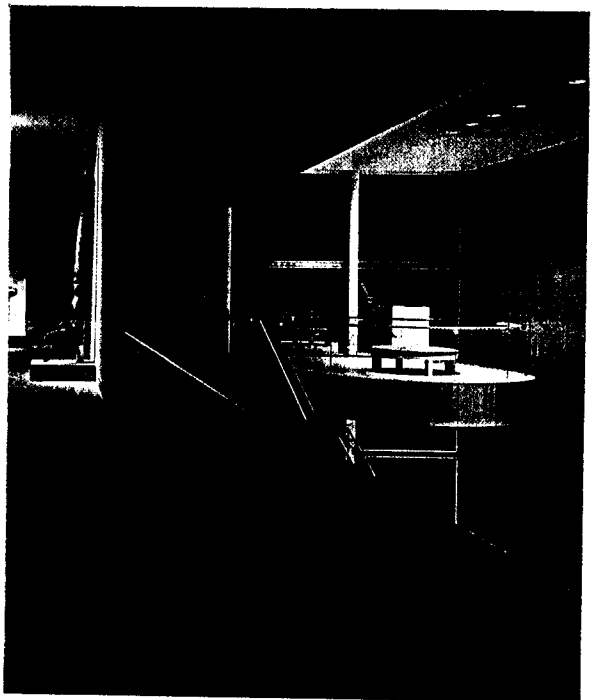
The Museum for Modern Art Vienna
Michael Hofstatler 1984

An object as a focal point -- a piece of sculpture -- is reinforced and "amplified" by a multi-story atrium/internal street that overlooks the central grand space.



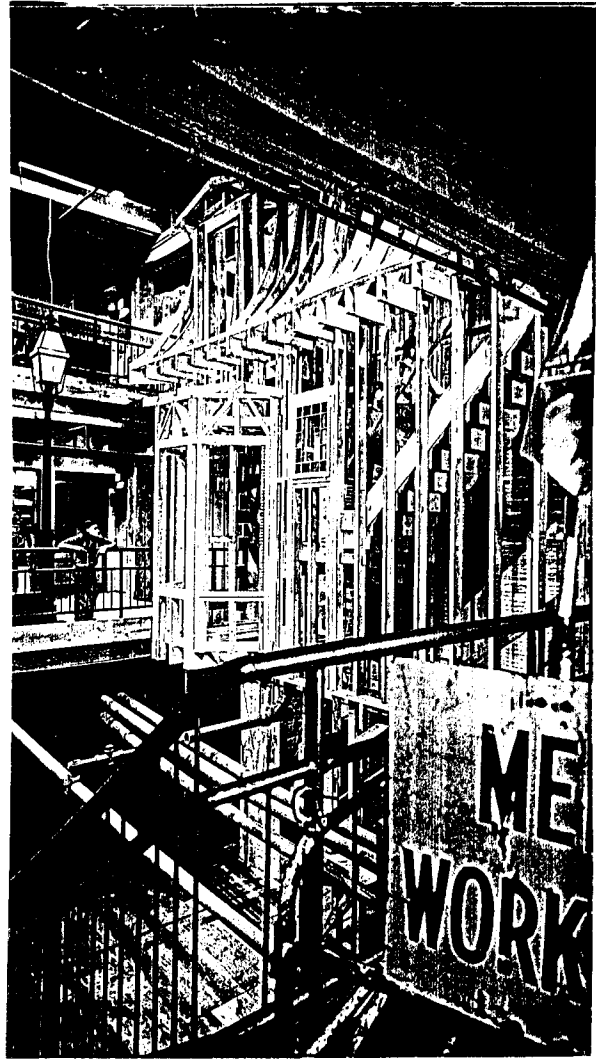
Dallas Museum of Art
Edward Larrabee Barnes 1984

The pool of light highlighting the balcony over the entry is an enticing goal and a promising retreat.



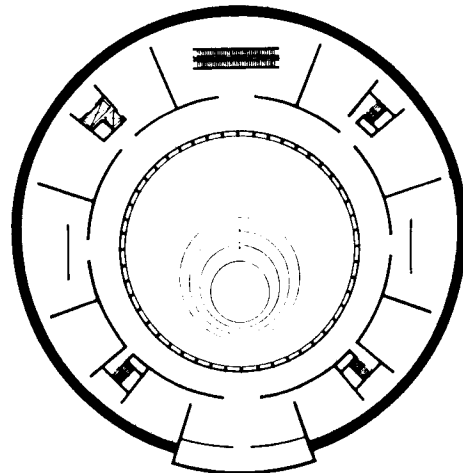
City Slice
Boston Children's Museum

A multi-storied vertical space accommodates the slice through a Victorian house from rooftop to basement. The display creates an atrium which connects the three levels of the museum. Although the "event" is not centrally located, it serves as an important internal focal point for orientation.



Hirshorn Museum Washington, D.C.
Skidmore, Owings & Merrill 1974

An outdoor fountain serves as a visual focal point, visible from any point on the circular route. The asymmetry of the fountain helps orientation in an otherwise almost perfectly symmetrical plan.



RELATED PRINCIPLES:

- * A LANDMARK
- * A PREVIEW
- * OUTDOOR EXTENSION
- * RETREAT
- * POOLS OF LIGHT

CLEAR CIRCULATION WHICH OVERLOOKS

CLEAR CIRCULATION WHICH OVERLOOKS EXPOSES THE GENERAL ORDERING OF THE PATHS AND PLACES OF THE MUSEUM. IN A SENSE, IT PROVIDES AN OVERVIEW OF THE TERRAIN. THIS IS AN OPPORTUNITY TO LOCATE ONESELF IN SPACE, TO HAVE A PERSONAL ORIENTATION OF WHERE ONE HAS BEEN, WHERE ONE CAN GO, WHERE ONE IS RELATIVE TO OTHER PARTS OF THE BUILDING.

CLEAR CIRCULATION ENABLES THE VISITOR OR VIEWER TO UNDERSTAND THE BUILDING'S PATHS AND TO HAVE AN IDEA OF WHAT IS HAPPENING NEAR THE PATH.

ISSUES:

It is critical that the visitor will understand how the building and its contents relate to the circulation paths. Problems in wayfinding and spatial orientation are particularly disconcerting to first time users.

All museums, with either a highly structured path system, or a loose path, should provide the users with information to allow for decisions about direction, progression ("where to go"), and activities/content ("what to do; what to look at").

QUALITIES AND CHARACTERISTICS:

- * Ability to see all or most paths from any point on the main circulation artery.
- * Reduced visibility of actual path can be exchanged with the ability to predict, from partially visible path, the remainder of circulation scheme.
- * Recognition and understanding of the circulation from a central orientation area near the entry.
- * Visibility of displays, exhibits and activities from the path.
- * Overlooking observation should be possible without interference with display areas and activities.

APPROACHES FOR DESIGN:

1. OPEN PLAN:

In a box-like, one "room" museum the circulation path can be delineated by the display and exhibit system. For example, in the Center for Visual Arts in Norwich, England, the route is the void between the solids--partitions, cases, exhibits, and activity stations.

2. ROUTE CENTERED ABOUT GRAND OPEN SPACE:

The classical organization of the Guggenheim Museum is a basis for a much-copied prototype for circulation arrangement. While the geometries vary among the different variations, the common feature is a horizontal and vertical circulation visible from a central point of origin.

3. INTERNAL, LINEAR "STREET":

The street pattern with "houses" on each side provide the coherent and predictable path structure, and with it the viewer's clear understanding of the route. The route can be seen in its entirety, such as at a central "tunnel" at Brooklyn Children's Museum; or the viewer can complete the picture by seeing part of the "street", as in the Air and Space Museum in Washington, where one cannot view the first and second floor simultaneously, yet one can tell how both work by viewing one, or even by seeing just part of the building.

4. EXTERNALIZATION:

The circulation path can also be an integral part of the building's skin or exterior. The spiral path of the Guggenheim is clearly delineated and understood on the building's skin. The elaborate people movers at the Pompidou Center in Paris are external to the building and explains in no uncertain terms how to get to each floor.

EXAMPLES:

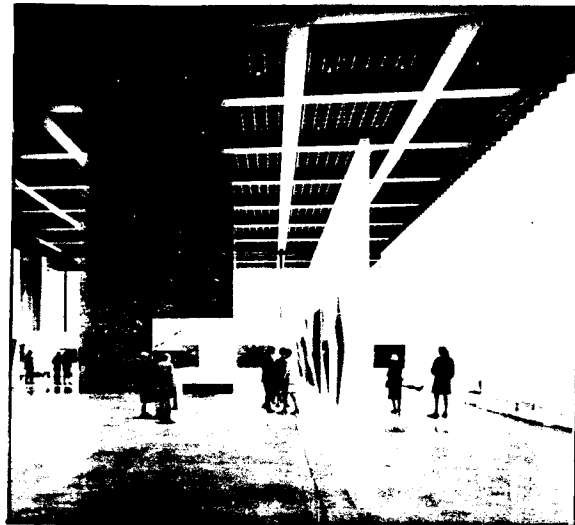
The Solomon Guggenheim Museum
Frank Lloyd Wright New York
1943-1959

The classic grand path overlooks the entire museum. The spiral ramp also serving as the display area allows for a view to and from all gallery areas. It also overlooks a central, domed open space. Despite its shortcomings -- particularly the limited variety of display opportunities -- the striking structure is still a source of inspiration for many new museums.



