

On Collecting Material: Foundation Level Graduate Studio

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“The memory throws up high and dry
A crowd of twisted things;
A branch upon the beach
Eaten smooth, and polished
As if the world gave up
The secret of its skeleton,
Stiff and white.
A broken spring in a factory yard,
Rust that clings to the form that the strength has left
Hard and curled and ready to snap.”

T.S. Eliot

INTRODUCTION

When explaining the principles, ideas and acts of translation that are present both in my work and teaching methods, I often use the phrase “Collecting Material.” To me, this phrase implies the position of the work in the realm of architectural thought; a method of making and a way of thinking about meaning inherent in architecture. An architect collects personal and societal memories and experiences that are sifted and transformed as she reconsiders it relative to the parameters of the architectural project and specific site. Both collecting and sifting are the task of the architect who then develops a new construct out of accumulated past experience and the material and abstract realities of the architectural project. Material as referred to it here includes the constraints of the program, the historical and cultural significance of place and the morphological structure of the site. A part of the process of educating students in architecture is assisting them in becoming aware of the potential material of architectural design and to enable them to develop methods of thinking and making which give order to these materials.

The intent of this paper is to describe an architectural pedagogy based on the collection of material relevant to architecture. More specifically, it is concerned with material that is taken from the existing context of the site. Using the tenets of landscape art and architecture to offer alternative approaches to land assessment, the paper promotes architecture as a complex system of relationships, intricately con-

nected to the physical structure of our environment. These issues will be discussed in the context of the Foundation Level Graduate studio work, at Arizona State University, School of Architecture. Students enter this program from subject areas ranging from the technical to the visual arts. Their perspectives and objectives vary greatly; they often find it difficult to make the transition into methods of design thinking. With this difficulty accepted, techniques of observing and analyzing are introduced that expose the student to basic concepts of architectural design while simultaneously allowing them to develop their personal perceptions. Students are asked to identify material from which an idea can

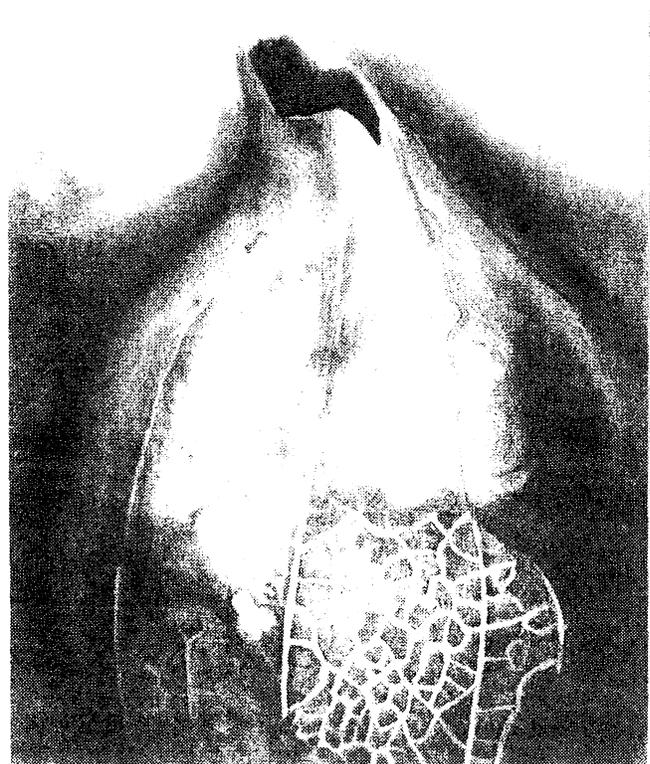


Fig. 1. Pencil drawing, exercise one

grow, act on the real and imagined possibilities of the project, build a knowledge of the ideas and methods of other artists and professionals, and develop a personal methodology.

The course "On Collecting Material" is an intensive five week program with studio sessions that meet daily. Within this program, students who have little or no design experience learn to use the tools of architecture and communication in addition to the basics of architectural design. The course begins with a series of daily exercises that examine specific architectural issues, such as, line, plane, texture, movement, and ways of observing (look at it from above, cut through it, consider its shadow, think of it existing on a busy street corner or in an abandoned field). The initial exercises ask students to develop particular skills of visual perception and communication; later exercises are written to help students develop experiential and conceptual principles. Each exercise expands the knowledge gained in the previous exercise, the final project being built on the foundations of the initial project.

