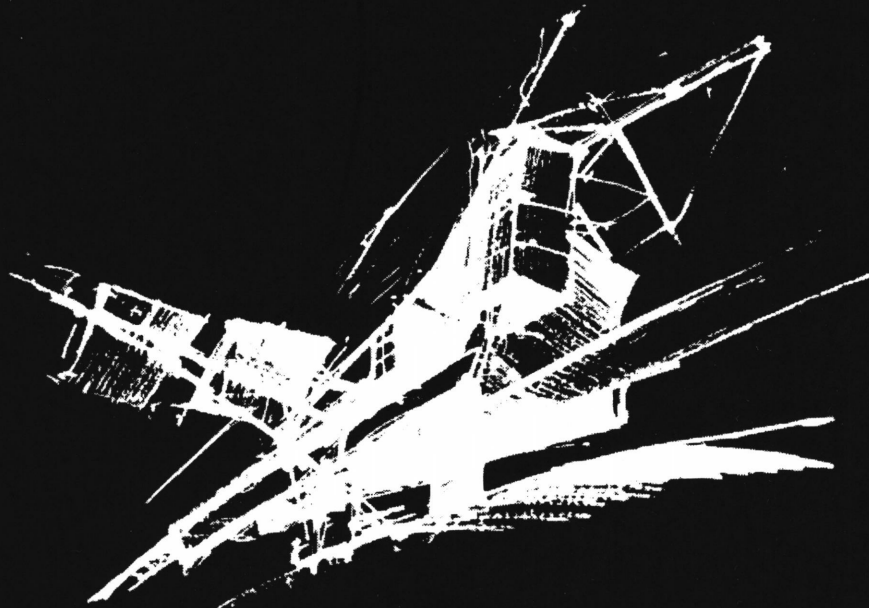


FUNCTION REVISITED

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This thesis submitted to the faculty of

VIRGINIA POLYTECHNIC
INSTITUTE
AND STATE UNIVERSITY

in partial fulfillment
of the requirement
for the degree

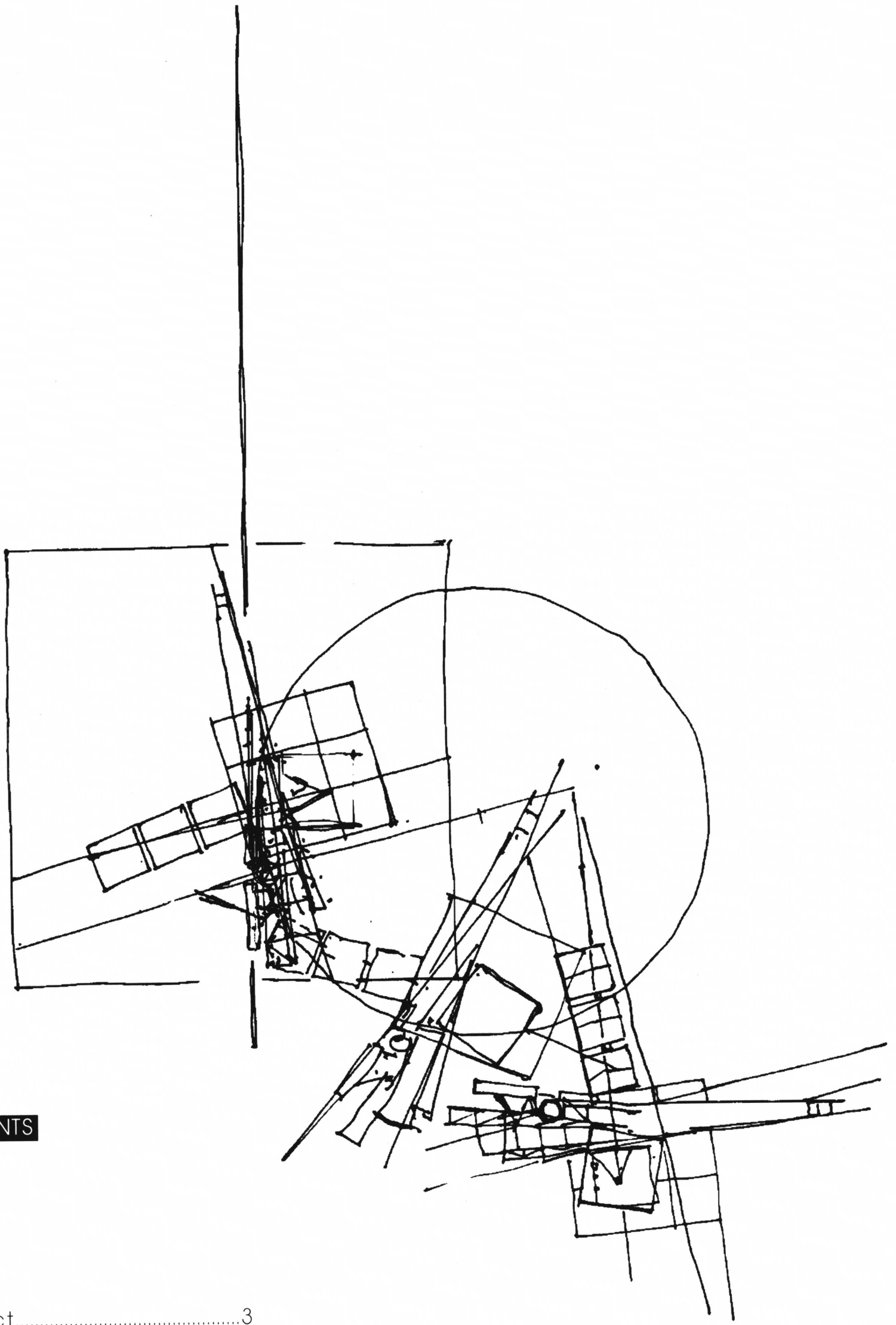
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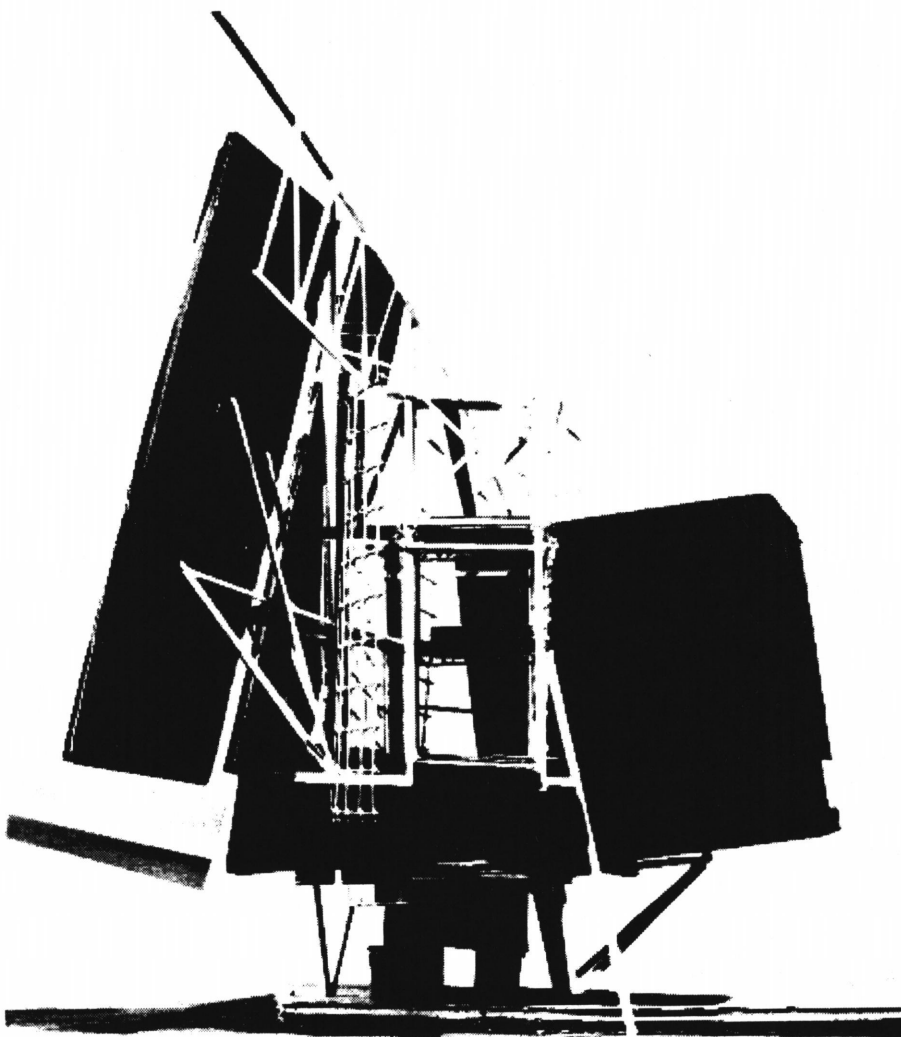
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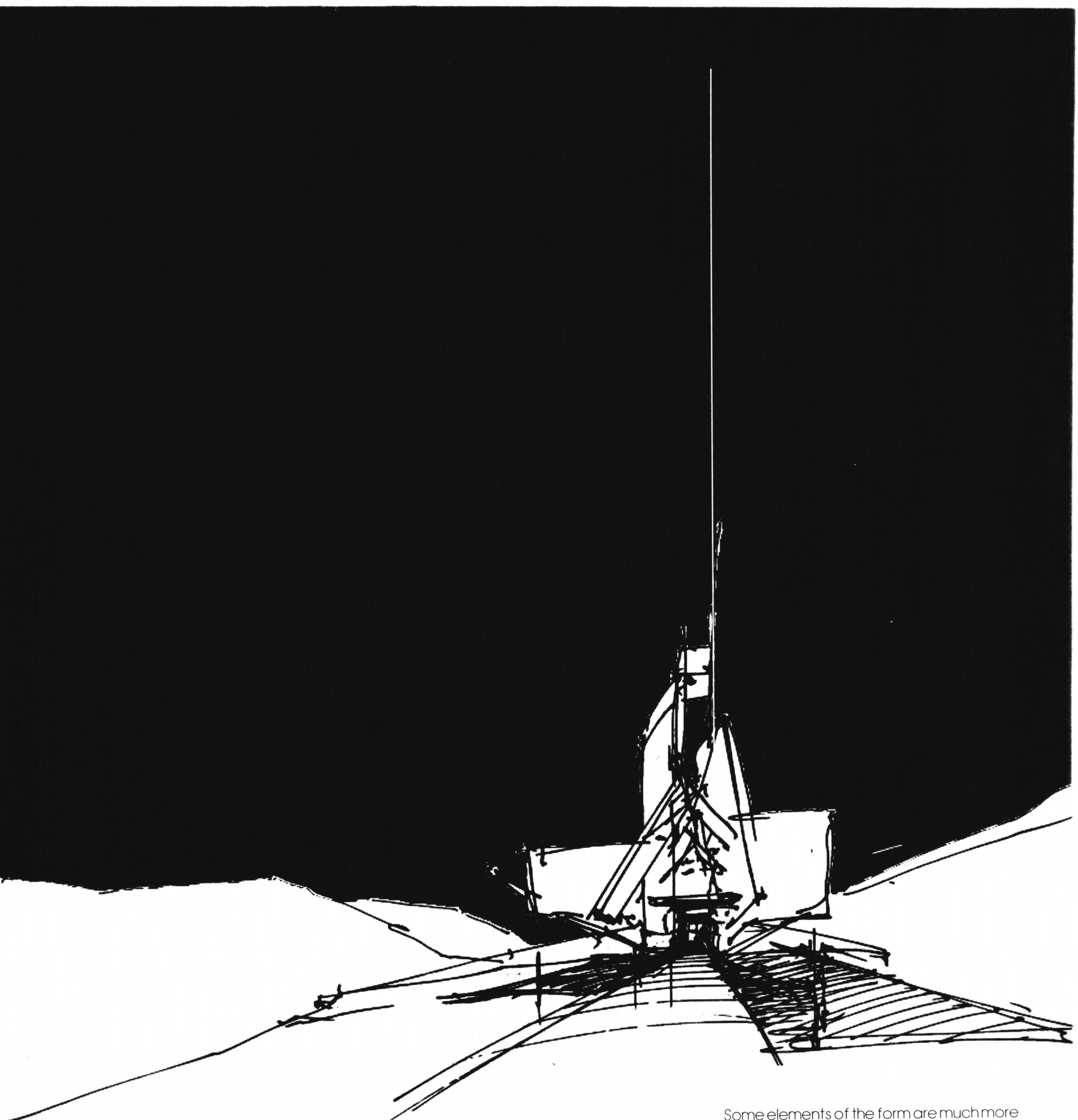
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Every architect's work is a set of conditions which, through various relations, may and frequently does have a significant influence on all who participate in the built environment. At the same time, both architects and their work are constantly exposed to various changing relations. When one considers the network of those mutual influences of which an architect and his environment are elements, "form" may be seen as the positioning of an object within a network of conditions and their relations. This network includes visual characteristics of an object, imposed by the architect, and those independent of him, which are culturally conditioned. Such a network constitutes what is understood by "form" in this project.

Among visual relations, I have chosen to recognize for example rhythm, contrast, balance, proportions and transparency. The culturally implied (given) relations are, for example, ownership, use, tradition, fashion. All these relations, imposed by an architect and implied by a culture, reveal only a small fraction of this relational network, of which I have consciously chosen to consider only a few.

Within this framework, the term "function" would describe a momentary suspension of the dynamics of the network of relations. It is called momentary because all of the elements are in constant change. Consequently, so are their relations with other elements and, therefore, the overall aspect of the form. Function allows the "freezing" of the network in order to make the observation and critique of the object possible. Such observation can be performed only within certain imposed boundaries, since the entire framework, and consequently both form and function, are limitless in their nature. Those boundaries reveal certain aspects of the object which are constituted from groups of considerations, which in this project are called "conditions". Some of the "conditions" are later mentioned in the book as plan, elevation, shape. Since all of them resemble each other in their tendency towards balance, different parts of the project perform in a similar way.