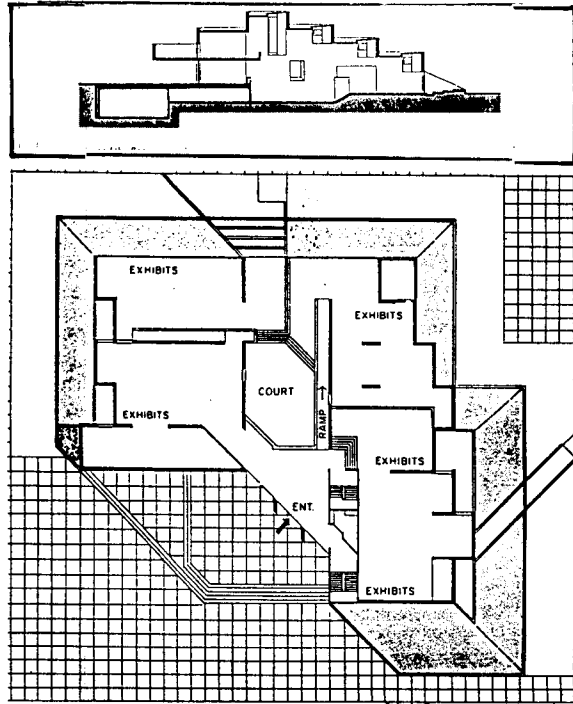
National Gallery Berlin
Mies Van Der Rohe 1982

The simple box-like open plan of the gallery gives the viewer a complete understanding of the building's scope and a clear knowledge of his position in relation to exhibits and paths in the building.



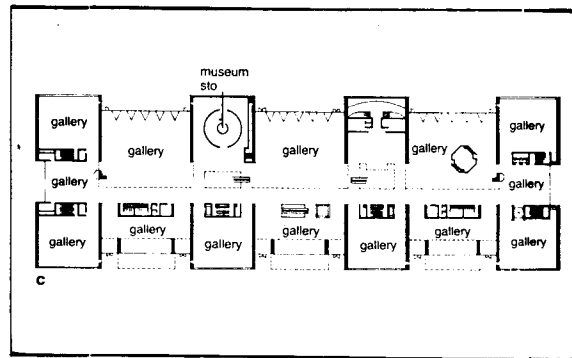
The Tamayo Museum Mexico City
 Zabłudovsky/De Leon/Lopes 1980

The circulation path descends from the vestibule to the exhibit areas. The central court and the route to all floors are clearly visible from the entry point. The Interiors provide also frequent glimpses to the outdoors.



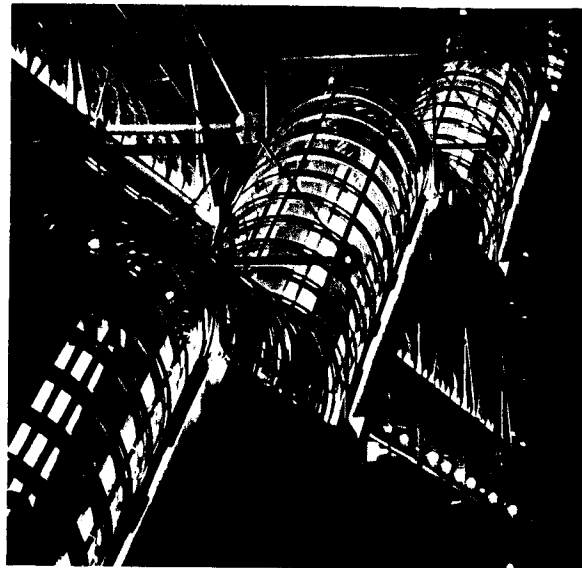
Air and Space Museum Washington
 Helmut Obata Kassabaum 1972-1976

An uninterrupted "street" on the first floor branches into exhibit "rooms" and two story spaces. The second floor's "street" overlooks the exhibits in the multi-story spaces.



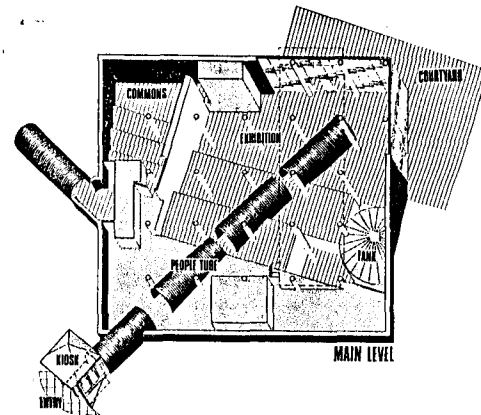
Center National D'Art Paris
 George Pompidou 1971-1977
 Piano & Rogers

The externalization of the stairs and protective tube allows the viewer to identify the circulation path from the outside. The museum's glass skin also provides overlooking view from the stairs onto the interior.



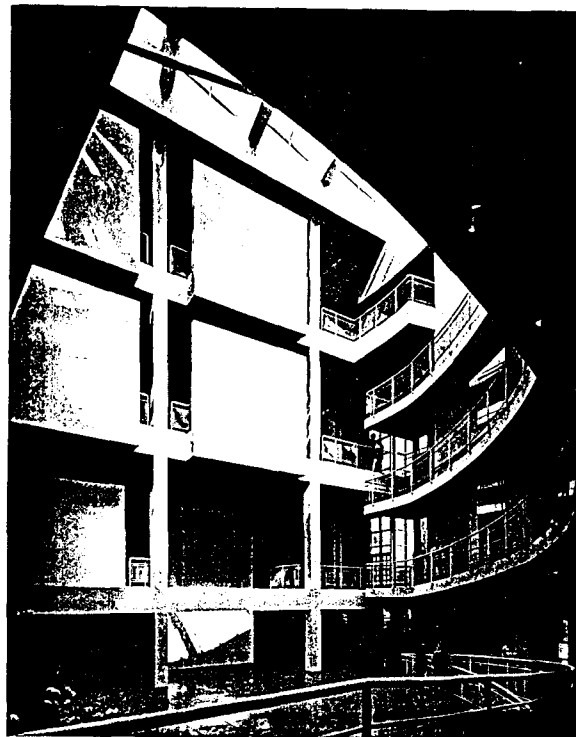
Brooklyn Children's Museum New York
Hardy Holtzman Pfeiffer 1975

The main path enclosed in a metal tube is a clear route with branches on every level. The path incorporates water activity stations, and is overlooking the universal space at every branching point.



High Museum of Art Atlanta
Richard Meier 1983-1984

The main path at the High Museum is a ramp ascending a four story atrium. It offers variety of spatial experiences, from a sweeping panoramic view to limited glimpses. A view from the entry upon the path provides a preview of the building's organization.



RELATED PRINCIPLES:

- * COMING AND GOING
- * UNDERSTANDABLE STRUCTURE
- * FOCAL POINT

A VISIBLE BACKSTAGE

A VISIBLE BACKSTAGE ALLOWS THE PUBLIC TO VIEW THE WORKINGS AND THE MAKINGS OF THE MUSEUM -- THE EXHIBITS, THE CONSERVATION WORK, STORAGE, THE STAFF OFFICES AND ANYTHING THAT SHOWS HOW THE MUSEUM TICKS.

THE ISSUES:

Traditionally, museums have been introspective. Most of the support services and basic museum processes such as conservation and display design were performed behind closed doors.

Museums need to communicate a more dynamic image. The museums of today are responsive to the public and contain a host of fascinating activities. Much of this vitality radiates from those hidden work and process chambers, and can be shared with the public.

There is also a need to communicate to the public some basic information about the processes of the museum. Display design and development can be as interesting, educational and as important as the final product; so why not let the process become a display in its own right?

Finally, there is a need to demystify technology, science, and art, to make it look accessible and not just the domain of the specialist. For example, The Exploratorium in San Francisco has a policy to construct displays in the public view. The use of simple materials and the level of finish give the impression that you and I could do it, if we wanted to.

Exposure of the "backstage" functions to the public can create several positive byproducts. The close encounter can:

- * Increase the public's accessibility to the staff;
- * Increase the utility of materials otherwise lying unused in storage;
- * Create or enhance an informal and friendly image.

While these relationships promote an image of an accessible museum, experience has proven that the ultimate benefits include also an increase in the amount of positive publicity, the number of volunteer workers, and the income from fund raising (Berrin, 1981).

However, in designing a visible backstage, one must consider the related issues of security and safety and staff fatigue, generated by overexposure of the staff to the public.

QUALITIES AND CHARACTERISTICS OF A VISIBLE BACKSTAGE:

The backstage area includes those museum-parts not traditionally in the public domain. In children's museums, this quality should not be confused with displays which employ the concept of "visible backstage" e.g. "City Slice" at Boston's Children's Museum, where a section through a Victorian house exposes the guts of the structure to the viewer.

The type of access to and the image of each part of a visible backstage can be free or controlled, informal or formal, etc., depending upon the context and the larger objectives of the museum.

Part of the magic of being allowed behind the scenes is the contrast to the normal ambience of the museum setting. Peeking through, partially visible views, very serious, outrageous, or even ordinary settings are all valid experiences.

APPROACHES FOR DESIGN:

1. TRANSPARENCY:

Separating the backstage activity from the public by a glass wall provides a fishbowl or peephole arrangement that is easy and relatively inexpensive to arrange. This approach allows for complete thermal and acoustical control.

At the Ontario Science Center in Toronto, the boiler room and heating plant are glass enclosed, mechanized, and broadly displayed as part of the general exhibition.

2. GOING ON FRONT STAGE:

Treating a service function as a display in its own right is a bold strategy that brings the backstage into full view. It has the added benefit of increasing the actual square footage that is public space without increasing the total size of the museum.

The Exploratorium in San Francisco places the exhibit workshops near the front door, in the midst of it all; thus a service function becomes a full partner in the display area.

The Fine Arts Museum of San Francisco placed a substantial conservation project in two prominent galleries of the De Young Building. The conservators work on the fourteen foot long murals behind large plexiglass windows. This project lasted many months, and was an integral part of the floor's exhibit.

3. CONTROLLED ACCESS INTO "FORBIDDEN ZONES"

Spaces dedicated to a singular service function such as storage can be utilized by the public by changing the accessibility, providing light, and keeping sensible order in the placement and organization of objects.