METHODOLOGICAL PRECEDENTS

Design (*L. designare, to mark out, to define*)

"Design is a matter of understanding, not a technical skill. It develops with the growth of personal processes of observation and thought, exercised by continued application and refinement. It is not an accumulation of facts or techniques to be pulled out of a file when needed, nor can it be learned by merely watching someone else design. It is the ability to apply insight to unfamiliar conditions, and define the principles according to which materials and processes function. Understanding is helped by stating clearly in words the problems and principles. Design is response to needs, conditions, and aspirations."

Donald Atkinson Fletcher, "Designing"
in *Introduction to Architectural Design*
(NY: Fletcher, 1947)

A source which inspired the development of the course is Peter Rowe's book, *Design Thinking*. In the introduction to his book he points out that the design of buildings and urban form can happen in many ways. He offers historical precedent and conformity to theoretical prescription as two directives which commonly guide design and through which one can understand and interpret the process of the architectural profession. The third directive he offers, "can take the form of observing what designers do and how they undertake their tasks."¹ Design, Rowe points out, "appears to be a fundamental means of inquiry by which man realizes and gives shape to ideas of dwelling and settlement. Furthermore, design is a practical form of inquiry insofar as it is concerned with making a certain commonplace usefulness, quite apart from its more esoteric benefits."² Within this discussion, Rowe categorizes five heuristics which support the design of buildings. They are as follows: anthropometric analogies

which involve employing mental constructions that describe man's physical occupancy of a space; literal analogies, which borrow known or found form-giving constructs as a point of departure for structuring a design problem; typologies, which apply knowledge about past solutions to related architectural problems; formal languages, which offer guiding structures or rules that explicitly direct decisions about the correct functioning and meaningful ordering of formal design elements; and finally, environmental relations, which make use of a principle or set of principles that represent appropriate relationships between man and his environment.³ The consideration of what we actually do as architects, as well as material found or drawn from readings of the environment have directly influenced the course "On Collecting Material."

The process of collecting material is not exclusive to architecture. Many creative disciplines use some form of gathering and translation of information to develop their art. The discipline of archeology, for example, pieces together the remains of ancient structures to construct an image of the past. Much of what we know of ancient cultures has come through this form of observation and collection. Within the discipline of 20th century art and literature, Rauschenburg, Duchamp, Cornell, Fuentes and Joyce can be looked to as some of the great collectors and translators of found material. Particularly instructional to the studio projects and exercises are the works of Joseph Cornell and James Joyce, because their collections are based on personal and contextual experience. Both bodies of work are developed out of a very specific and considered sense of place, both artists wander their respective sites collecting material with which to build.

Cornell's boxes, for example, are assemblages through the dreams and realities of life; birds, cages, mirrors, ballerinas, charts of stars, images of Charlie Chaplin and Greta Garbo, wineglasses, pipes, corks, silver tinsel, rubbed wood, drawers filled with treasures found on countless hunts through the streets and shops of New York. Placed in unique contexts and configurations, these objects became a new experience used to reawaken memory. Born in Nyack, New York, Cornell never traveled or ventured far from his origins, yet his work is a reconstruction of the nineteenth-century 'grand tour' of Europe.⁴ These constructions enable the spectator to imagine Cornell's dream sequences, connect with the collective memories that he presents, and achieve a critical awareness of his vision of the future.

In his book *Ulysses*, James Joyce weaves together memories of the myths and experiences of his main character (Leopold Bloom) as he makes his way through a day in the city of Dublin. Joyce explores the scenery of Western culture as he pieces together a series of compelling journeys through space and time. The work reconfigures memory images from the past, relying heavily on ancient literature (particularly Homer's *The Odyssey*), and splices them together with experiences from his present to construct a story which awakens within us a path to the future.⁵

In the work of both Cornell and Joyce, physical material

is re-interpreted, assembled, and layered together with material from other sources. The final works are a web of scraps knitted together to form a new reality, a part of the continuum of the collective presence.⁶ The work evokes a sense of belonging (to a tradition, a culture, a place, and so on), as opposed to the idea of the *tabula rasa*, a new beginning, an isolated object, an infinitely and indifferently divisible space.⁷ This work displays an interest in the materials of memory, not nostalgically but in terms of juxtaposition, collage, of forming new orders and groupings by shifting the context of those materials that belong to the memory's heritage.