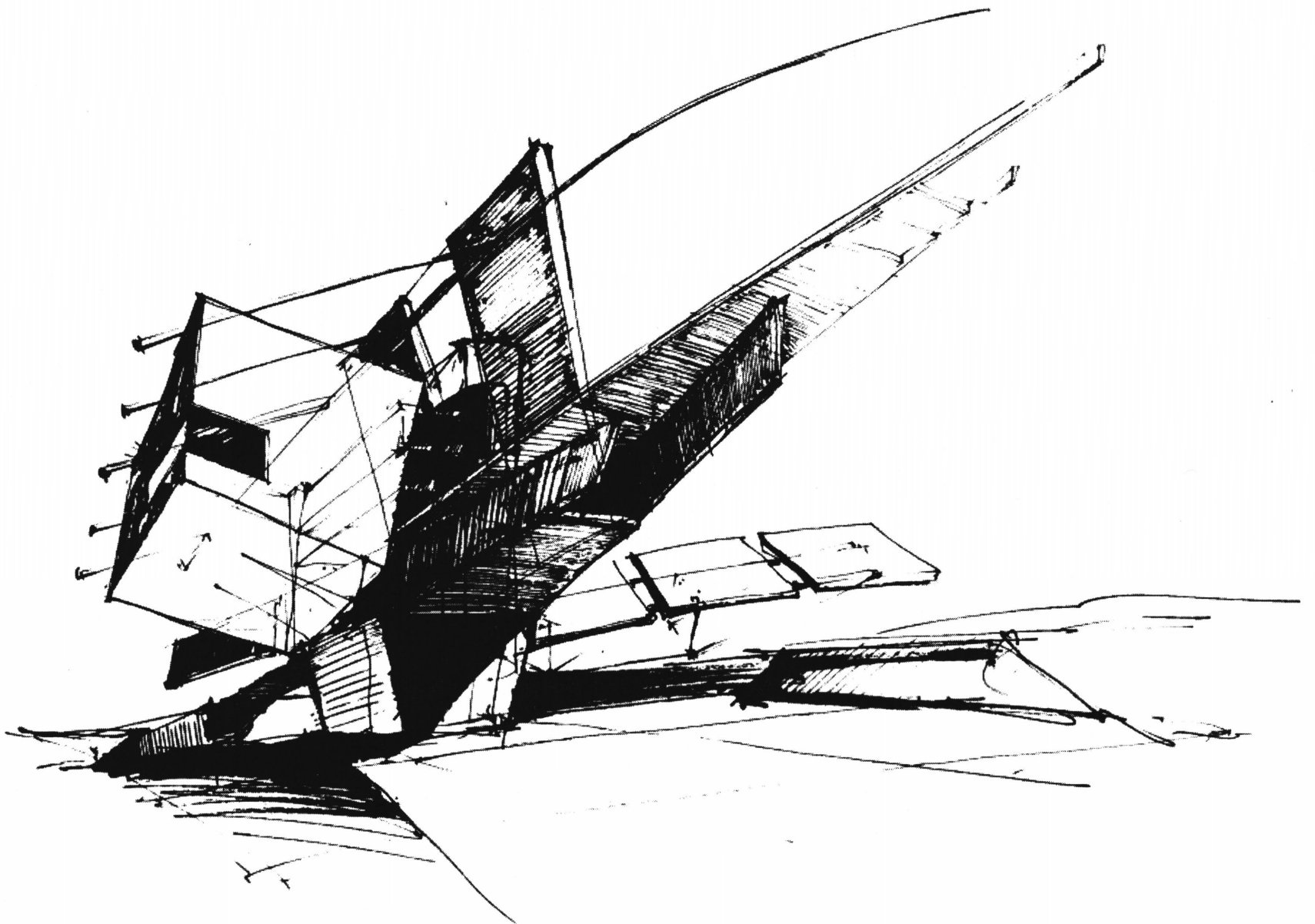


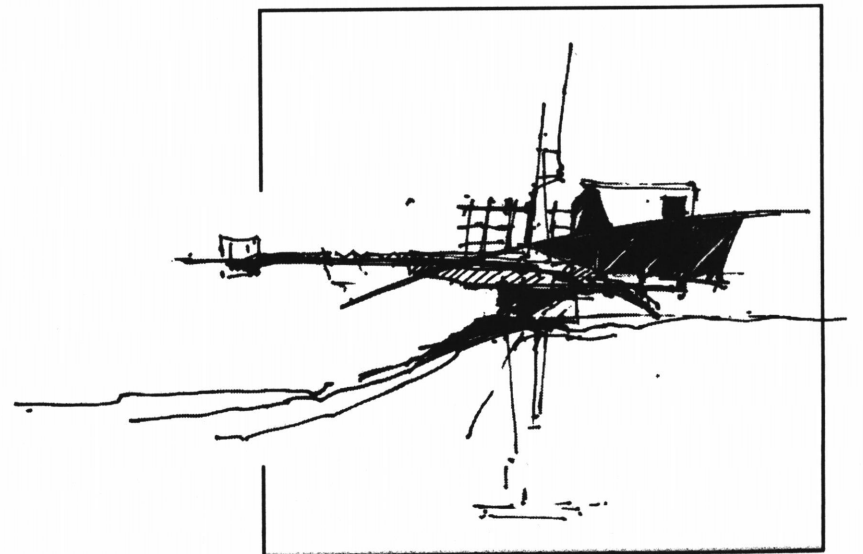
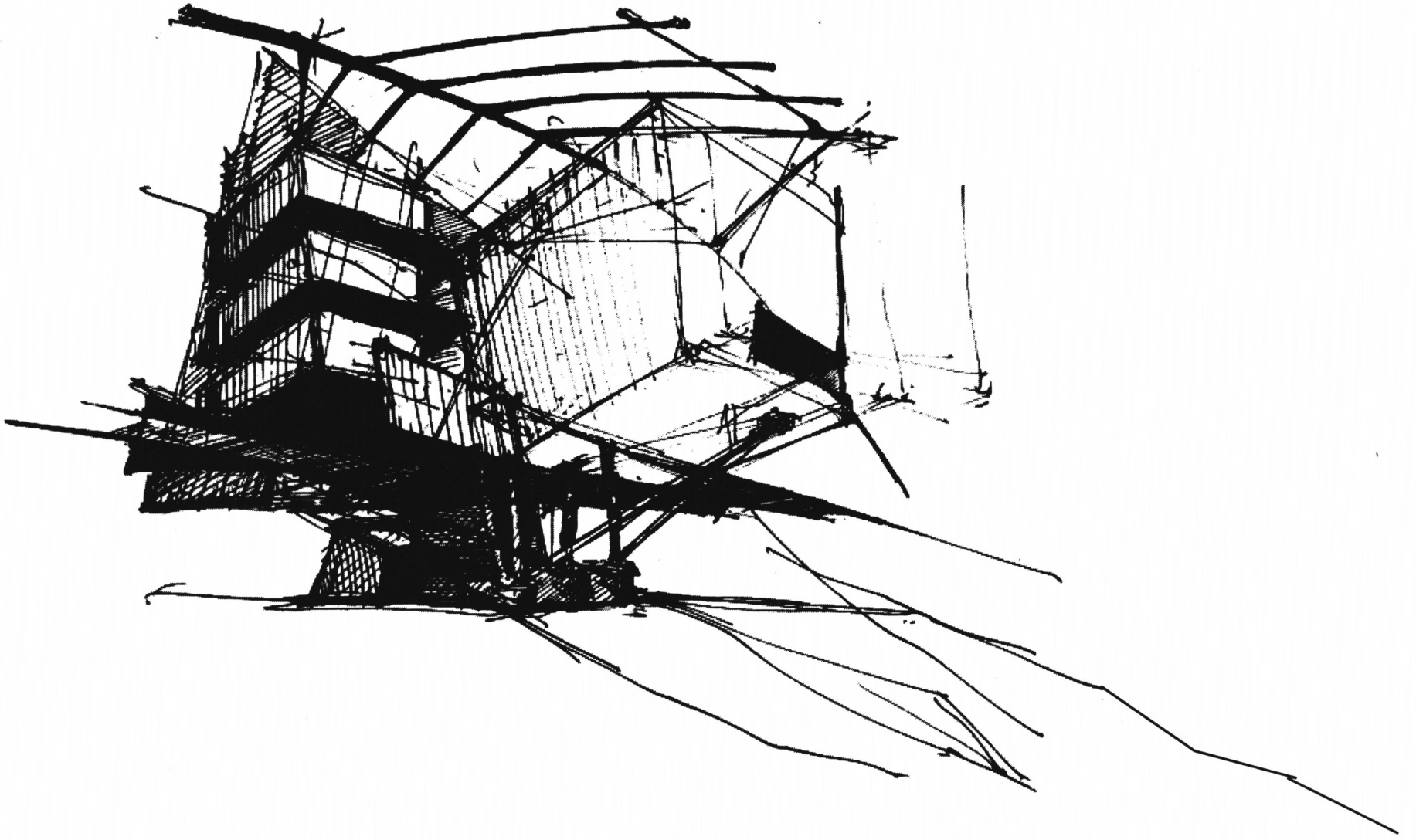


Some elements of the form are much more permanent than others. Visual relations are among these which have this permanence. The tectonic manifestation of visual relations does not change as often as the culturally implied relations, such as ownership or use do. This relative permanence elevates the importance of the visual relations as those which relate back to a larger number of other considerations before being noticeably influenced themselves. Simply speaking, the way the built environment is used changes more often than its shape does. For this reason, this thesis project considers visual relations as the primary ones.

The contrasts between the elements - in their shape, positioning, size and spatial qualities such as transparency or fragmentation - have helped me to find an equilibrium among them and of the forces and movements potentially existing within them. Imposing certain relations on these elements allows the manipulation of the overall performance of the form. Thus it becomes important how the object is designed, how the separate elements of the project act, work, perform - how they function at every moment.

Although the "visual" always has a decisive voice, the visual relations interact all the time with the utilitarian and static ones. Each of them finds an instigation for further evolution in the other ones. This constant interaction of different relations leads to a new understanding of the term "function" as the way an object (re)acts, works, performs at a given moment, given its shape, the materials of which it is made and other elements of the form.