The Louvre in Paris has opened a storage floor for the study and public viewing of paintings which otherwise would be stored away in a remote basement.

What do you do with all that stuff? The catalogued discovery boxes in children's museums are a miniature version that circumscribes the need for opening up an area of the museum; however, viewing large scale storage can be experiential and informative, giving visitors a clue to the many roles of the museum and its building.

4. SERVICE CONNECTED TO EXHIBITS

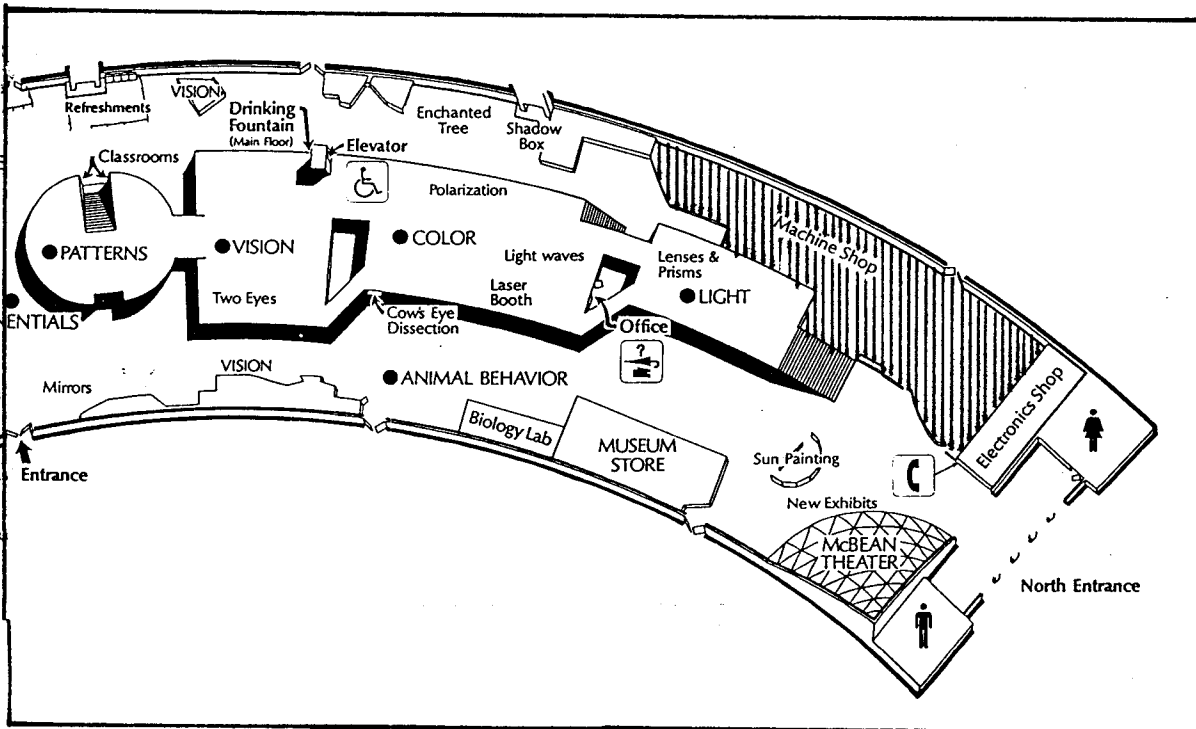
If a curator's office and work space is near the exhibit area, the possibility of interaction with visitors is increased and, at least, exposure to the public view is greater.

Boston's Children's Museum has several offices distributed throughout the building, rather than conventionally centralized in an "administration" zone. This arrangement allows the public a partial view into the office, and lets people ask questions and consult the curators right where they are needed.

EXAMPLES:

The Exploratorium San Francisco
Original Structure:
Bernard Maybeck 1915

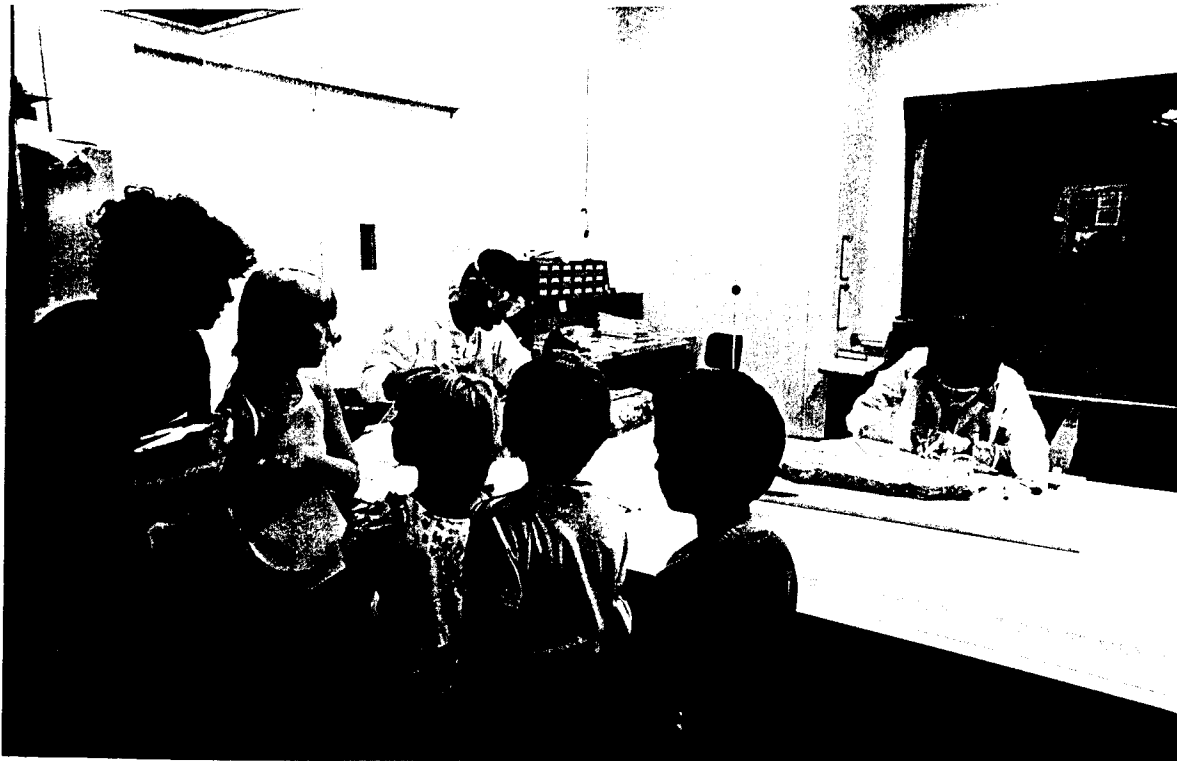
Located at the center, next to the entry, the exhibit workshop is an island made up of machines and materials and intense activity. Its presence sets a mood that affects the overall ambience of the museum.



The Louvre Paris

What is typically a "no man's land" was transformed into an activity zone. The naturally lit storage rooms on the top floor are used to display study collections of paintings that would otherwise collect dust in the lonely basement.



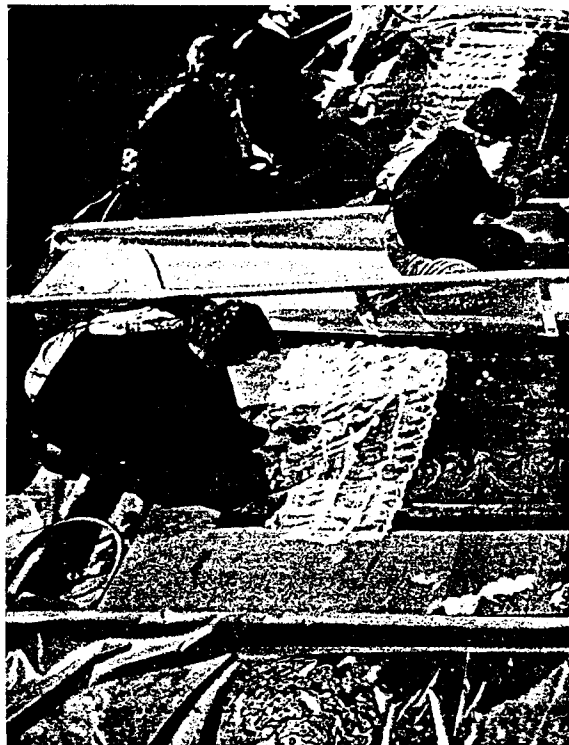


Fine Arts Museum San Francisco

The public can watch the conservators in action in the lab through a glass wall. Explanations and video tapes provide supporting information about the process.

Minneapolis Institute of Arts

Conservators are down on their knees, working on a huge tapestry in a main gallery. Their work is open to close scrutiny by the museum visitors.



RELATED PRINCIPLES:

- * FOCAL POINT
- * DISTRIBUTION OF SERVICES

DISTRIBUTION OF SERVICES

DISTRIBUTION OF SERVICES REFERS TO THE DISPERSAL OR CONCENTRATION OF VARIOUS SERVICES WITHIN THE MUSEUM. DISPERSING OF THE FREQUENTLY USED SERVICES THROUGHOUT THE MUSEUM CAN INCREASE THEIR EXPOSURE AND ACCESSIBILITY

CONCENTRATING THEM IN ONE PLACE MAY PROVIDE AN ECONOMY OF CONSTRUCTION AND MAINTENANCE; MORE OFTEN, IT IS A PERCEIVED CONVENIENCE FOR THE MUSEUM STAFF.

ISSUES:

The decision to disperse or concentrate the various services through the museum depends upon:

1. The goals of the museum and its programs. Is greater involvement a stated goal? If so, offices of curators and other museum workers should be dispersed. If the back stage activities are to become visible, they too might require different adjacencies.
2. The size and complexity of the building: if the museum is very large, or a multi-story structure, children or parents and young siblings should not be required to search for restrooms on different floors or at distant and obscure locations.
3. The conflicting needs of the public and the museum's staff, e.g. dispersed curator's offices might better serve the public, but may handicap the staff.