The studio has looked at the work of Enric Miralles, a Catalan architect whose work attempts to "transform rather than recycle sources and inspiration in the early modern movement" as an example of an architectural design process.⁸ His is an architecture which is sensitive to the notion of belonging to its place, embodies an interest in the continuity of historical precedent and the idea of place both as identity and impure material. In the words of Vittorio Gregotti, "This seems to overturn the famous Beaux-Arts debate between 'parti as model' and 'rendu as expression,' in which the latter, as the interpretation of the specific situation, becomes the structure for establishing the former."⁹ Miralles work is embedded with a pervasive connection to Barcelona, Spain. It is work that collects from the vitality of modern culture that exists in the city, for example, the sense of connection present in a Miro sculpture or the fluidity of mark making present in a Picasso painting is present in the architectural projects of Miralles. The Mediterranean climate, and morphology of the land is also accommodated in this architecture. Within the work one can read a great indebtedness to the late modernists; the spatial complexities of LeCorbusier, the emphasis of structural expressionism present in the buildings of Antonio Gaudi, the ritual of procession exhibited in the work of Lewerentz, and the redefinition of program and function that drives the writing and building of Peter and Alison Smithson.

Within the Miralles studio, particular attention is paid to the methods of translation that can be read in the drawings. To an architect, drawing is a primary activity not only as a tool of communication, but also as a means of thinking and finding one's way in the design process. The "material" of an architectural project may be the specific spatial requirements of a project, the structure of the context as it can be read through mapping, or the conceptual foundations derived and imported from another source. Inherent in Miralles' drawings is the essence of a design process, which becomes meaningful when interpreted in terms of the specifics of the program and site. Drawing as Miralles explains, is a place where the maker and the ideas can be together externally, sharing the same place on the surface of the mylar. This is different than the internal thinking space of the designer; thoughts become more accessible when they are put in visible form. On paper, a designers thoughts can be looked at separately, or in layers. They can be moved around. Also,

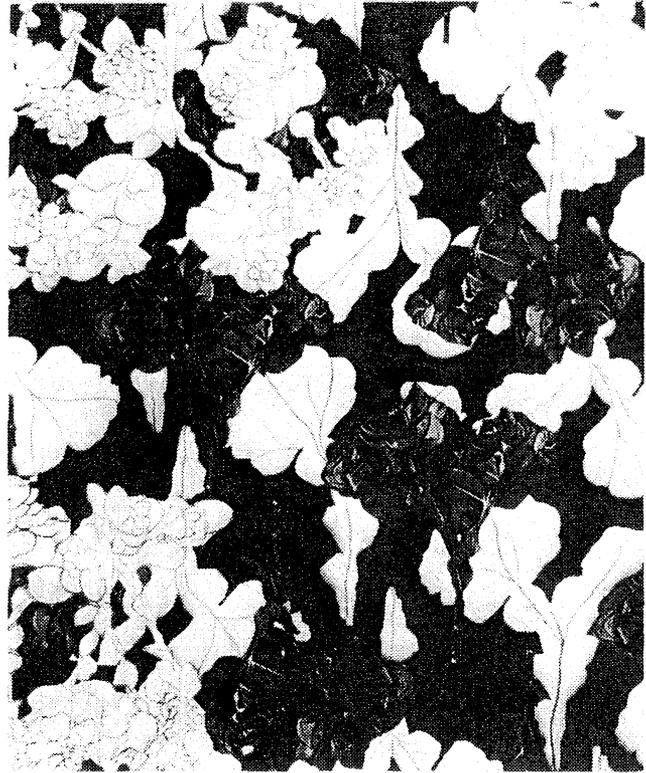


Fig. 2 Ink drawing/assemblage, exercise two

drawing enables the designer to think other thoughts than originally conceived in the project; the drawings take on a presence of their own.¹⁰ Within the studio course, "On Collecting Material," drawing assignments are greatly influenced by the examples set by the Miralles studio, all exercises are drawn as if they are the final product, not a representation of something yet to come.