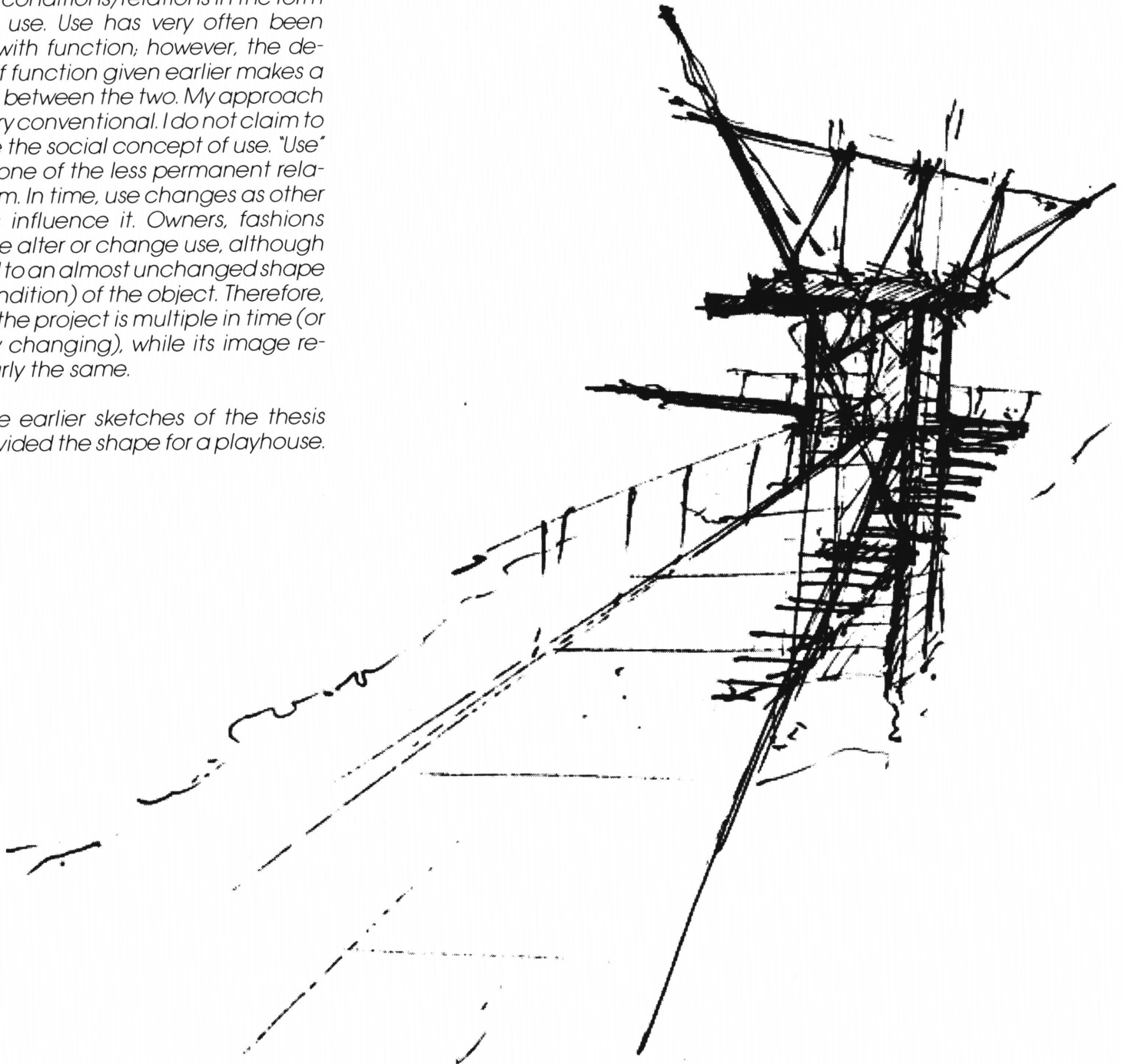


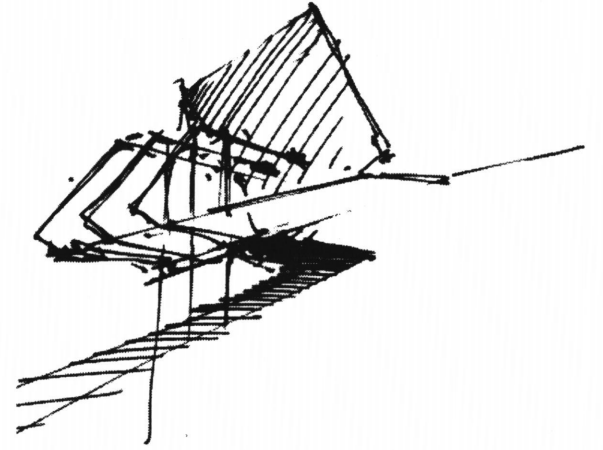




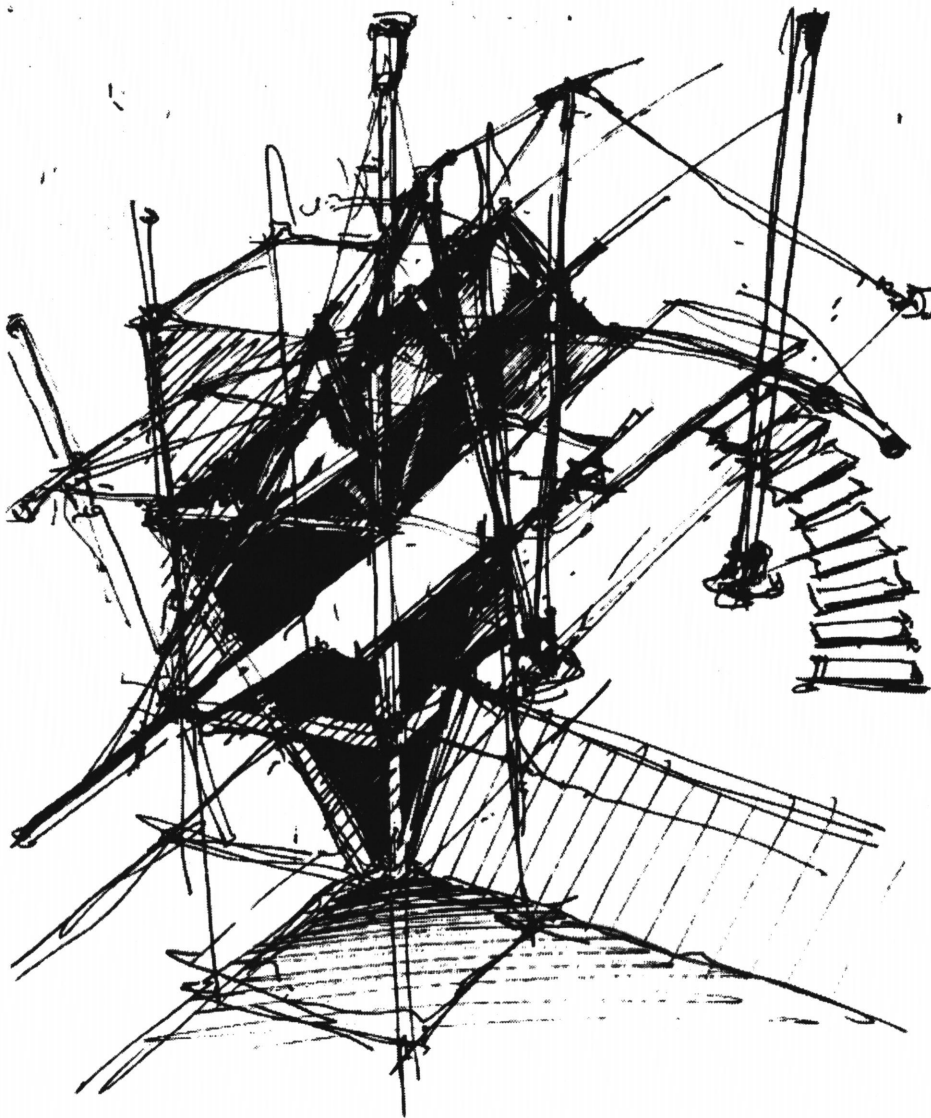
One of the conditions/relations in the form network is use. Use has very often been confused with function; however, the description of function given earlier makes a distinction between the two. My approach to use is very conventional. I do not claim to reorganize the social concept of use. "Use" is seen as one of the less permanent relations of form. In time, use changes as other conditions influence it. Owners, fashions and the like alter or change use, although it is related to an almost unchanged shape (visual condition) of the object. Therefore, the use of the project is multiple in time (or constantly changing), while its image remains nearly the same.

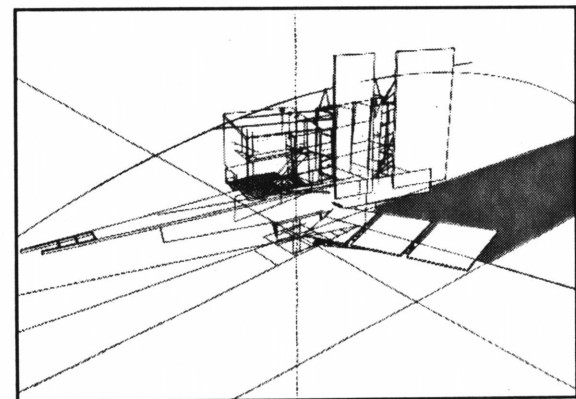
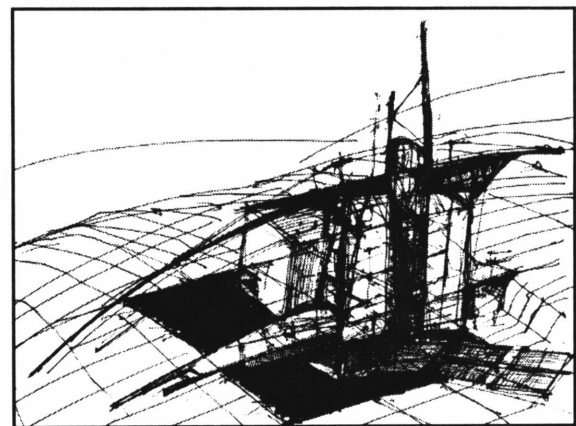
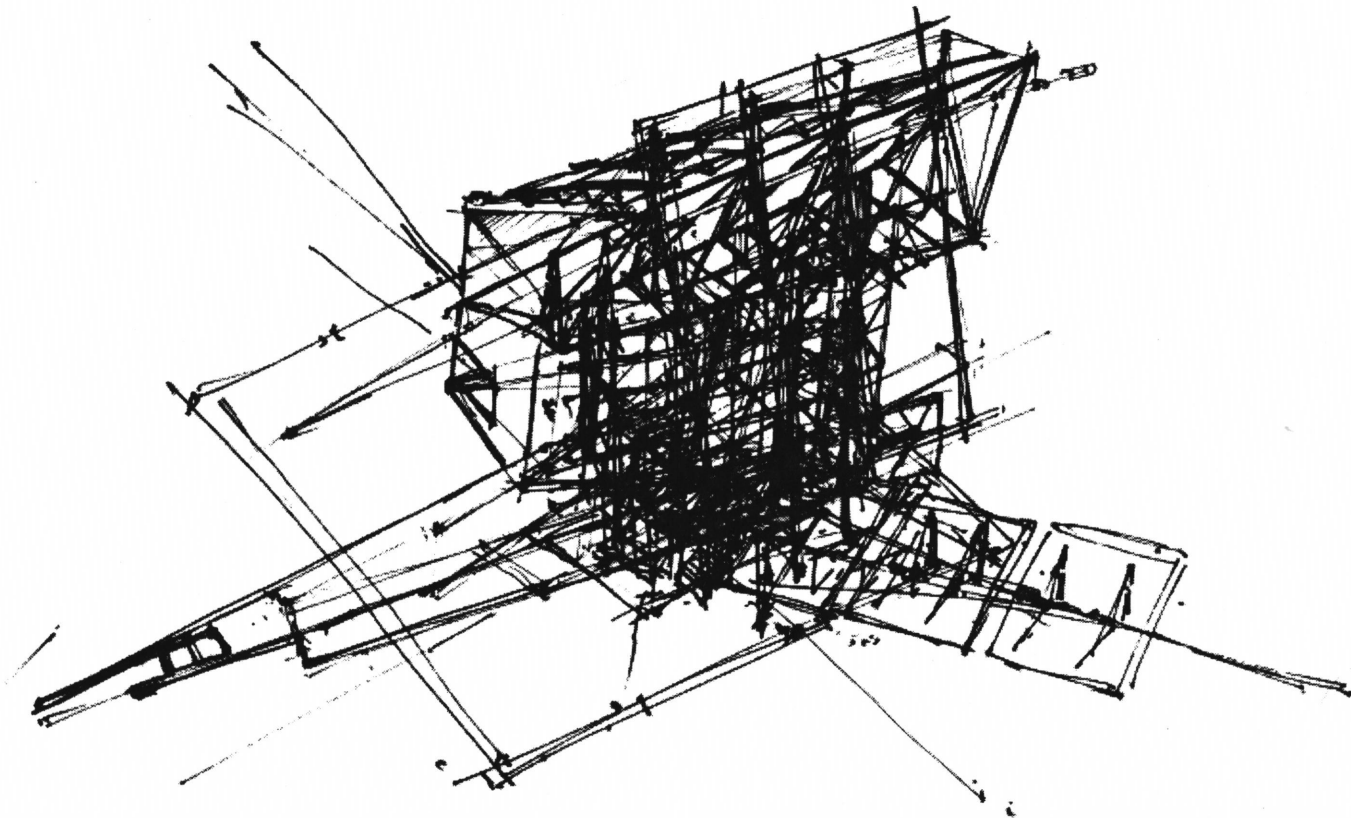
One of the earlier sketches of the thesis (right) provided the shape for a playhouse. (photo).





Visual conditions, or shape, are the primary consideration in this thesis. Their relative permanence, or resistance to change, forced me to impose their dominance over the non-visual relations. The condition I devoted most of my time to is balance in its dynamic representation. In order to achieve an equilibrium not based on symmetry, I shaped and positioned the elements and groups of elements in such a way that they relate to each other as oppositions. These contrasts establish themselves with relations such as shape, transparency, size or fragmentation. As a result, lines oppose planes and solids, light counters darkness, bigger elements contrast the smaller one. Visual considerations, through the selection of materials, were very closely involved with static considerations. For example, the mass of one element is resisting the moment and linearity of a cantilevered element. All of the elements relate to the same pivot point, which is articulated by elements of a different kind. All the elements involved in contrast oppose yet depend upon each other. Any type of relation that happens among them considers each of them equally and occurs only because of their involvement. The relations that tie them together contribute to the larger condition of balance.

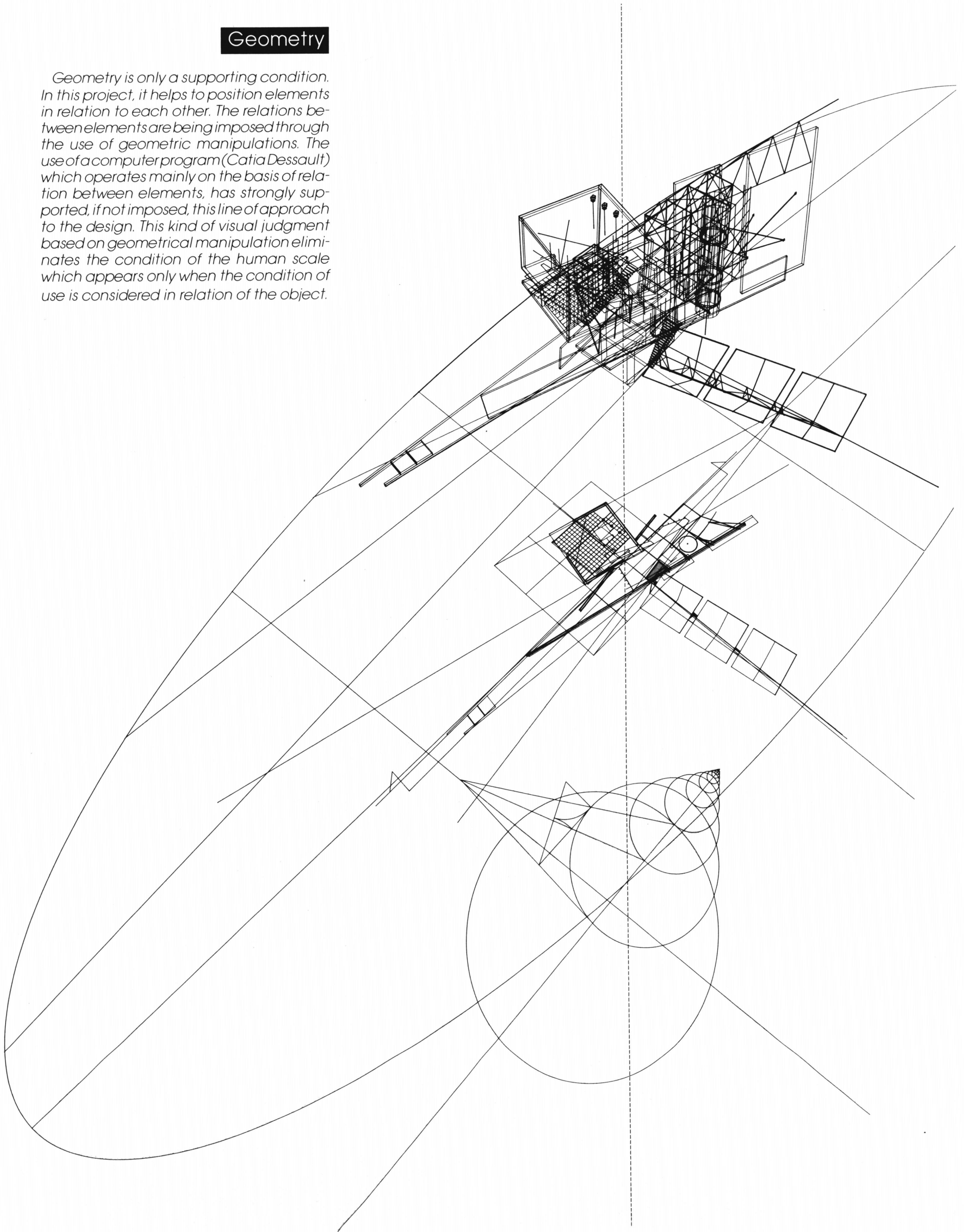




Drawing provides a special type of relation between the thesis and myself. When I draw, I can see the lines which represent elements and also are elements. I can then relate to them in a critical way, providing the bridge between the project and the conditions I associate with the project at a given moment. This criticism allows me to form a judgment and respond to the lines and, consequently, to the elements of the project. Sometimes the drawing itself becomes a more important condition than those currently being investigated in the project. It becomes a set of conditions on its own, although still tied to the main project. Drawing here is all the means of representation which are not the project itself. It includes free hand, drafted, plotted and painted pictures, as well as computer and physical models.