QUALITIES AND CHARACTERISTICS:

- * Easily accessible (in the broadest sense) to the public
- * Readily available
- * Visible and identifiable
- * Clearly recognizable
- * Non-obtrusive presence so that the on-going ambience and programs will not be disturbed

APPROACHES FOR DESIGN:

1. DISPERSAL:

Sensible distribution throughout the building: services such as restrooms can be dispersed in the building both vertically -- on each floor -- and horizontally, if the floor is of sufficient complexity and size.

Obvious location: services located near a more appropriate -- and predictable -- location. For example, curator's offices could be near their respective thematic zones.

2. CONCENTRATION:

Centralization and compactness: placing services in one location, whether central or not, can aid in their identification and in understanding the organization of the building.

Integration of several services to create a unified and more convenient service zone: preschool areas should have adjacent restrooms to facilitate practicing of competence in toilet training.

3. ADJACENCIES, NATURAL AFFINITIES AND MULTIPLE FUNCTIONING SPACE

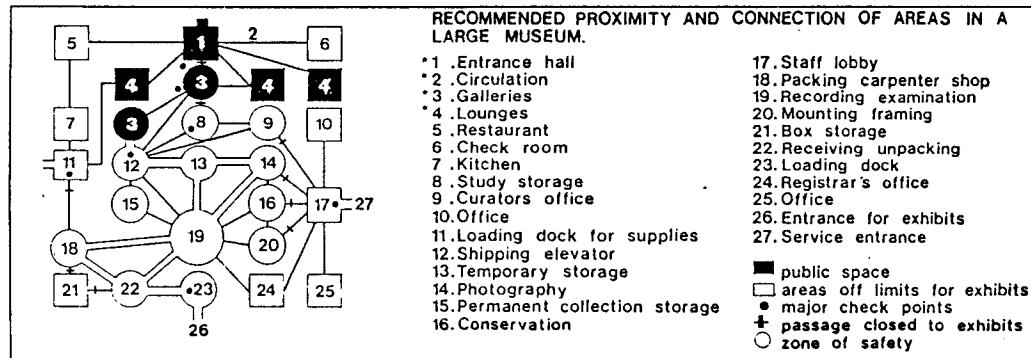
Although parts of the following section resemble a traditional check-list of a program for facility design, it is not intended here to describe a "universal" program. Rather, this is a presentation of most common functions and places in typical museums, and illustrative (but not definitive and prescriptive) of relations each might have with other functions. It is a checklist and an example to be used by the programmers of a new museum to review and examine their own considerations and assumptions.

Adjacencies between several functions in the museum are going to be consistently similar everywhere, e.g., proximity between entry point and coatroom is universally desirable.

It is also clear that adjacencies between many other functions might be different under different sets of circumstances.

For example, children's needs require distribution of rest rooms throughout the building to provide an easy and quick access; similarly, nursing mothers need a place for changing diapers. Zoning for daytime vs. nighttime operation may require partial closing of the building and extra restrooms near the entry and public, night-use area. A one-room museum, or a museum which does not plan to pursue limited nighttime activity would not be affected by both considerations.

In conclusion, while it is difficult to generalize about adjacencies, an example for possible proximities and connection diagram follows:



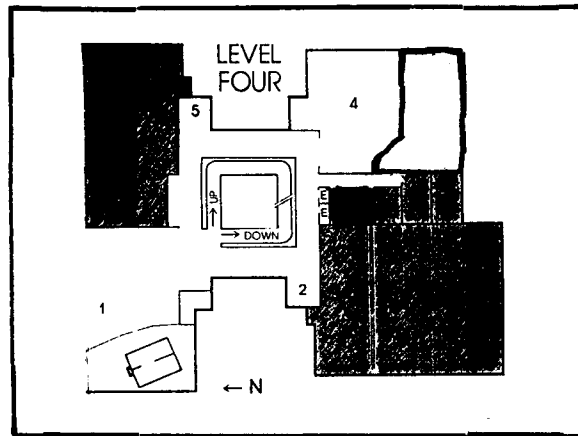
Roubilard, 1983

A longer and different list of functions is presented here as a programming checklist:

Parking
 Bus drop-off point
 Entry/exit point(s)
 Control point
 Rest rooms
 Gathering/holding area
 Gross motor activity area
 Coat room
 Orientation zone
 Toddler's activity/display area
 Children's activity/display area
 General activity/display area
 Storage
 Administration and staff
 Display workshops
 Restaurant(s)
 Retreat and rest areas
 Snack room/dining for kids
 Museum store
 Library
 Seminary room/party room/lounge
 Theater/performing arts hall

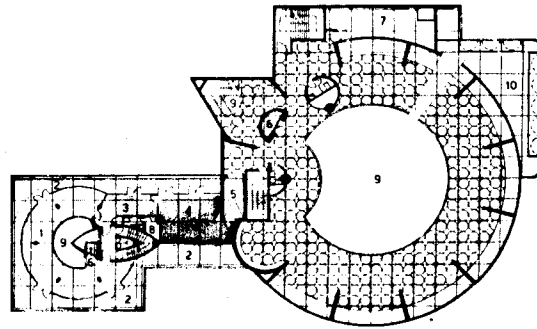
Playscape
The Children's Museum
Indianapolis Indiana

To enter the 2-7 year-old discovery area visitors pass by the restroom core. The location is the same central place on every floor.



Third Floor Plan
Solomon Guggenheim Museum New York
Frank Lloyd Wright 1959

Some basic services such as restrooms are almost evenly distributed both vertically -- on each of the five floors -- and horizontally, in each "wing" of the museum, without using too rigid symmetry or arbitrary repetition.



RELATED PRINCIPLES:

* ACTIVITY CORE

OUTDOOR EXTENSION

OUTDOOR EXTENSIONS PROVIDE OPPORTUNITIES FOR RETREAT, IMPROVE WAYFINDING, AND EXPAND THE AVAILABLE SPACE FOR MUSEUM FUNCTIONS. IT CAN BE A SIMPLE VISUAL CONNECTION OR PROVIDE ACTUAL PHYSICAL ACCESS TO THE OUTSIDE.

IT IS AN OPPORTUNITY FOR A RANGE OF SENSORY EXPERIENCES.

CONCEPTUALLY, OUTDOOR EXTENSIONS CAN COMPLEMENT OR CONTRAST THE ADJOINING INDOOR SPACES.

THE ISSUES:

Museum fatigue, wayfinding, and the limitations of space are primary issues in museum design. Several design strategies incorporating outdoor extensions address these problems.

The phenomenon of museum fatigue and the related problem of wayfinding affect the visitors' overall experience of the museum. Losing contact with and orientation to the outside promotes a distortion in the perception of time, overextends the stay and hinders wayfinding within the museum.

How far have I come? How long has it been? Where am I now?

Orientation: reliance on signage and maps for navigating the labyrinth of a museum large or small adds unproductive complexity to the museum experience, increases the amount of information that must be processed, and adds to the original cost of the museum and to its maintenance.

Object Satiation and Physical Fatigue: maintaining a constant focal distance and attention for long periods fatigues the eyes and the brain. As punctuation to the written word and as frames around pictures form meaningful groups of information, so

can outdoor extensions provide a bracketing, a pacing that clarifies the input as it provides physical relief.

Pacing: It all runs together and my feet hurt.

Breaking up the museum experience into shorter events rather than gorging on the whole museum without interruption encourages sampling and short, repeat visits. Glimpses ahead of a wall opening promise a long view, or the knowledge of a special retreat can be a destination not unlike a small pilgrimage or a quest. Besides being a place of rest, the outdoor extension structures the particular museum experience into a path toward a goal through natural limits -- a pacing mechanism.

Never enough exhibition space: What do you do with the donkey? The blockbuster crowd?

The shift to contextual displays and large blockbusting temporary exhibits places a greater demand upon the available space. Besides the actual square footage given over to display, the degree of enclosure and possible crowding is increased. When the context can be borrowed from the outside, e.g. an exhibit about transportation overlooking a shipyard, and some of the activities can actually take place outside, the museum expands its available square footage at a lower cost.

Special showings and promotions can draw large crowds and may include items and activities that do not fit easily into the inside of a museum. Exploiting the out-of-doors, even seasonally, increases the capacity for large special groups, or the special display -- including the donkey.

Serving the Community: Where can you go on a rainy day to get out of the house?

Visiting a museum in foul weather -- whether hot or cold, rainy or snowy -- is an opportunity to get out of the confines of a stuffy office, a crowded classroom, a boring house -- more space, longer views, new experiences. So the museum with a climatically controlled "outside" provides a service to the community aside from its primary goal. Consider the advantages of a sheltered gross-motor play area. This high activity center will be in demand more in foul weather than fair.

The added advantage to sheltered, enclosed outdoor spaces is the dimension of control. Depending upon the nature of the museum, its contents, and its location, enclosing an outdoor space may be, in the long run, less costly than controlling an open one.

QUALITIES AND CHARACTERISTICS:

A primary quality of outdoor extensions is the visual connections between the inside and the outside. They can be reference points in the near and distant view, recognizable elements in the larger setting, or an interior courtyard that provides a physical, internal focal point for orientation with natural light.

Moments of Reflection: Outdoor extensions can provide opportunities for long moments of reflection or short breaks in a series of thoughts. The subsequent relief brought about from this shift in focus and environment is more than visual. Accessible outdoor spaces expand the total variety of experiences available. Shifting the route from inside to out is an easy way to change the temperature, humidity, lighting, aromas, textures, and sounds to provide outdoor rooms for retreat and rest.