THE STUDIO PROJECT

The studio problem prescribes a very particular and distinct method. The weaknesses of a structured method are clear to those that have taught or studied under one. Within the Bauhaus, for example, methods of instructing basic design disassociated the student from issues of culture and context in order to focus on the abstract and formal qualities of material. At the same time, the positive qualities of the Bauhaus instruction is clear in the resulting work. As empathized by Vittorio Gregotti, "Architecture finds its foundation in constructing a method for correlating specific problems and organizing them in meaningful ways." Within a beginning design studio, the use of prescribed method has the advantages of directing the work and insuring that certain lessons are taught. Also it provides the possibility of critical comparison among the members of the studio. The intent is to provide enough structure to allow the students to locate themselves within the site and focus on identifying a clear architectural problem.

To begin the problem, students explore the site of the project and gather information about its history, patterns of

use, and physical properties. The studio focuses on the collection of material relevant to the specifics of the site and allows methods of making based on issues of context to significantly influence architectural production. That the construction of architecture essentially results in a modification of what already exists, is somewhat obvious. The idea that modification, "reveals an awareness of being a part of a pre-existing whole, of changing one part of the system to transform the whole,"¹¹ re-enforces the structure of the studio. In these exercises students are asked to interpret and define the meaning of "site," in the terms of; line/boundary, plane/light and shadow, material/texture, movement/spatial relationships. With these concepts in mind the student visits the designated site and begins to collect material which will define the qualities of this place. Uncovering the obvious and hidden boundaries, the shifts in plane, the assortment of material, texture, color, light, vegetation, the connection to the urban fabric, the significant views, the way it is occupied, the condition of the air, direction of the breeze, movement of the sun, etc. This "material" is conveyed in a series of drawing assignments, assemblage/collages that documents their interpretations of the site.

The given problem is the design of a city pool/park for the residents of Tempe, Arizona. The site is located just a few blocks away from the ASU campus, selected for its easy access and its proximity to the Salt River just north of the site. The river has played a critical role in the development of the Phoenix metropolitan region. The river first allowed the Hohokam Indians to settle in the valley and develop the original irrigation canal system, producing a true oasis in the desert. Until recently the river had a constant flow of water. Now it is dammed to create a series of reservoirs which form Canyon, Apache, and Roosevelt lakes in the Superstition mountains northeast of the city. Additionally, the south edge of the site is bordered by the commercial center of Tempe, the east edge by one of the city's older residential neighborhoods and at the west edge by a major street connection to downtown Phoenix. Needless to say, the site is rich with material from which to draw.

The initial exercises ask the students to explore the qualities and multiple meanings of water and its relationship to architecture. To begin, students select a water source from the site; essentially, an object from nature. The intent is for the students to bring to their desk something that was not a representation of the site but that actually exists in the site. For a week, they carefully observe, draw and examine the objects. Systems of relationships and conceptual guidelines are given as a framework for considering the collected material, these are necessary first to teach drawing skills and second to help them identify the invisible but perceptible ordering systems present in the object. Eventually these systems become integrated into the students' personal records of the site. Students infer from their objects rules of composition and establish a basis for the length, surface, volume, and scale of their drawing assignments. Physical reflection, the act of repeating an image, form, or idea inherent in the project, was

another formal method of seeking meaning in the abstraction of a generating idea. Considering the physical movement through the given site and the abstract movement of water through the structure of the objects are other means by which the existing environment is drawn into the projects. These observations record more than a linear system; rather they denote a direction of the changing position of the human eye relative to the distant landscape, the change in visual perception due to movement, and spatial /temporal relationships.