Geometry

Geometry is only a supporting condition. In this project, it helps to position elements in relation to each other. The relations between elements are being imposed through the use of geometric manipulations. The use of a computer program (Catia Dessault) which operates mainly on the basis of relation between elements, has strongly supported, if not imposed, this line of approach to the design. This kind of visual judgment based on geometrical manipulation eliminates the condition of the human scale which appears only when the condition of use is considered in relation of the object.



This thesis project, as an object, has two main goals. The first one is to discover the tendencies in my designing, the relations among them, their changes and their importance. As an object, it provides a tool for investigating the framework of relations in the design as well as its physical demonstration. It helps to verbalize and visualize the current moment of the formal framework of conditions in the thesis, and by being within the same framework it reflectively influences the thesis. The second goal is to present the conclusions from the last possible moment of the framework's evolution.

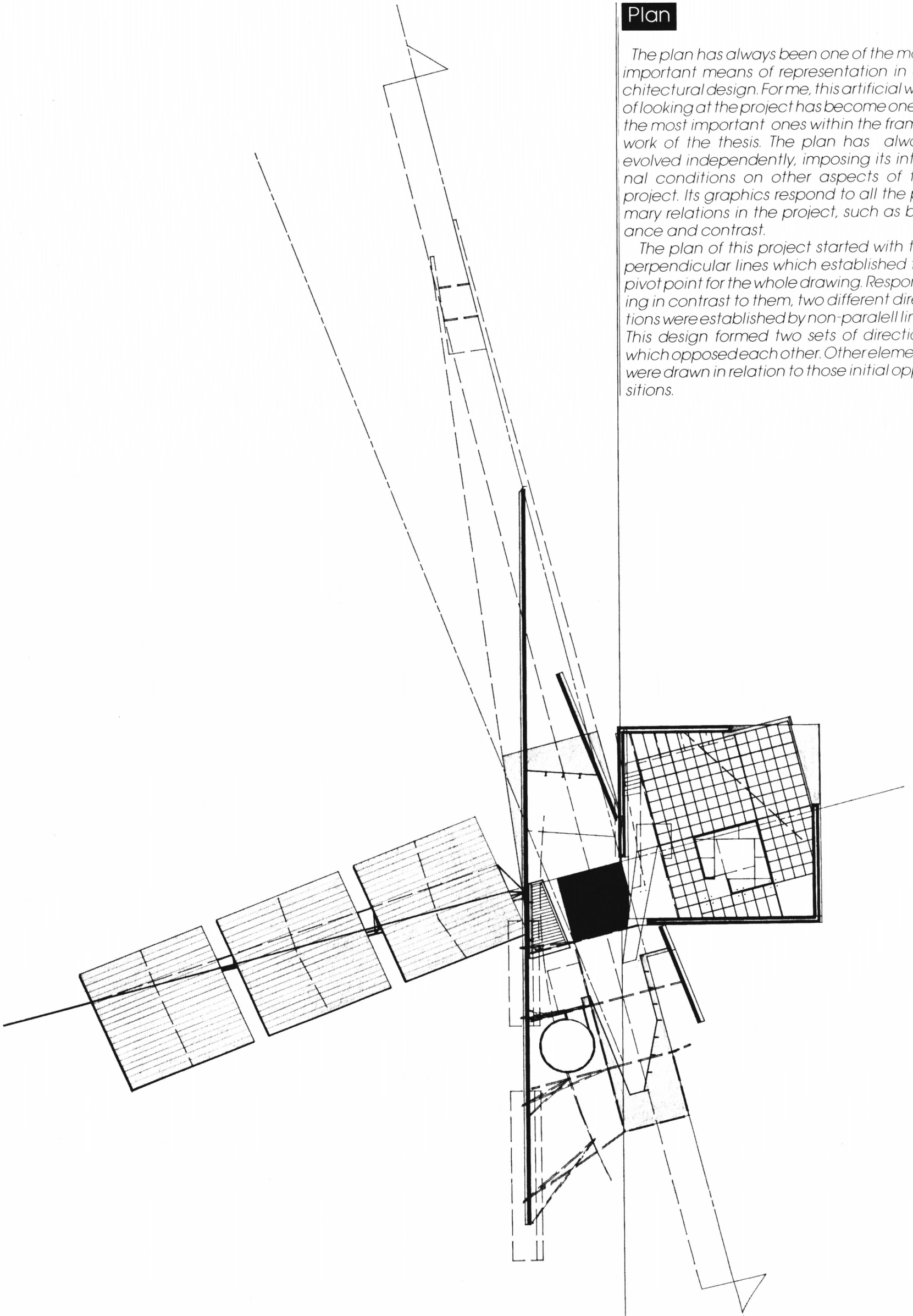
The object demonstrates the relations among the specified conditions of the thesis, as well as among the object's elements, in many aspects. Balance, contrast and later use are imposed on every step of the design. Their superposition assembles the realistic object which is their physical manifestation represented in drawings.

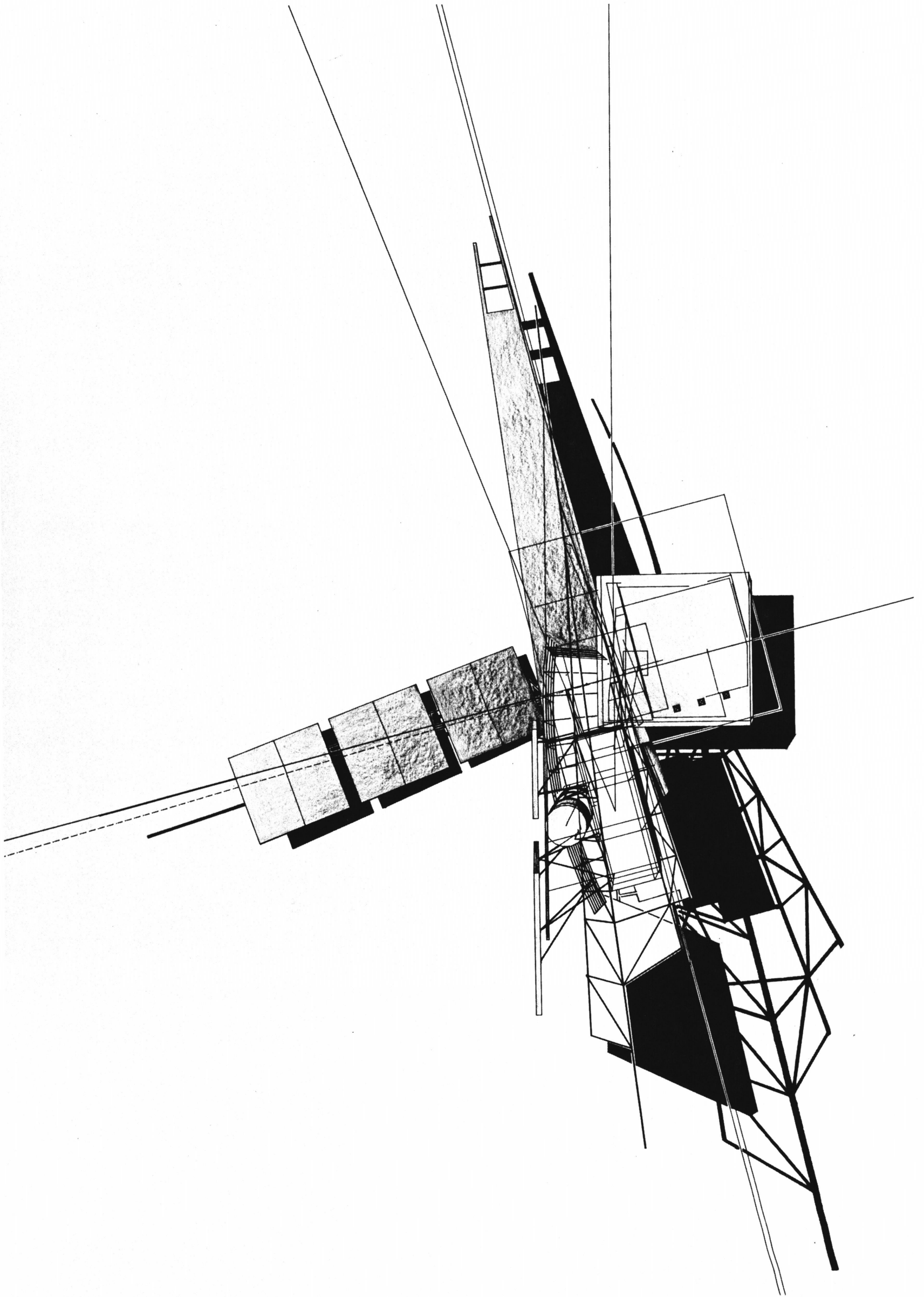


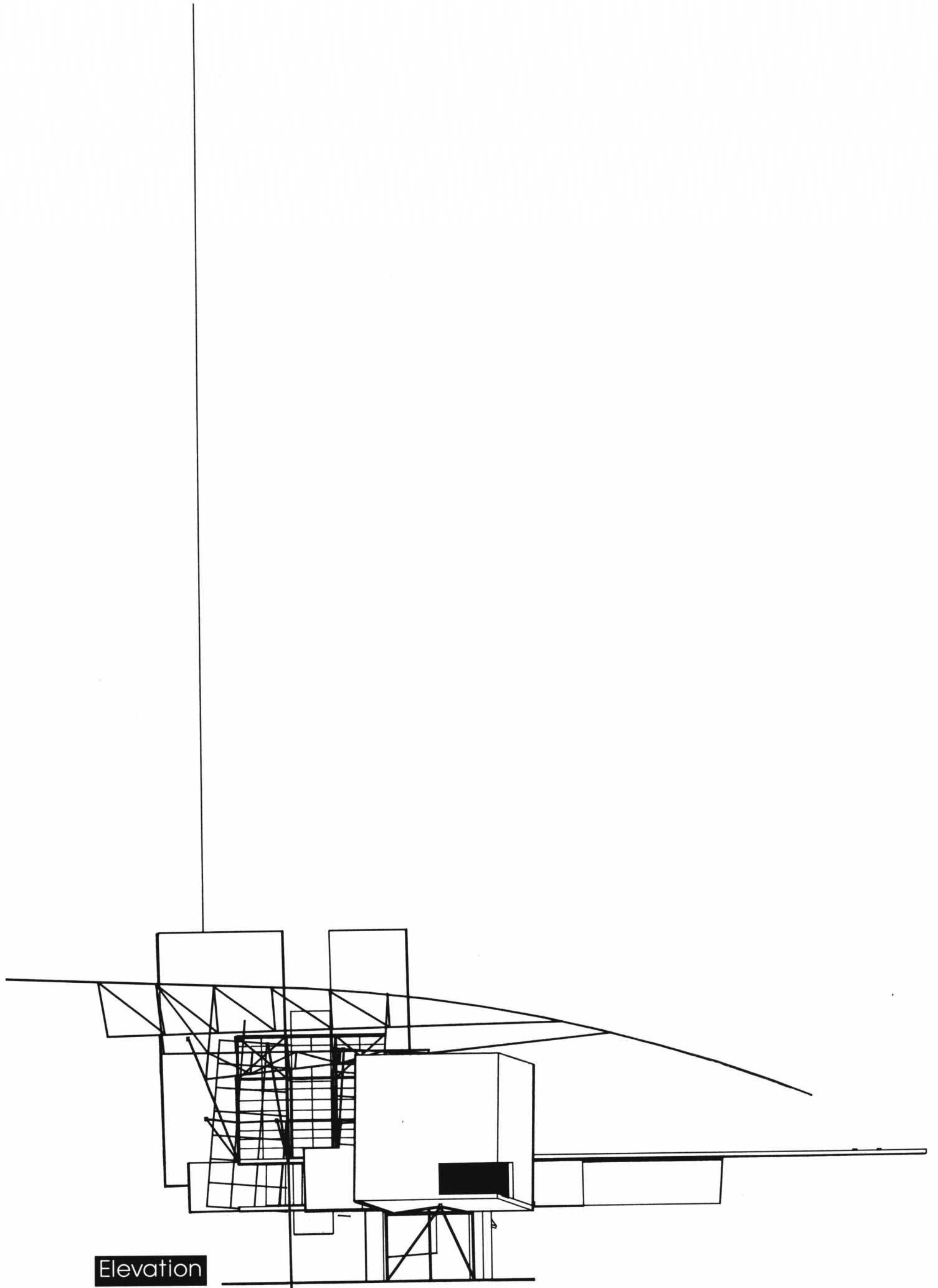
Plan

The plan has always been one of the most important means of representation in architectural design. For me, this artificial way of looking at the project has become one of the most important ones within the framework of the thesis. The plan has always evolved independently, imposing its internal conditions on other aspects of the project. Its graphics respond to all the primary relations in the project, such as balance and contrast.