Complementary Context: Many indoor activities and displays can be complimented by an immediate extension to the outside. Visually, it can give a depth to thematic displays and reinforce a context. Direct connection to an outdoor room expands the display area without an expensive addition and provides special qualities that the indoor space does not possess.

Whatever the purpose, outdoor extensions offer variety and change: views near and far; connections to the surrounding context, whether a natural landscape or the built environment; microclimates -- shade and sun, breezes and sounds, aromas; privacy, quiet, and retreat; and an important quality for children -- a gathering place; an exercising place -- a place to run and yell.

APPROACHES FOR DESIGN:

Outdoor extensions may take many different forms and provide a variety of opportunities to exploit the surrounding environment:

1. DISTANCE -- NEAR OR FAR:

The extension can be immediate to the building and nearby, or it can be very distant -- such as the view of the Golden Gate Bridge and the skyline of San Francisco from the restaurant retreat in the Lawrence Museum of Science in Berkeley.

2. CONTEXT -- ACTIVE OR PASSIVE:

Near outdoor extensions can be used for visual relief, a change from indoor lighting, close-up viewing, abstraction to reality. Or, it can be a place to use and experience -- activity courtyards adjoining art demonstration rooms as at the Ontario Place.

3. CONTENT -- MAN-MADE, BUILT OR NATURAL:

Most outdoor extensions contain natural elements -- trees, shrubs, grass, sand, water. This provides a contrast, a relief to the non-natural interiors. However, extensions can be man-made and still provide a respite -- the Japanese stone and gravel gardens, a view to a busy harbor, intense human activity.

4. CONCEPTUAL AND CONTEXTUAL CONNECTIVITY TO THE MUSEUM:

Outdoor extensions may contain displays and activities which are a part of a particular display or is integrated into the museum's primary path or an accessible secondary path.

5. INDOOR "OUTDOORS":

In places of extreme weather or situations that demand a controlled climate, sheltering a parklike environment under a roof within walls, allows year-round, daily use and an openness within the security of the museum.

The enclosed atrium of the Ford Foundation Building in New York is an example of a trend-setter in the design of contemporary public buildings. The civic value has been demonstrated by the many enclosed commercial malls throughout the United States and public buildings in Canada. The atria function as a filtering transition space between outside and inside, a meeting place, a retreat, and a central organizing space. This approach is particularly suitable when there is no pre-existing natural place for an outdoor extension.

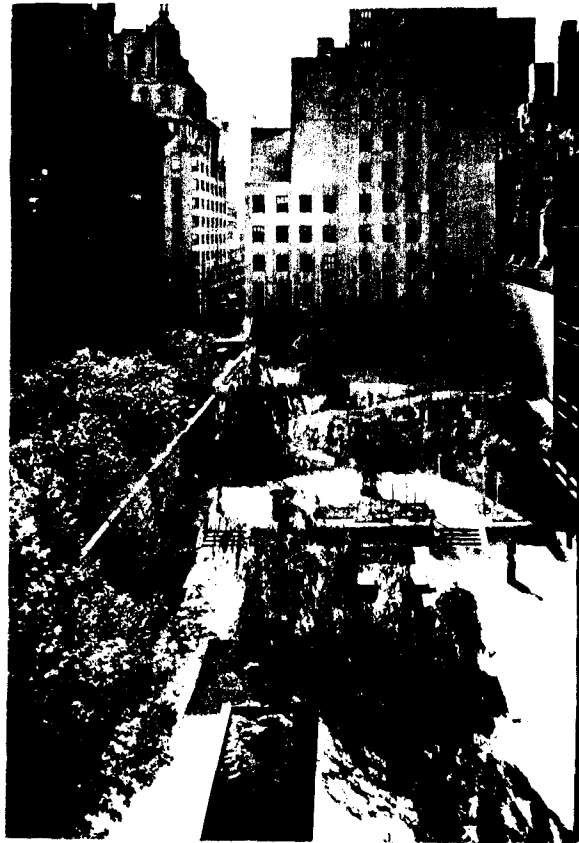
EXAMPLES:

Courtyard

Museum of Modern Art, New York
Philip Johnson & Cesar Pelli

1953/1983

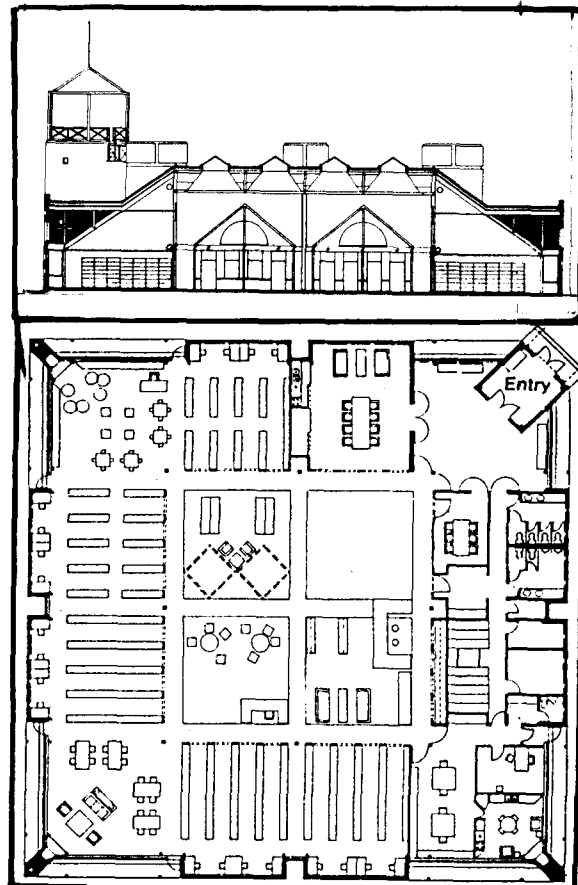
The outdoor sculpture garden doubles as a restaurant during spring and summer days. In the midst of Manhattan, the enclosed court is an oasis, a good retreat for the museum visitor and office workers on a lunch break.

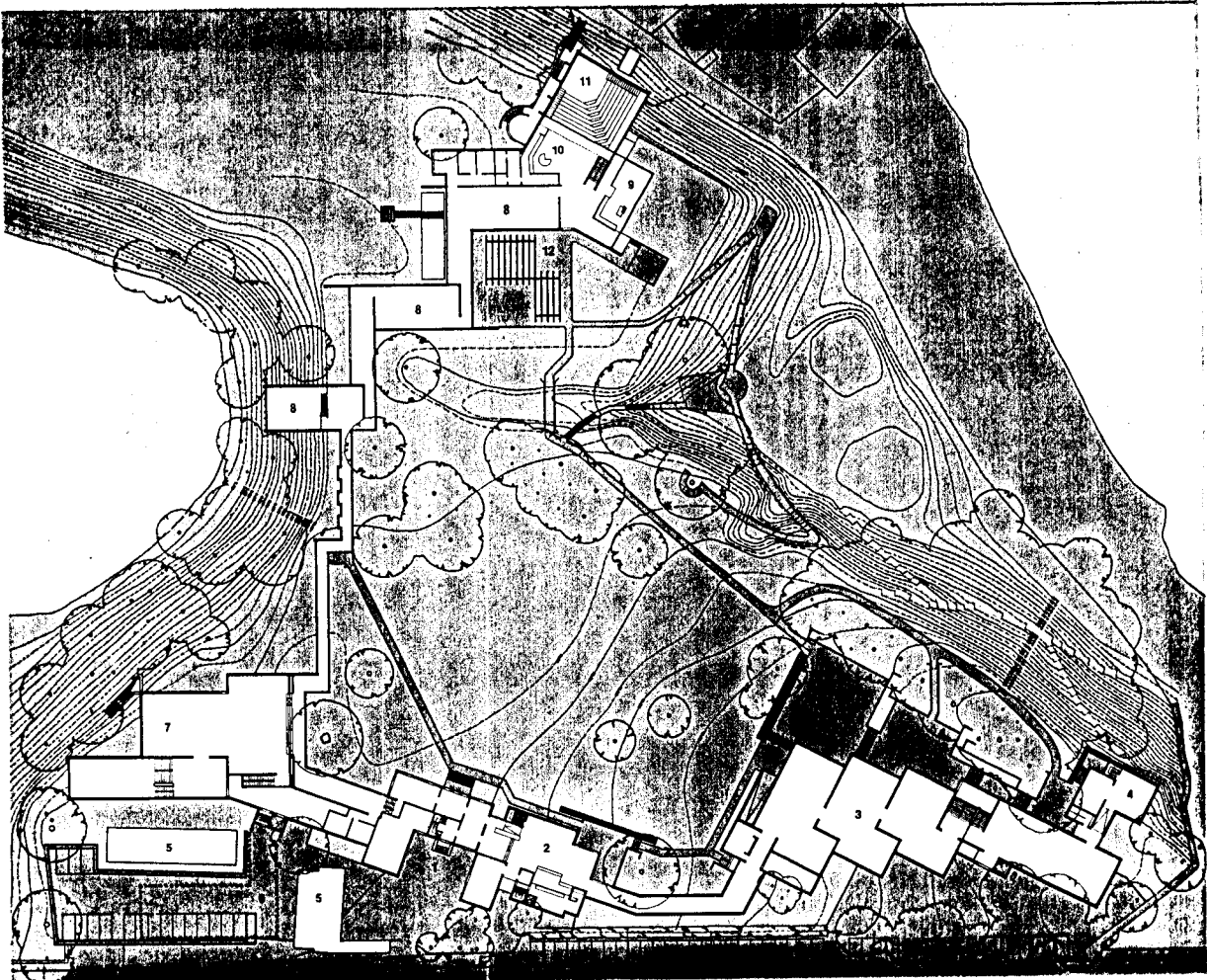


Unionville Library
Markham, Ontario
Barton Myers Associates

Canada

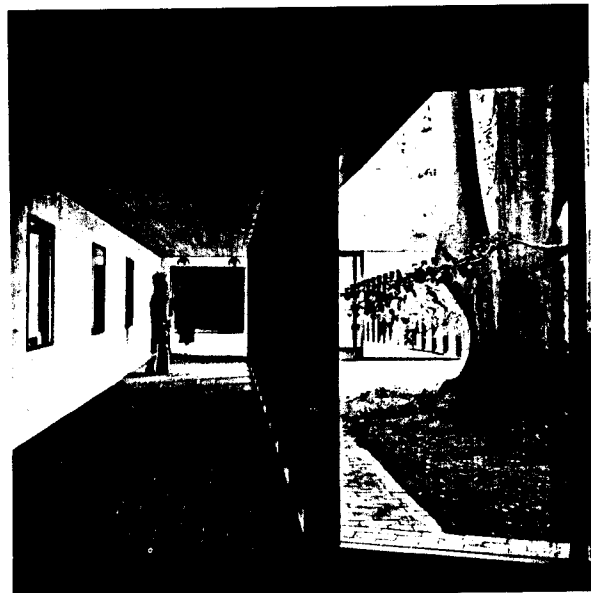
The interior, all-weather plaza combines climatic protection and urban planning. It functions as a central organizing space as well as an urban space.