The drawing assignments followed four basic concepts, line, plane, texture, and space. Drawings begin as a series of short exercises of two to three minutes. From samplings of the short exercises, students compose a drawing in such a manner that they appear to be a part of a larger system, thus underscoring the issues of context already mentioned. These assignments are followed by a re-making of the site first as a three-dimensional conceptual project and then as the developed architectural project. The following is a brief description of the assignments:

Line: the sensation of space arising from linear relationships is fundamental to the practice of architecture. The length of a line, the width of a line, the angle of inclination, the position of lines relative to the outer edges of the given space, all influence the production of the architectural space.
 Draw: the contour, the exterior edge, section at one level, ten

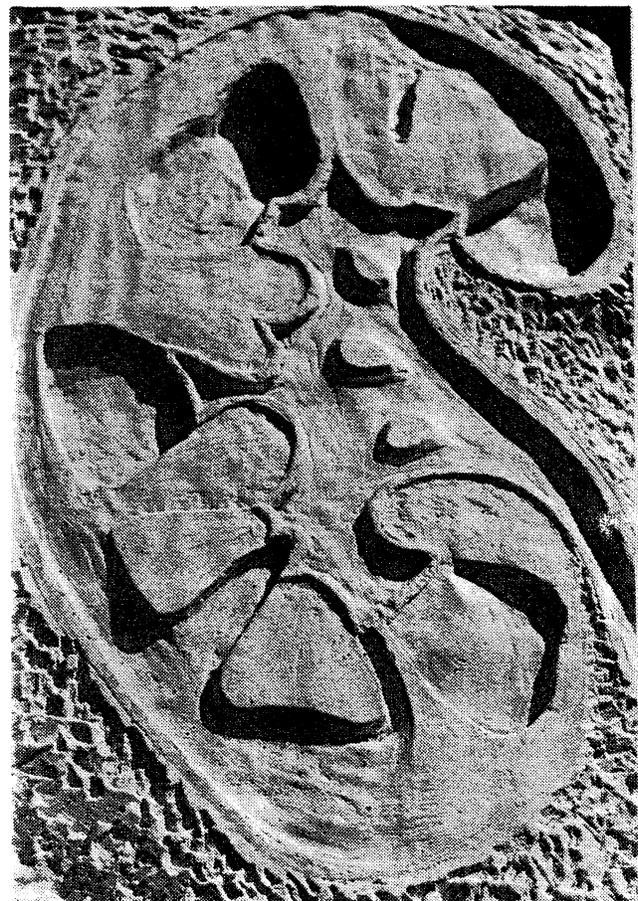


Fig. 3. Plaster casting, exercise three

sections at equal intervals across the object, a section that explains the structure of the object, a section that shows an even surface tension, the object as if it were moving toward you, the interior surface, varying the line weight, construct a measured drawing of the object, trace your eye across the object and draw this movement, draw it a series of points, draw the reflection, start in the center of the object and draw to the outer edge, draw it as if it has been flattened onto a sheet of paper, draw it with accentuated space, draw it half its size, draw it twice its size.

Plane: in an architectural project, plane is a flat or level surface, an imaginary surface of this kind, or a level of thought, existence or development. Plane in architecture is accentuated through the physical qualities of the particular material, use of light and shadow. Draw: the reflection/shadow of the object, consider its changing reflection as the sun moves across it in a day, the light as it passes through, cut the light out of black construction paper, make a filter on a sheet of paper that represents the light of the object, the object as one shade, with no variation in the tone of the drawing, as a series of planes that overlap, the way the light falls on the object, the structure of the object, the variation in color, the space around the object, as a rubbing.

Texture: the sense of space may be produced by differences in texture. This field of visual reaction is intimately tied to the sense of physical touch. An assemblage of material is one method through which a texture can be produced. It is a means of revealing unexpected relationships and qualities in material by placing them in entirely new contexts. Draw: the surface texture of the object first in line then in shadow, draw the change in texture as imagined it to occur over time, make the texture on a surface of paper with a sharp utensil, draw the emotive quality of the texture.

Space: in architecture, the creation of space is of primary importance. In this assignment, students are asked to explore spatial relationships and changes through the medium of color. The spatial implications of color are usually considered