The plan of this project started with two perpendicular lines which established the pivot point for the whole drawing. Responding in contrast to them, two different directions were established by non-parallel lines. This design formed two sets of directions which opposed each other. Other elements were drawn in relation to those initial oppositions.

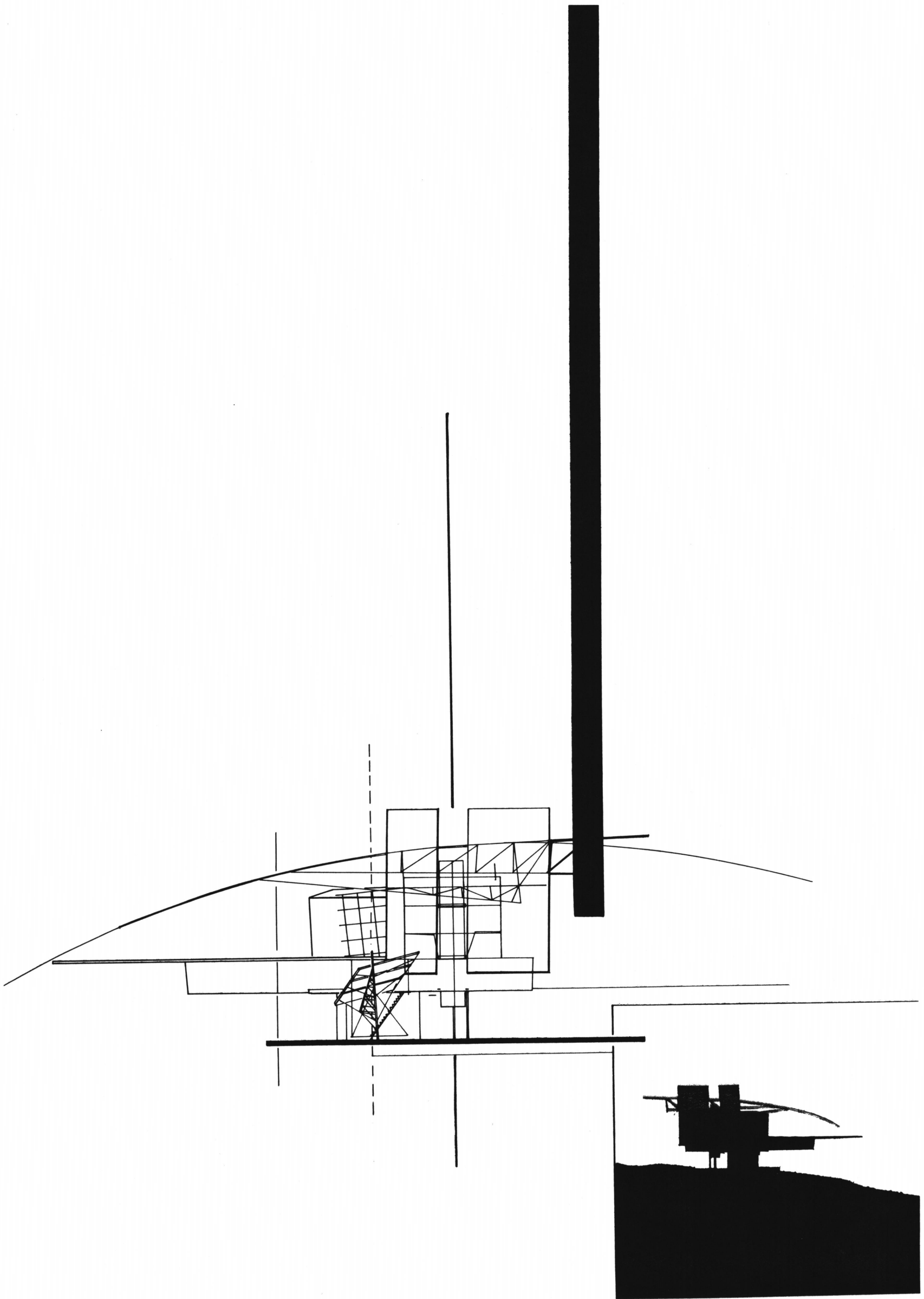


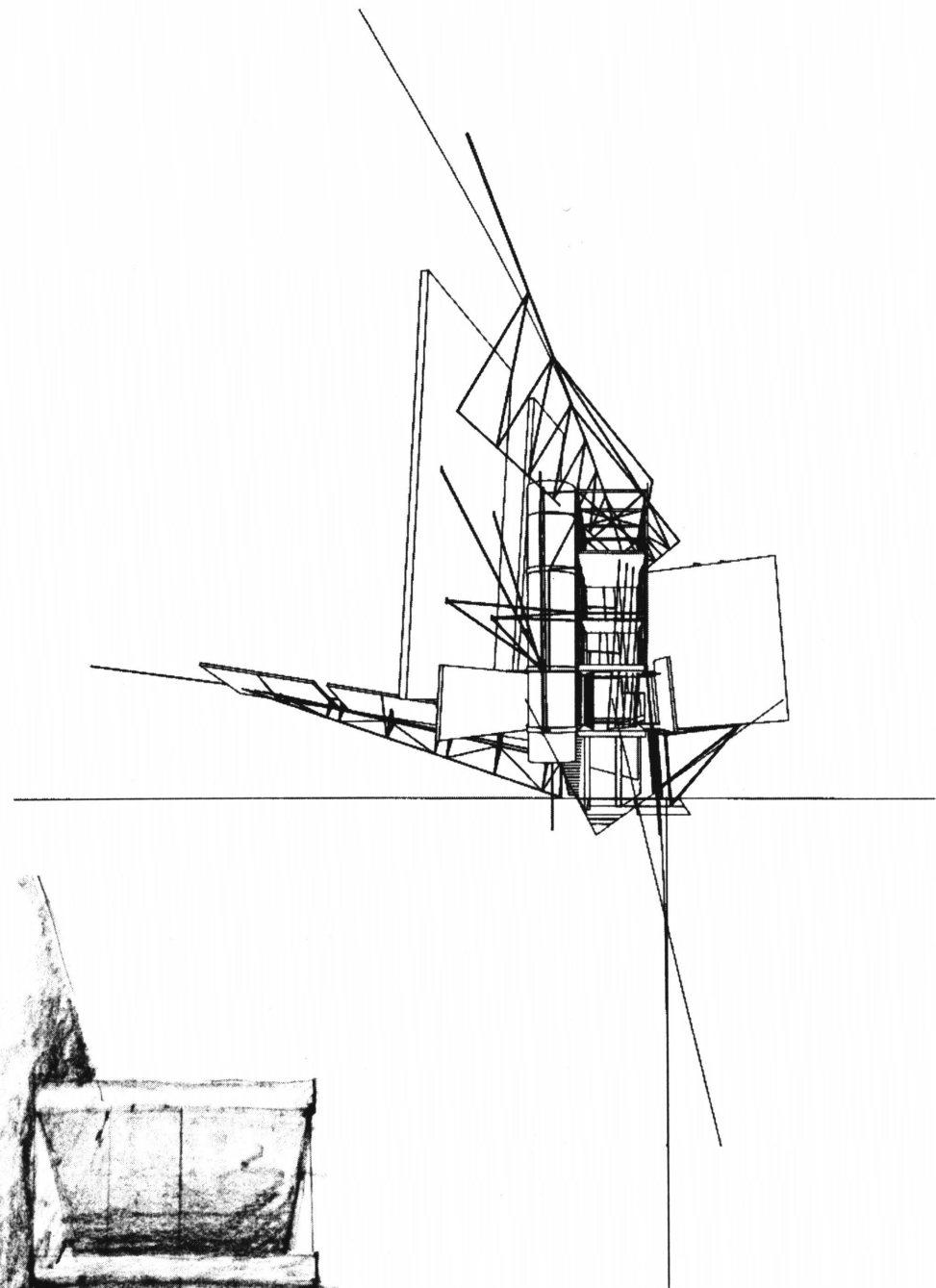




Elevation

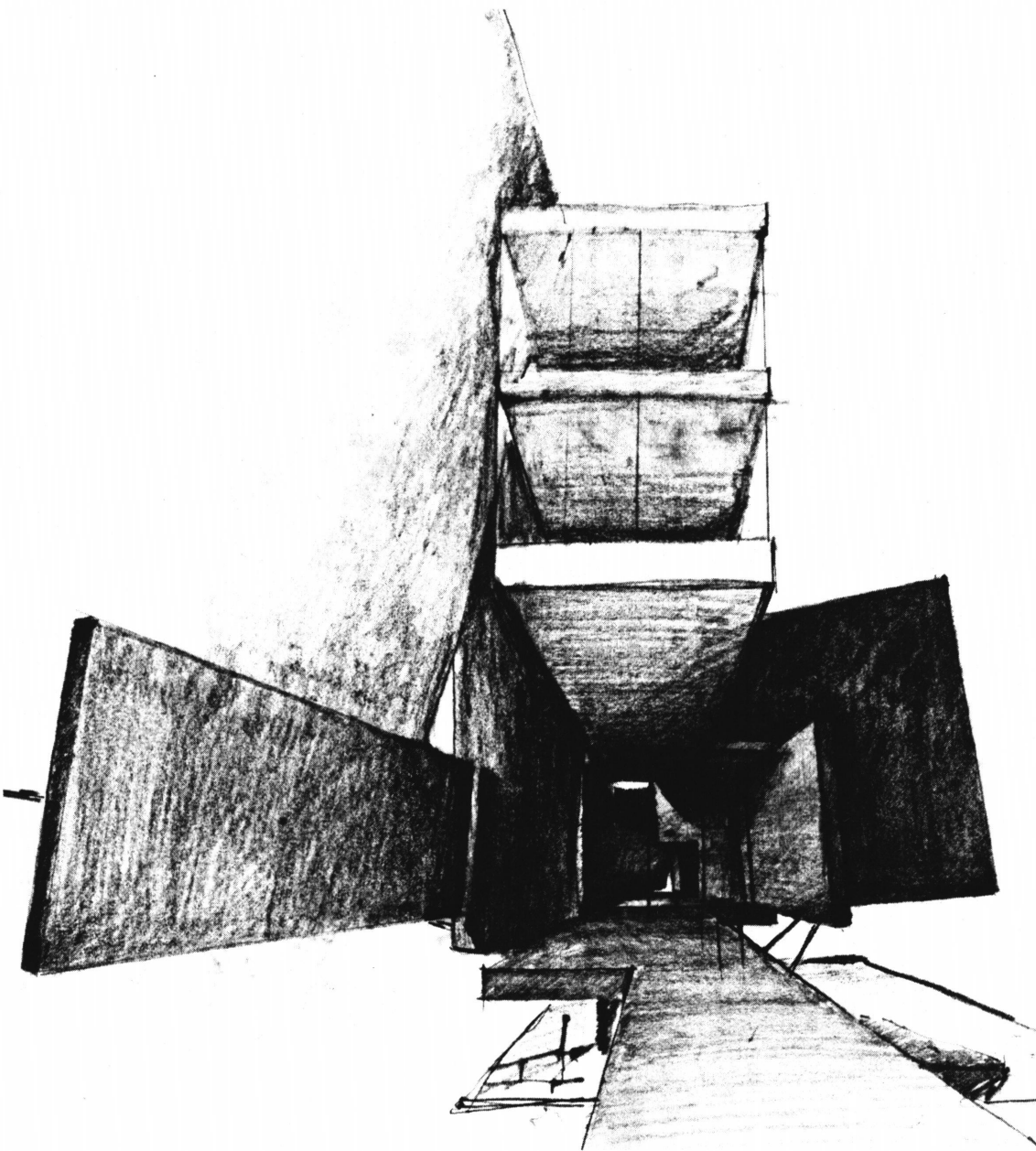
The elevation, being an orthogonal view, provides another artificial look at the project, which considers how the object looks from its side. The tendencies towards balance reveal themselves when the heavy rear section opposes the extended bridge and corridor on the other side of the foot and base, and when curved part of the roof is juxtaposed with the straight line of the bridge.