Louisiana Museum
Humlebaer, Denmark
Jorgen Bo & Wilhelm Wohlert,
1958-1959

The dispersed, campus plan consists of several pavilions connected by enclosed walkways which overlook near and distant landscapes. The views outdoors provide reference points for orientation while the sheltered walkways are walkable retreats between pavilions.



Louisiana Museum

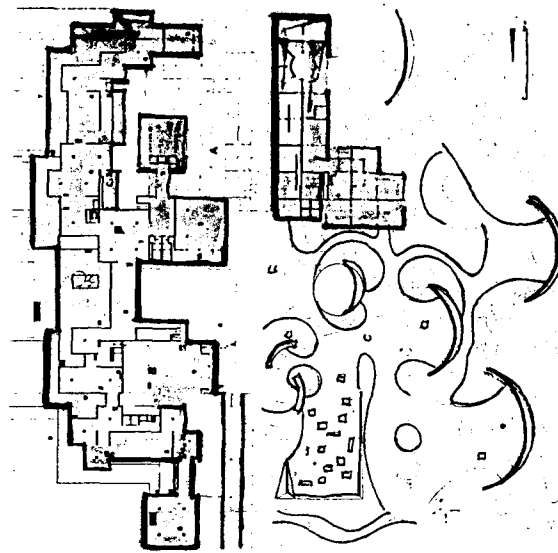
Denmark

An individual gallery and intimate display areas offer walls of glass to the outdoors. A serene landscape of pond and magnificent trees -- a huge "framed painting" in its own right -- provide an intellectual release from the artwork displayed in the pavilion.



Billy Rose Sculpture Garden
Israel Museum, Jerusalem
Isamu Noguchi 1959-1964

An outdoor "room" that is integral to the path of the museum. It is an extension of the interior display area -- a pavilion without walls and roof, relying on nature as its context.



The Barnyard
Museum Anaretz,

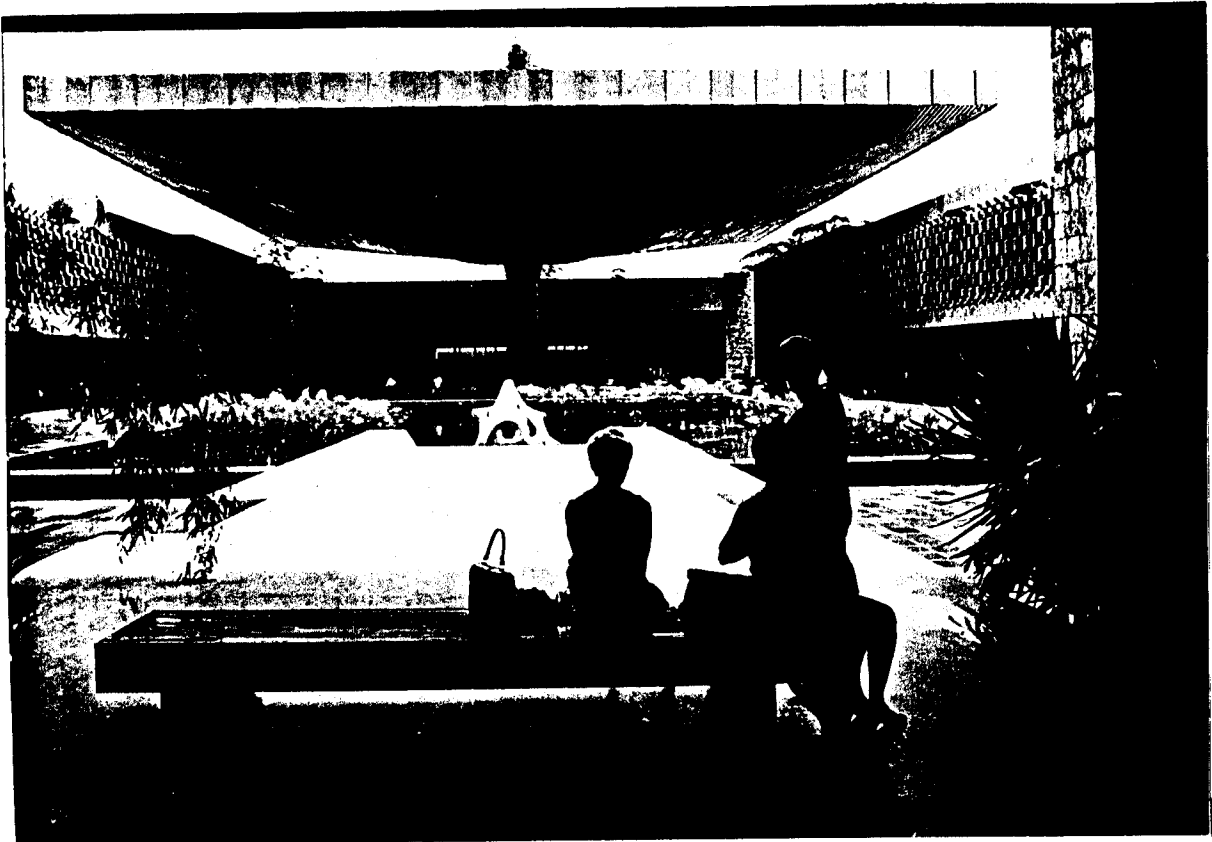
Tel Aviv

Students sitting on haystacks watch the process of treading the wheat with a threshing sledge pulled by a donkey. This area is a utilitarian outdoor room that provides continuity to the adjoining indoor exhibit by exploiting the favorable climate.



Museum of Anthropology
Mexico City, Mexico

The canopied courtyard serves as a central organizing space with microclimatic retreats. The large, dramatic fountain near the entrance serves as a focal point, delineates a space within the larger courtyard and modifies the climate of the courtyard dramatically -- physically and symbolically.



RELATED PRINCIPLES:

- * LARGE SPACES AND SMALL
- * POOLS OF LIGHT
- * RETREAT
- * ENTRY TRANSITION
- * FOCAL POINT

RETREAT

RETREATS OFFER BREAKS IN THE DOMINANT AMBIENCE OF THE MUSEUM. THEY COME IN A VARIETY OF FORMS: WHETHER SHORT OR LONG BREAKS, THEY PROVIDE MENTAL AND PHYSICAL PACING AND AN OPPORTUNITY TO REFLECT, RELAX, AND SOCIALIZE.

ISSUES:

Even in the most captivating museums (and perhaps more so than in others) the problem of information overload, object satiation, and just over-doing it leads to museum fatigue. Totally worn out visitors may have enjoyed themselves but they are less likely to return in the near future if their best recall of the last visit was how exhausted they were.

Rainy Day Visits: A variety of retreats serve a range of visitors and can be a primary motivator for a museum visit. A rainy day is a good museum day. A variety of retreats gauged for children to adults provides a broader context and more opportunities to improve the passing moment.

The need for pacing of the activities and the physical movement through the museum varies with age, whether one is alone or in groups, is goal orientated or just browsing, or just had a tooth pulled. Very young children and their parents require retreats that are noisier than most.

More than a Bench: Inherent in retreats are the need to maintain them, to keep them secure, and to provide quality experiences. What seems like a good idea at the design stage can be a management nightmare. Outdoor gardens that are inaccessible and shabby, snack rooms stuck in the corner of the basement with only a garbage can are anti-retreat.

The variety of retreats and breakaway points are essential for resting, pacing, a change of activity and a change of mood. Museum fatigue includes the mind as well as the body.

QUALITIES AND CHARACTERISTICS:

Usually, the word "retreat" conjures up images of sheltered gardens, dappled sunlight, and far views of meadows and hills. They have their place. Retreats can also be a pillowed niche along the path, a deep window ledge, a gross motor play area, a dining area or a place to pause and watch the clouds.

Social Choice: Opportunities for contemplation, to be alone, to be alone yet near others, and to have an excuse to talk to others are significant services for the museum to provide.

Physical Relaxation: A good place to wait for others and a place to get the feet up can make all the difference in the museum experience.

Good retreats can be simple or complex. They can overlook, provide refuge, be on the edge of activity. They can be active or reflective. They are usually a breath of fresh air for the mind.

APPROACHES FOR DESIGN:

Retreats can be thought of in terms of their visual content, activity content, and potential for social interaction and community service.

1. Visual Content:

The varied textures and colors of natural vegetation and materials, the sight and sound of running water, the light and shade and patterns of land forms and weather produce contrast in the natural environment. The spare elegance of a formal Japanese garden, a natural meadow, a broad expanse of wheat can provide a release. They are visual outdoor extensions.

Providing visual contrast is not limited to the natural environment. A distant city skyline, a near view of a picturesque harbor, a busy shipyard are all potent visual diversions as effective as the pastoral ones.