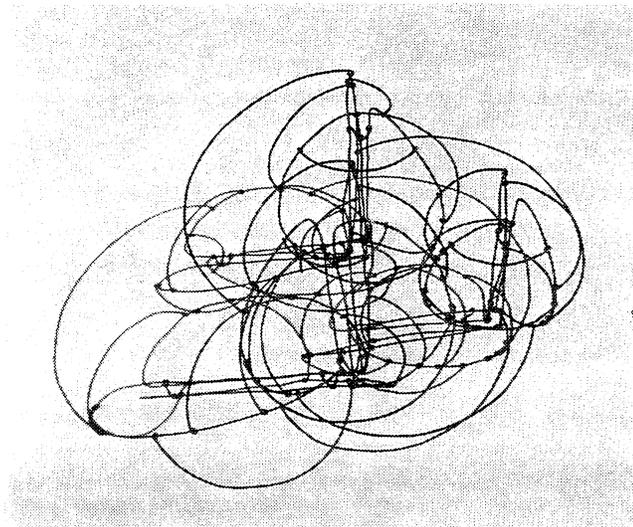


Fig. 4. Wire model, exercise five

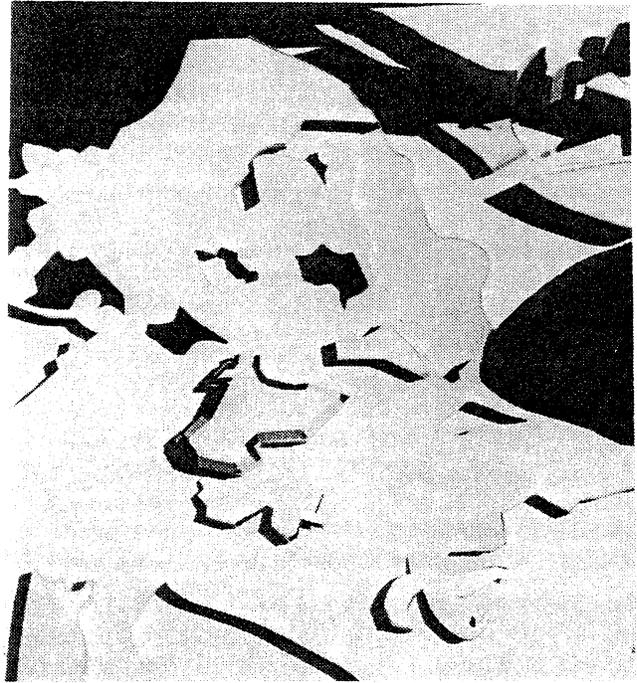


Fig. 5. Chipboard model, exercise six

to be such an intimately subjective field of experience that there may seem little that can be studied on the basis of objective principles. However, objective study of color offers constructive and expressive knowledge to the student of architecture. It is particularly significant that color be understood as a series of relationships that create effect. When one color is seen relative to another, a change occurs in the viewer's perception. Joseph Albers's *Interaction of Color* was the resource to guide the color exercises. Draw: gradation—change in intensity, relativity of color—one color appears as two, subtraction of color—two colors appear as one, after image—creating the illusion of a double or reversed image, transparency—finding the in-between color, color intervals and transformation, optical mixture, vibration.

Three-dimensional drawings: the drawing assignments are augmented with 3-dimensional drawing assignments in wire and chipboard, exploring the spatial qualities of the project. The problem is to construct space in three dimensions, referring to the concepts and ways of looking at the object initiated in the earlier drawings. The students are asked to begin by returning to one of the previous exercises and construct it in three dimensions first with line/wire and then in plane/chipboard. The students are to focus on the expression of structure and movement which can order space.

Once they have interpreted the meaning of the site, the students continue the design of the city pool project by transforming the site in the formal/analytical terms of an earlier investigation, then by applying the specific conditions of the program and context. The final design was to contain the essential elements of three architectural parameters; program, site and the conception of an architectural principle. The problem was to construct a sense of place and

identity that is unique to the city of Tempe, and that simultaneously connects to the structure and norms of the city. The issue of bringing water to a desert city became extremely significant. Students celebrated the manipulation of water, solutions address this question through the display of water in its varied and various states, the physical experience of water, the conceptualization and contemplation of water. The fundamental formal ideas and principles established in the drawing exercises remain but in the final projects, the specific forms, positions and relationships change due to the insertion of program and context.

Methods of making and the conditions of context influence architectural production, both have a profound and pervasive effect on building. Methods that enable the making of site sensitive and connected architecture can transcend preconceptions about function or constraints of building and create a lasting relationship between the occupant and the architecture. The site can act as an artist's canvas and palate, if it becomes a place to both collect and receive the material of architecture. Within the design studio course, "On Collecting Material," we have explored these issues with the intent to redefine the relationship between landscape and architecture in such a way that the division between the two is erased and a concept of architectural landscape emerges.