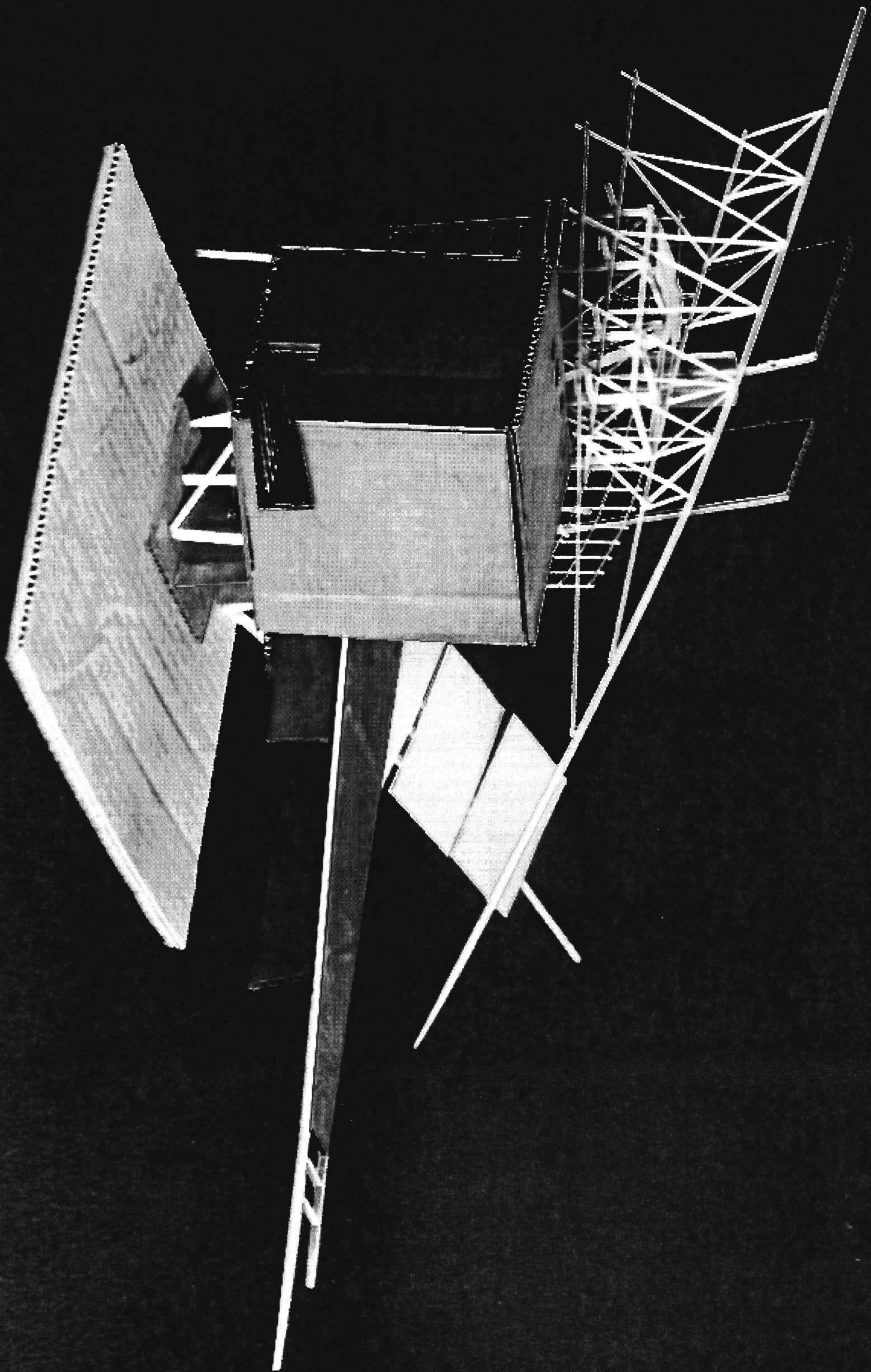


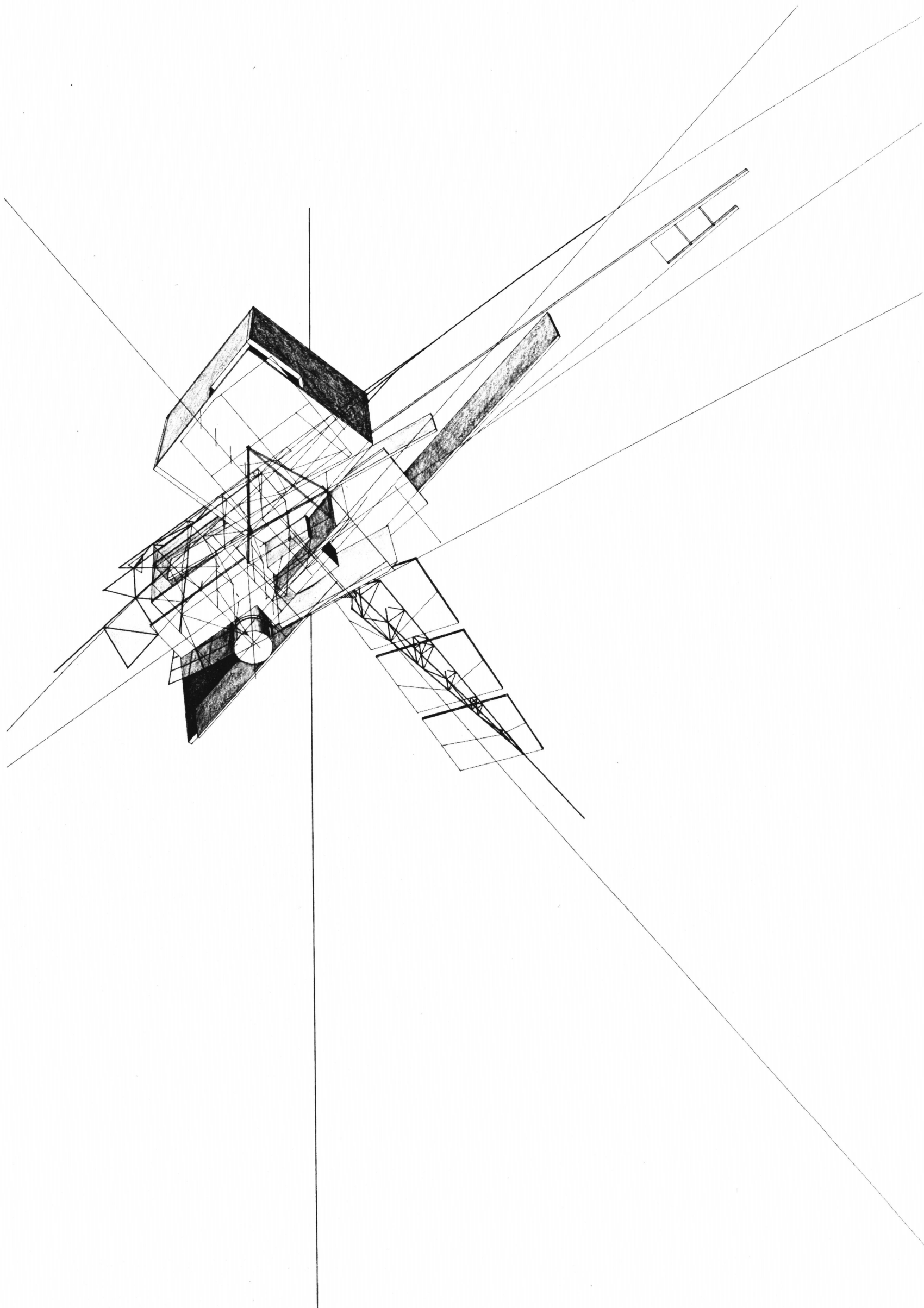


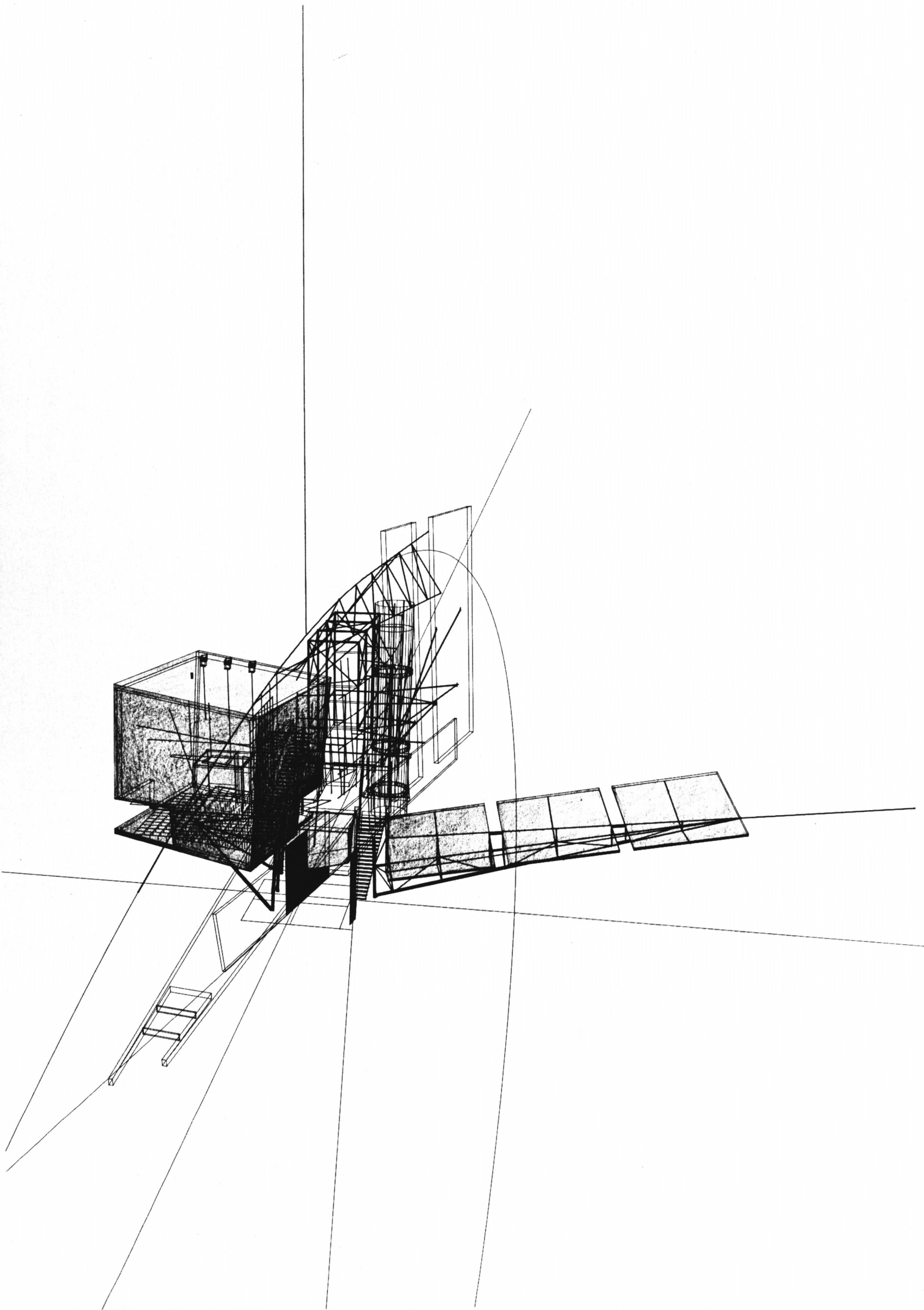
Back elevation

The back elevation was designed mainly in response to one special condition. Initially, the path of approach to the object lay on the extension of the "rear axis". This was the impulse to consider this condition not in an orthogonal but in a conic (perspective) view.