2. Outdoor Rooms:

Near ones can be outdoor rooms serving as a place for retreat. The sheltered courtyard may provide a modified, micro-climate that extends the temperate season. This includes sheltered outdoor play areas located out of the wind that capture the winter sun. Flexible coverings can extend the use further.

The most potent retreat of all is watching other people from afar, overlooking from a restaurant table, or on the edge of the activity.

3. Activity:

A variety of contexts and activities can provide diversions and places of retreat. They work well with visual retreats. For example, restaurants benefit from a good view, and interesting sights and provide interesting visual content, as well.

Dining and drinking are essential activities in a prolonged museum visit. If it is enjoyable, if it provides a memorable place for a retreat, it can be another reason for visiting the museum. Formal restaurants, informal cafeterias, and outdoor cafes have in common the sounds and aromas of dining and drinking. They stimulate anticipation and expectations of a refreshing break.

Gross motor activity provides release through the expenditure of energy, and through a shift in focus and perspective. Whether related to a museum theme or not, it can recharge both children and their adult companions. Gross motor activity areas can be inside or outside. They involve the large muscles of the body in complex and complimentary sets of movement incorporating the other senses as well. Climbing, crawling, rolling, hanging, running, jumping, and singing provide contrast, release, and a multi-sensory experience of form, place, space, and time.

4. Social Interaction and Civic Role:

Talking and playing with other people can provide diversion, release, and refreshment through many avenues. Couples, families, small groups, and large groups gather to converse, discuss, eat, or just sit and relax, and of course, watch other people.

Variation in the level of intimacy, exposure and interaction to the public domain requires a variety of arrangements from small, hidden nooks to seating overlooking busy and gregarious paths, to locations at the edge of a variety of activities.

The more public retreat areas can support a feeling of neighborhood and community. If they are visually or physically connected to the urban context, they can double function as an informal gathering area of special quality. Indoor, informal spaces can serve as an urban square.

The more active retreat areas can be settings for meeting new playmates from other neighborhoods.

EXAMPLES:

Louvre

Paris

A traditional circular bench in the midst of a major path provides a place to rest, an opportunity to view displays and to observe human activity.



Addition
Boston Fine Arts Museum
I. M. Pei

1981

The seam between the old and the new wings is a skylit street which contains many retreat features. A restaurant, a place to overlook, and a store are all visible from, but not in the way of the entry transition. It is the architectural and social heart of the new wing.



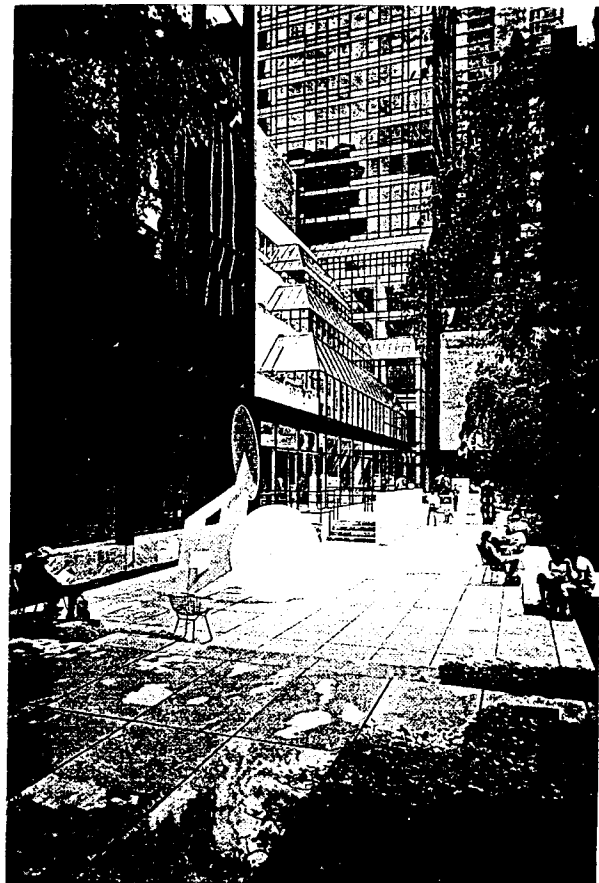
Freer Gallery of Art Washington
Charles Platt 1923

The cloistered outdoor courtyard contrasts the museum's busy setting. It provides a visual retreat from the galleries, and place to relax in the warmer months.



Museum Outdoor Courtyard
Museum of Modern Art New York
Philip Johnson & Cesar Pelli
1953/1983

In the midst of New York the delightful garden and sculpture exhibit serve as a free treat for visitors and diners at the outdoor restaurant.



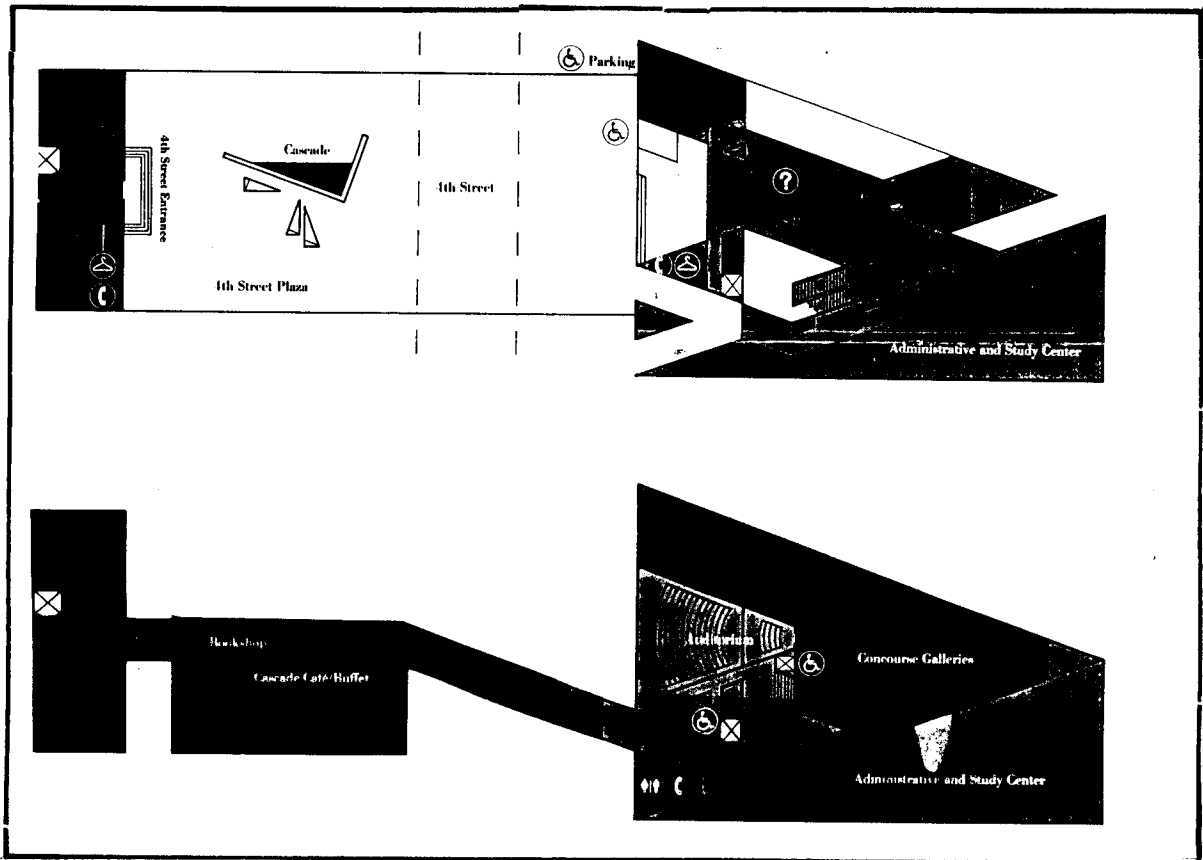
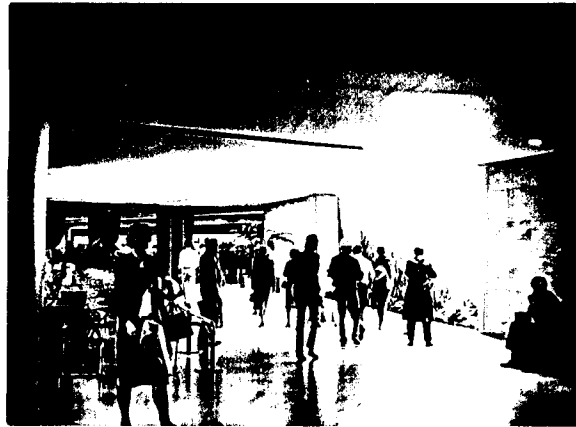


Louisiana Museum Denmark
Borgen Bo & Wilhelm Wohlert 1958-59

The view through to the serene, tree-lined pond is a classic example of an indoor retreat. The limit of only a few chairs supports the intimacy of the place; the breathtaking visual relief fosters an atmosphere of meditation and reflection.

Connecting link between the East
and West Wings,
National Gallery Washington, D.C.
I. M. Pei 1978

Located along the spine that links
the two wings, two restaurants
focus on the peopled underground
passage that is accented by an
under-street level waterfall.
Overhead, a secondary diversion
is provided by provocative,
peopled skylights. Nearby are
restrooms and a bookstore.



RELATED PRINCIPLES:

- * OUTDOOR EXTENSION
- * FOCAL POINTS

POOLS OF LIGHT

POOLS OF LIGHT* -- BOTH NATURAL AND ELECTRIC -- CREATE AND ENHANCE SPACES, DEFINE AND REINFORCE PATHS, AND PROVIDE HIGHLIGHTING FOR ACTIVITIES AND DISPLAYS.

ISSUES

Loss of physical orientation, difficulty in finding one's way, monotonous paths, and information overload lead to museum fatigue.