NOTES

- ¹ Peter Rowe, *Design Thinking*, (Cambridge, MIT Press, 1994), pgs 80-91.
- ² *ibid.*
- ³ *ibid.*
- ⁴ Mary Ann Caws, *Joseph Cornell's Theater of the Mind, Selected Diaries, Letters and Files*, (Thames and Hudson, New York, 1993), pgs 13-14.
- ⁵ Don Gifford, Robert Seidman, *Ulysses Annotated*, (University of California Press, Berkeley, 1988),pg.8.
- ⁶ Christine Boyer, *The City of Collective Memory: Its Historical Imagery and Architectural Entertainments* (Cambridge, MIT Press, 1996), pgs.68-69.
- ⁷ Vittorio Gregotti, *Inside Architecture*, (Cambridge, MIT Press, 1996), pg.68.
- ⁸ William Curtis, "Mental Maps and Social Landscapes, The Architecture of Miralles and Pinos," (El Croquis 49/50,1991), pg.8.
- ⁹ *ibid*,Vittorio Gregotti, pg.
- ¹⁰ From conversations with Enric Miralles.
- ¹¹ Vittorio Gregotti, "Territory and Architecture," (Architectural Design Profile 59, no. 5-6,1985), pgs.28-34.

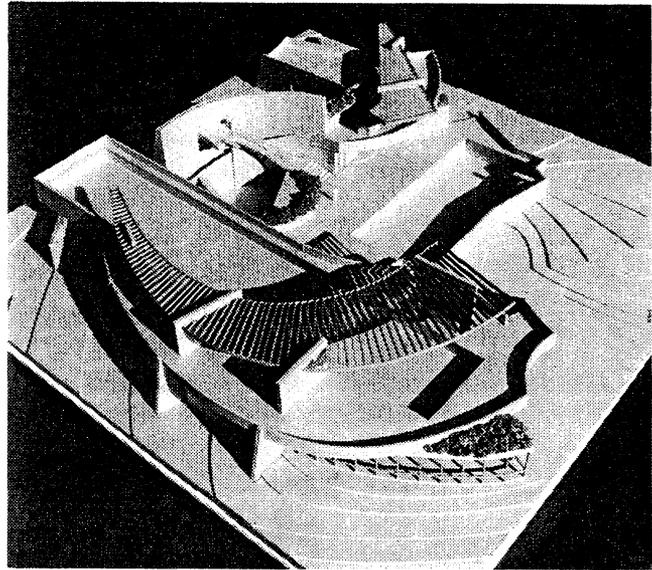


Fig. 6. Final project

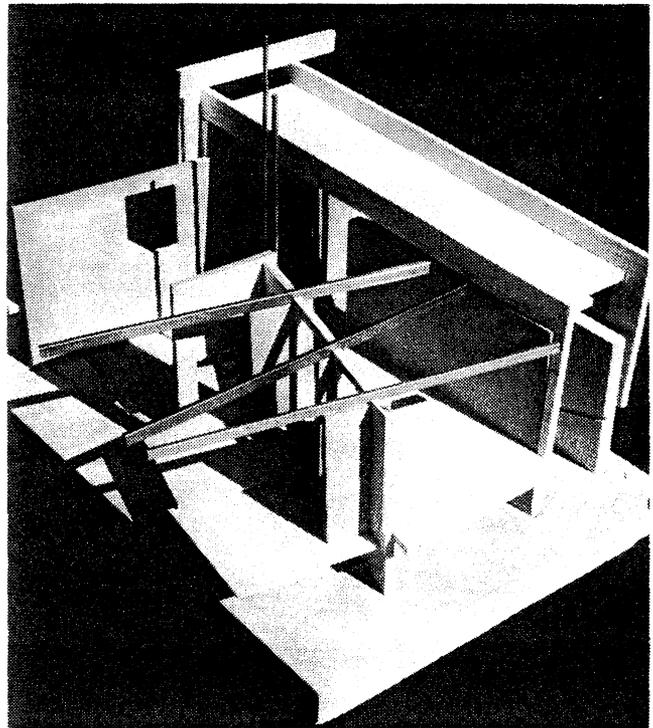


Fig. 7. Entry detail, final project