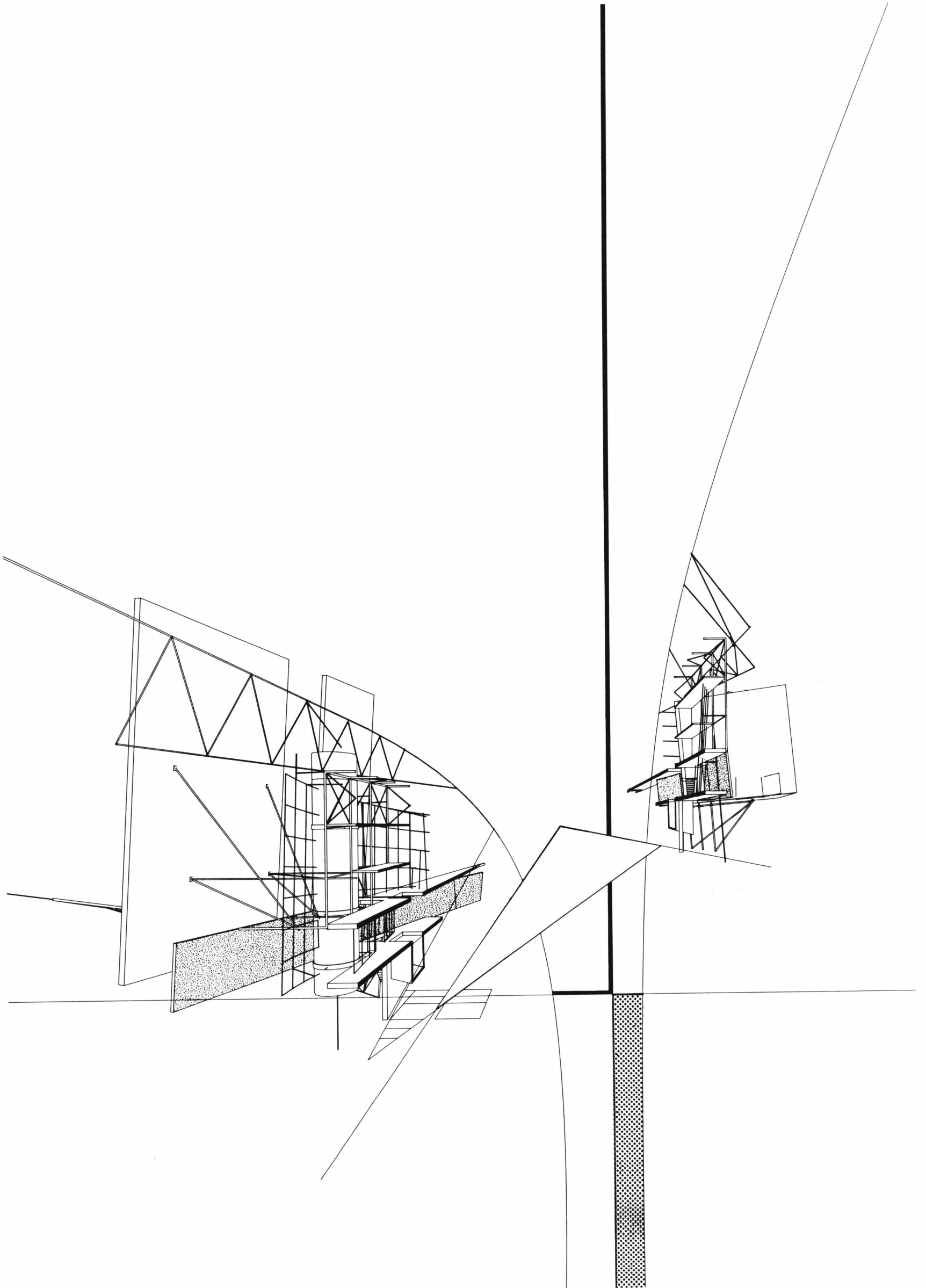


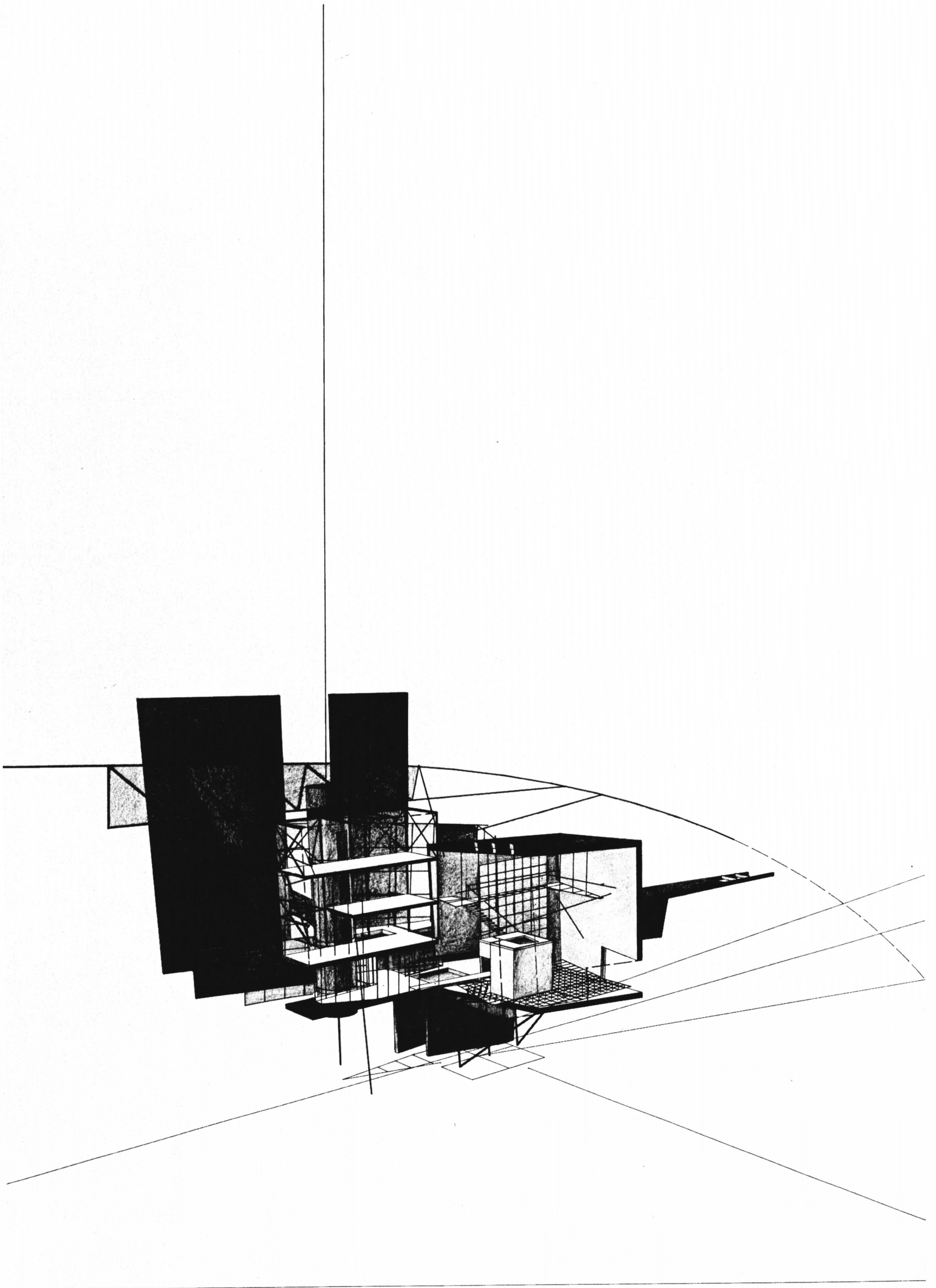


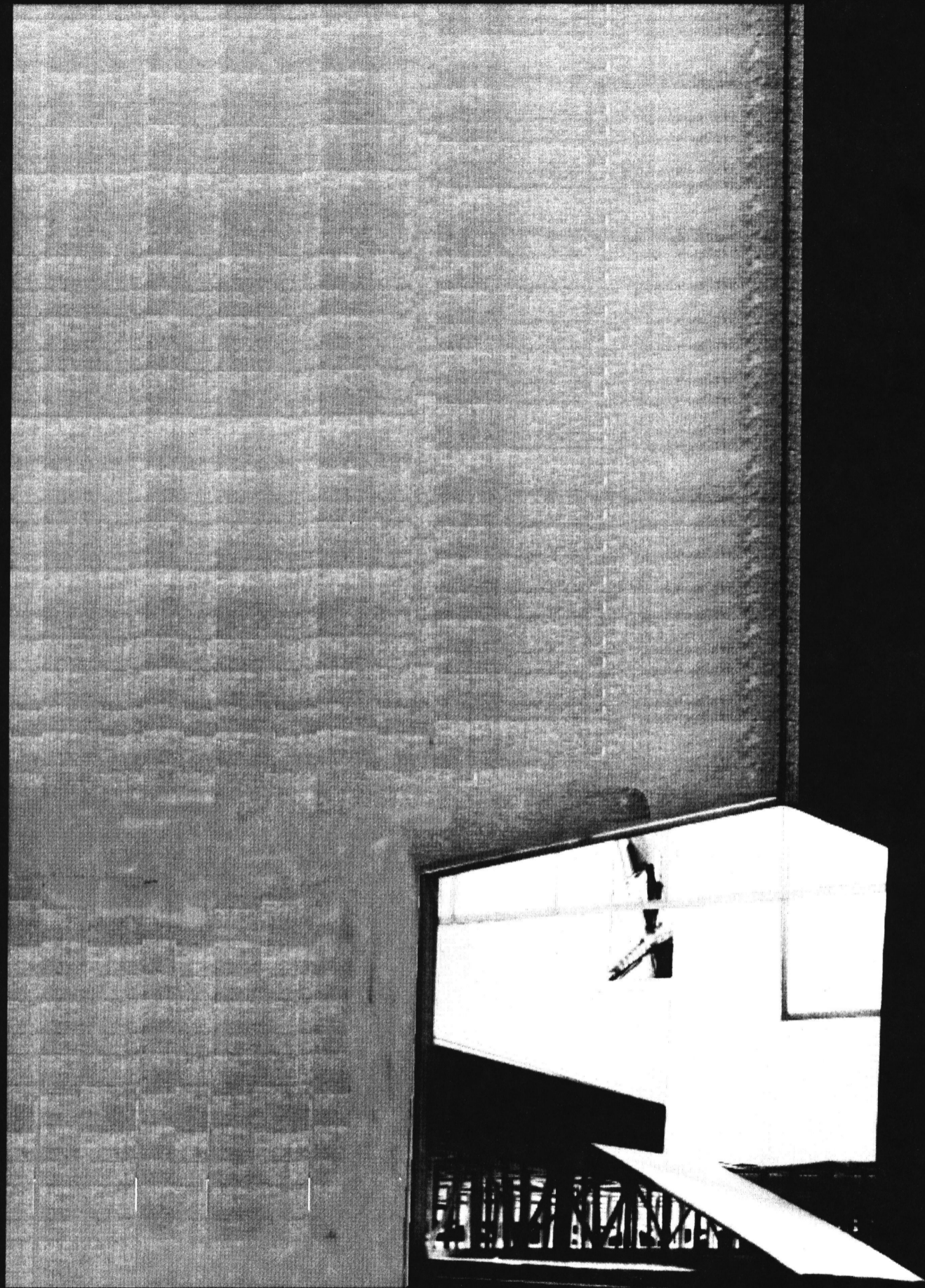






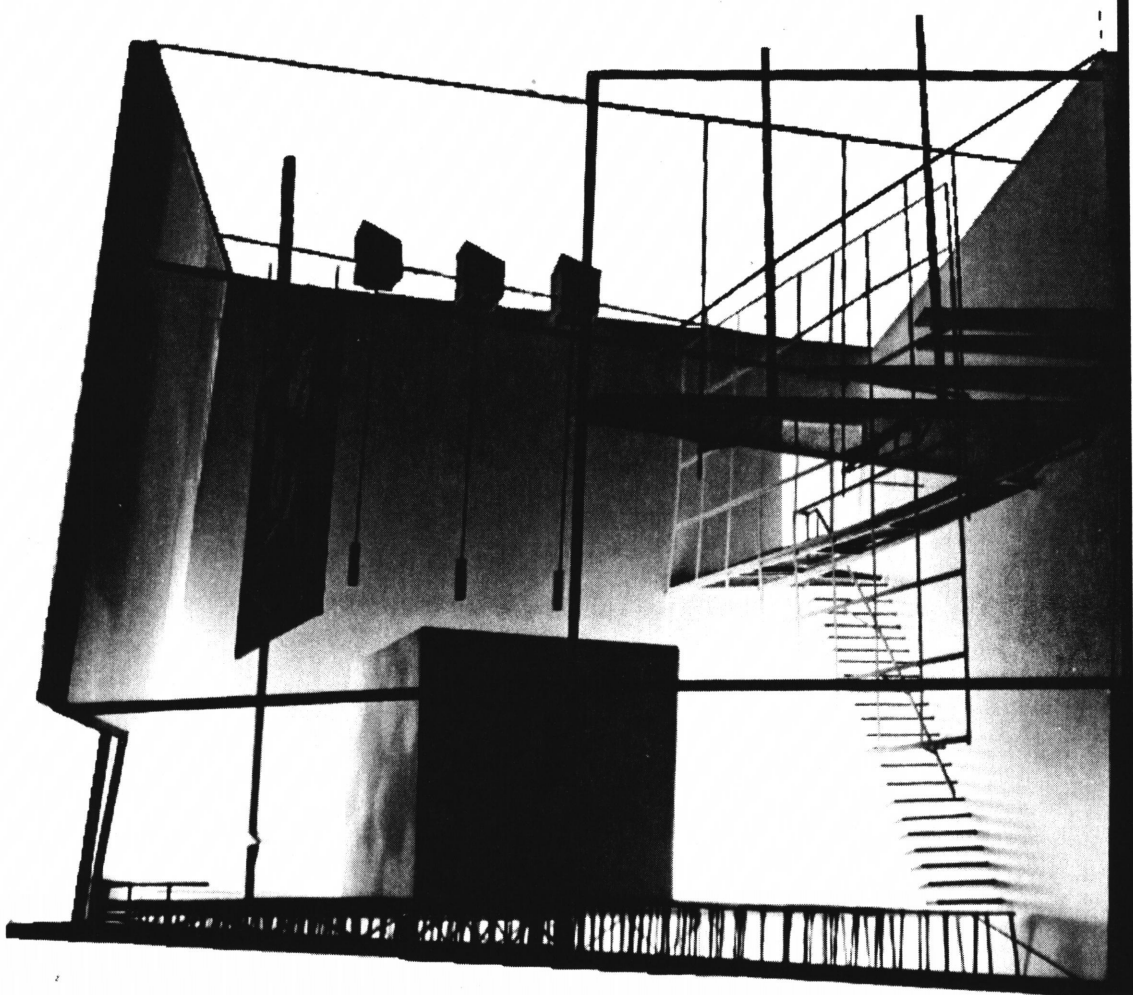




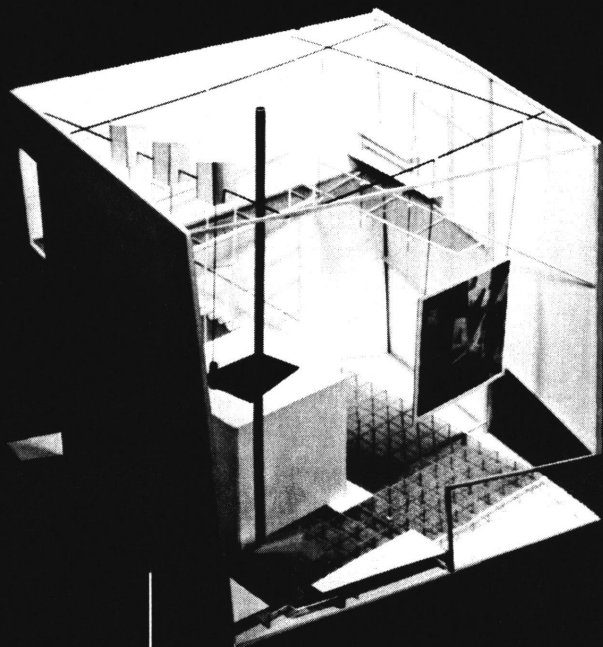
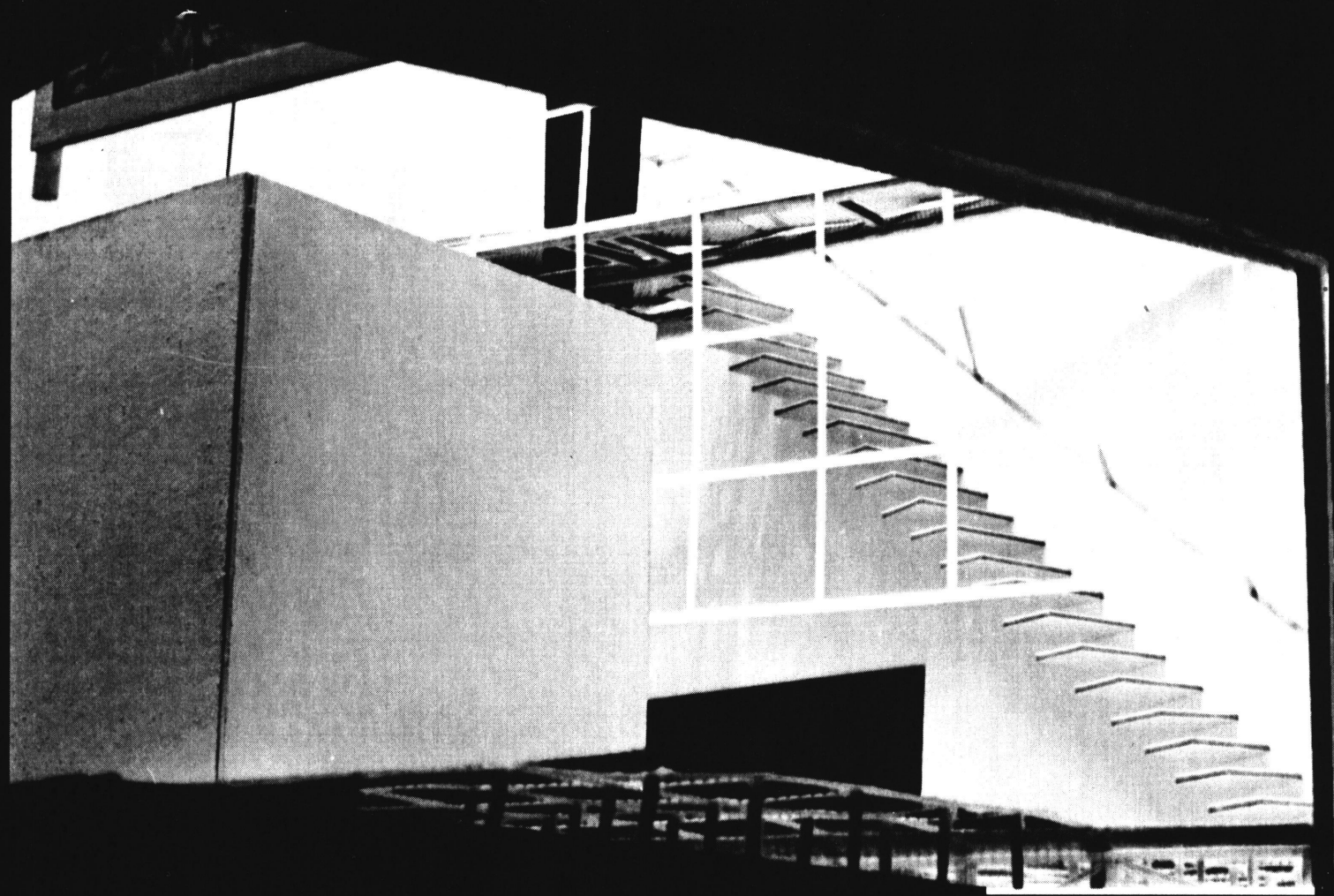


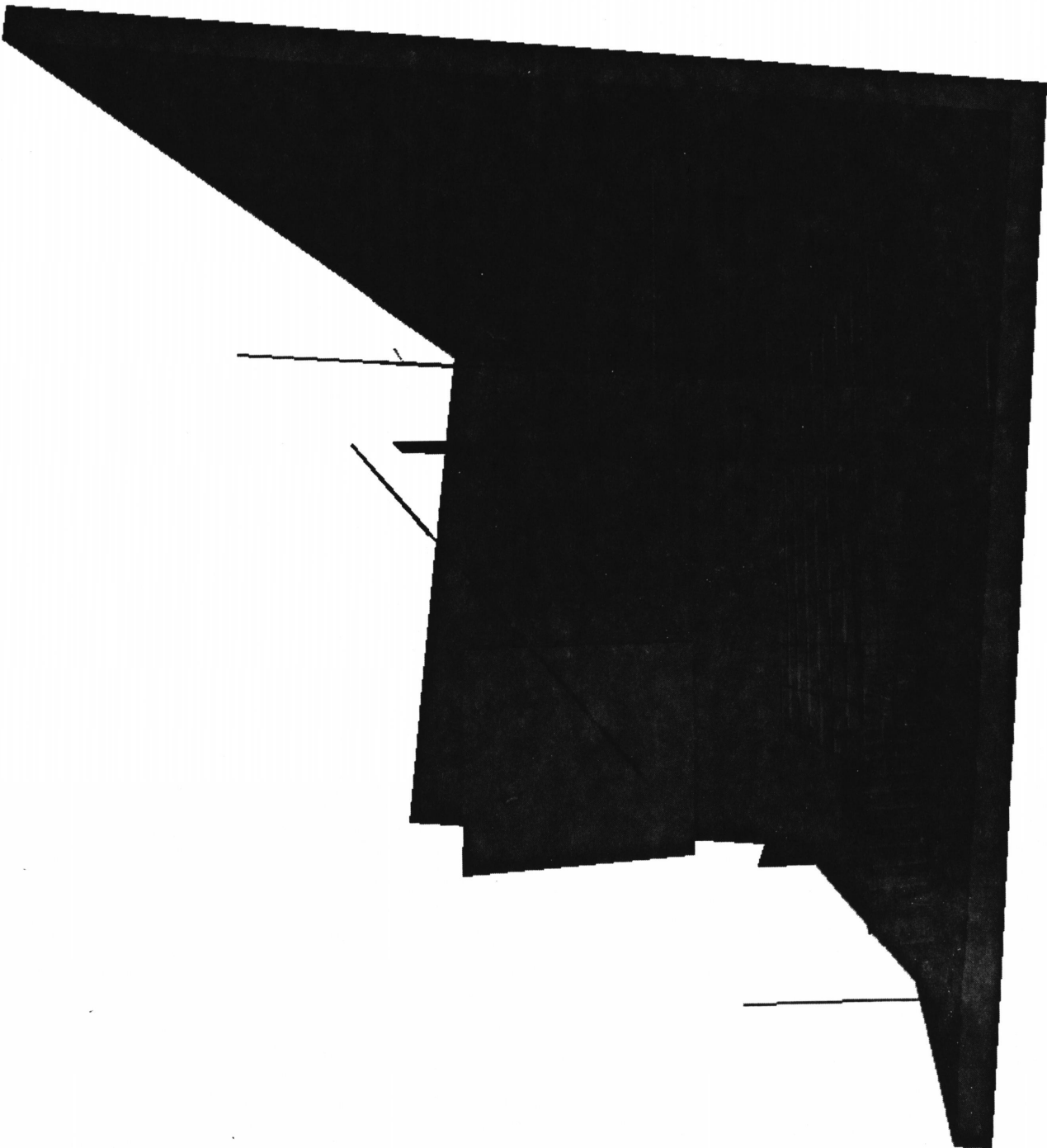
"Cube"

The "cube" is one of the most important elements in this thesis. Its mass opposes the momentum of the