Lighting can be used to enhance circulation, highlight display areas, and provide visual relief.

The value of lighting in the traditional, permanent display/permanent path museum has been well-documented. The exploitation of lighting as a design tool is even more valuable in planning the spaces for changing displays and on adaptive reuse of buildings. Children's museums in particular have a history of beginning in recycled buildings and leftover space. In addition, their special interactive programming requires rotating exhibits, special circulation paths that may be mysterious, unexpected, thrilling. Within a designated space, different exhibits will have different spatial requirements, perhaps different circulation patterns. The flexibility of the space can be increased by modifying the spatial experience through changes in the lighting.

Limited exhibition space can be extended by providing different experiences of the same space in repeat visits over time by exploiting the changing characters of natural light and by stretching the perceived square footage through flexible electric lighting design.

Limited exhibition space can be extended by providing different experiences of the same space in repeat visits over time by exploiting the changing character of natural light and by stretching the perceived square footage through flexible electric lighting design.

Pools of Dark: Low light and the lack of daylight was deemed necessary to protect valuable objects in traditional museums. In newer museums demonstrations of the qualities of light and color as exhibits in their own right, the use of

lighted panels and screens in interactive exhibits, and the many video displays augmenting exhibits are regular features. Direct sunlight, bright light and reflected light render screens and small highlighting bulbs useless. They require special planning and provide opportunities for variety and change -- in the transitions from lighter spaces to darker ones, in the allocation of space according to the need for darkness, and in the qualities of retreat associated with shaded places, places in the poche.

Just how much are the kids learning? They just run from one exhibit to another.

This criticism of Children's Museums is a primary concern of the staff. Severe wear and tear on displays, incidental, unintentional vandalism and roughhousing is expensive and limits the accessibility of the exhibits for others. Although interactive displays encourage play and the new museums strive for an informal atmosphere, brightly lit undifferentiated spaces encourage gymnasium behavior. Contrary to lighting theory of the sixties, a lot of light is not necessary the best strategy -- even for children. Variety and change emphasizes, provides a focus, punctuates the path.

QUALITIES AND CHARACTERISTICS:

The manipulation of natural and electric light encompasses a broad range of techniques for defining space, affecting spatial perception, providing a focus, highlighting selected paths and displays, and creating moods -- from intimate and restful to the gregarious and energetic.

The particular quality of the available natural light depends upon the interaction of climate, season of the year, and time of day. That of the northwest is generally pale, misty and cool, of the southwest, bright, sharp-edged and warm. Erickson's Museum of Anthropology in Vancouver exploits and expands the pale, natural lighting by washing walls from skylights, using walls of glass, and reflecting it off water.

Whether natural or electric, light can cast strong shadows that emphasize lines, curves and edges. It can be diffuse, like the light on a soft rainy day or in twilight. It can be a warm pool, focusing attention and illuminating one of many hands-on exhibits in an otherwise undifferentiated space.

In general: darker spaces are quieter, brighter spaces livelier; illuminated, low ceilings are perceived as closer than those that are in shadow.

APPROACHES FOR DESIGN:

The following suggestions for the application of light to design is not intended as an all inclusive list of lighting techniques. Although the discussion uses the term lighting, the interplay of color and the texture of the material upon which the light falls or shines through affects the unique quality of the light.

Strategies for delineating the path can be a straight-forward reinforcement from pools to washing the walls or by targeting a focal point in the distance.

The stained glass window wall of the Denver Children's Museum serves as a focal point at the end of the first floorpath, while at the same time allowing a view through to the secure courtyard, and illuminating the vertical circulation. In addition, it is an interactive exhibit of colors and textures of glass and riddles, turning the climbing of stairs into a search for answers -- an intimate experience with a usually distant art form.

Illuminating icons, highlighting decision points -- intersections or paths -- and providing previews through the introduction of light from another source in the distance along the path, exploits the tendency of people to move toward light. Washing the walls with light establishes a stronger sense of edge. All aid in general wayfinding and physical orientation.

Conversely, movement into darker spaces can be mysterious or threatening. Provision for degrees of darkness, a transition zone, or compatible adjacencies of lowered light can facilitate the appropriate experience.

The color of the light -- warm, cool, golden green, etc. depends on the source and the direction that the light comes from: high and above, from the side, even from below can be interesting.

Providing places in the poche encourages retreat and rest and provides places for mini-theatres.

Incorporating the changing light of the seasons and the time of day can provide new perspectives for the same exhibit.

However, the disadvantages of uncontrolled light include the considerations of unwanted reflected light -- glare, and the deterioration of materials.

EXAMPLES

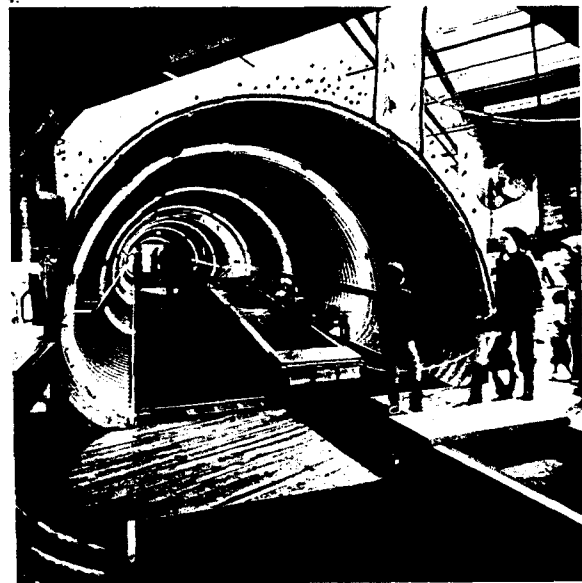
Kimbell Art Museum
Ft. Worth Texas
Louis Kahn 1972

Perforated metal diffusers spread daylight from a skylight in the crown of the vault. The unique ambience created contains the varied qualities of a silvery, luminescent glow at the top of the vault, with localized pools of artificial light at selected nooks.



Brooklyn Children's Museum
Hardy, Holtzman and Pfeiffer 1982

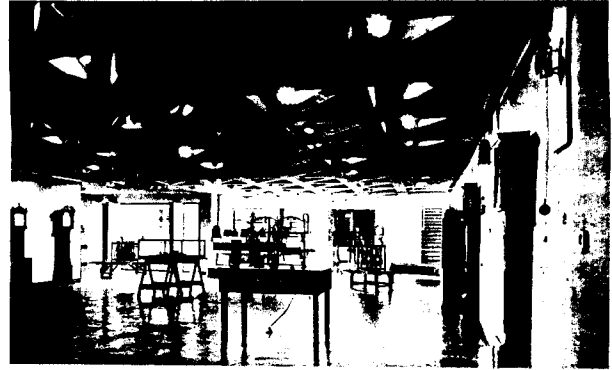
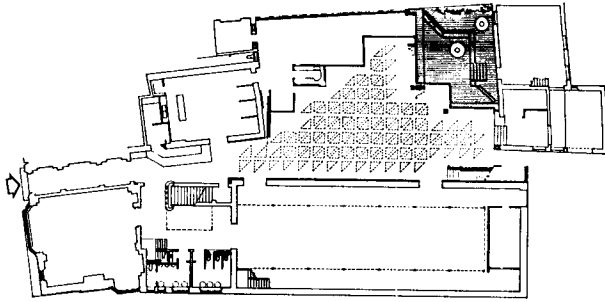
A dark tunnel serves as a main circulation path. Brightly colored, spiraling neon tubes dramatize and enliven the ambience adding exhilaration to the mysterious.



Galleria Nazionale
Palazzo Abbatellis Palermo
Carlos Scarpa 1954

The icon serves as an illuminated focal point which directs the view through a series of rooms. Natural light from a window in the foreground further entices.





Dorset County Museum Dorchester
Brawne Associates 1971

A corner outdoor extension brings a delightful view and a sense of daylight into a large one-room addition. The utilitarian lighting is done by tungsten fixtures in the ceiling's coffers.



RELATED PRINCIPLES

- * FOCAL POINT
- * OUTDOOR EXTENSION
- * LARGE SPACES AND SMALL

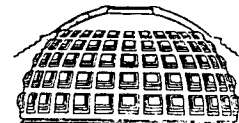
* The Title is after Alexander's Pattern #252 (Alexander, 1977). The contents, however, encompasses wider set of concerns than those in Alexander's.



ARCHITECTURAL TREASURE HUNT AT THE CORCORAN



ACROTERION



COFFERED DOME



ANTIFIXAE



EGG & DART



PANATHENAIC
FRIEZE



FRET



CLAUSTRA



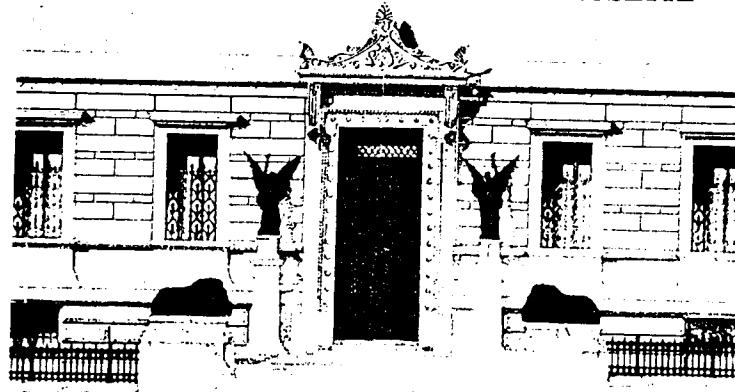
PEDIMENT



ATRIUM



ROSETTE



EPILOGUE

The fullest aspect of discovery . . . occurs when each separate piece of the museum is so rich that it has components nobody knew were there when it was first set out.

. WHAT IF?

Frank Oppenheimer, Museum News
November/December 1982, p. 43

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