cantilevering panels on the other side of the corridor. Its volume contrasts the surrounding pipes and panels. Its interior allows the study of concave space in relation to the visual conditions of the thesis. The form of the "cube" was enriched with two new relations which were not considered primary before - use and scale.

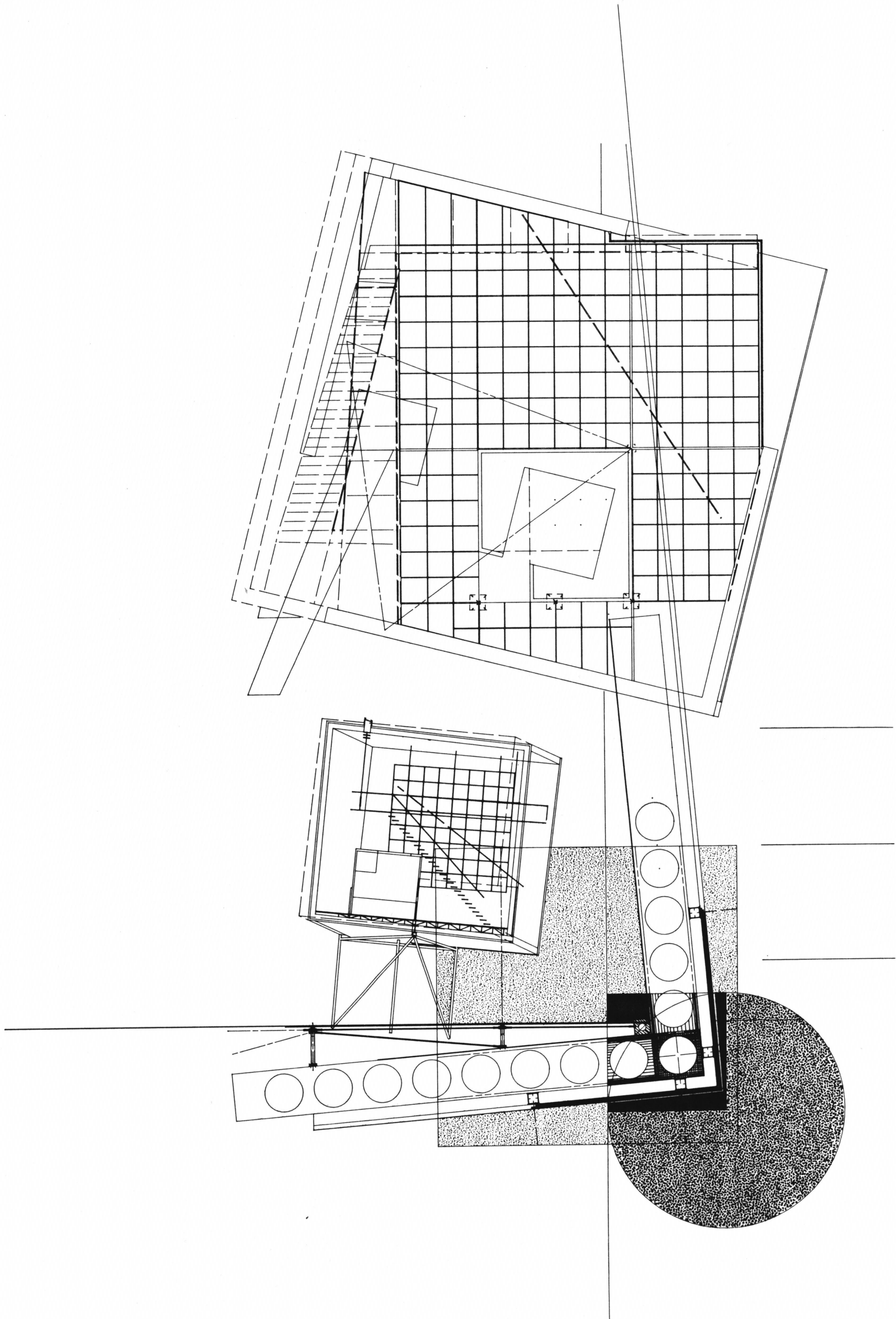


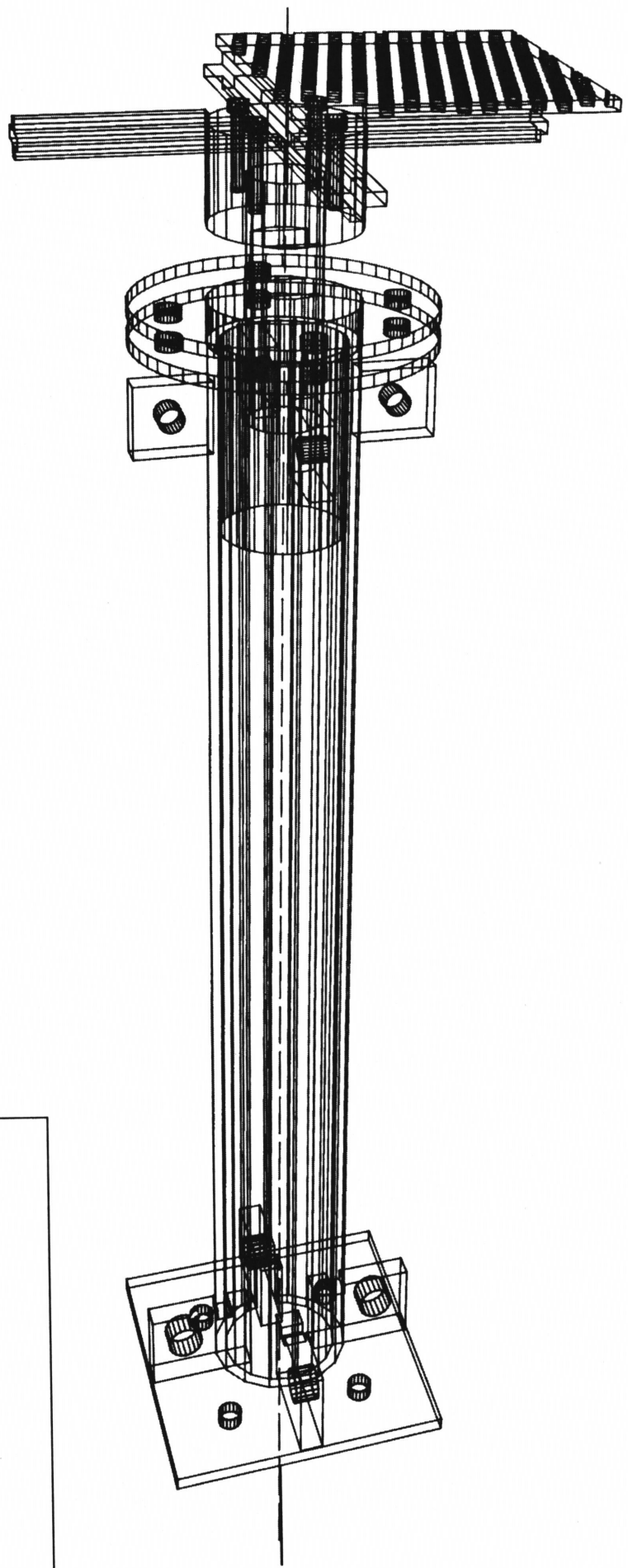
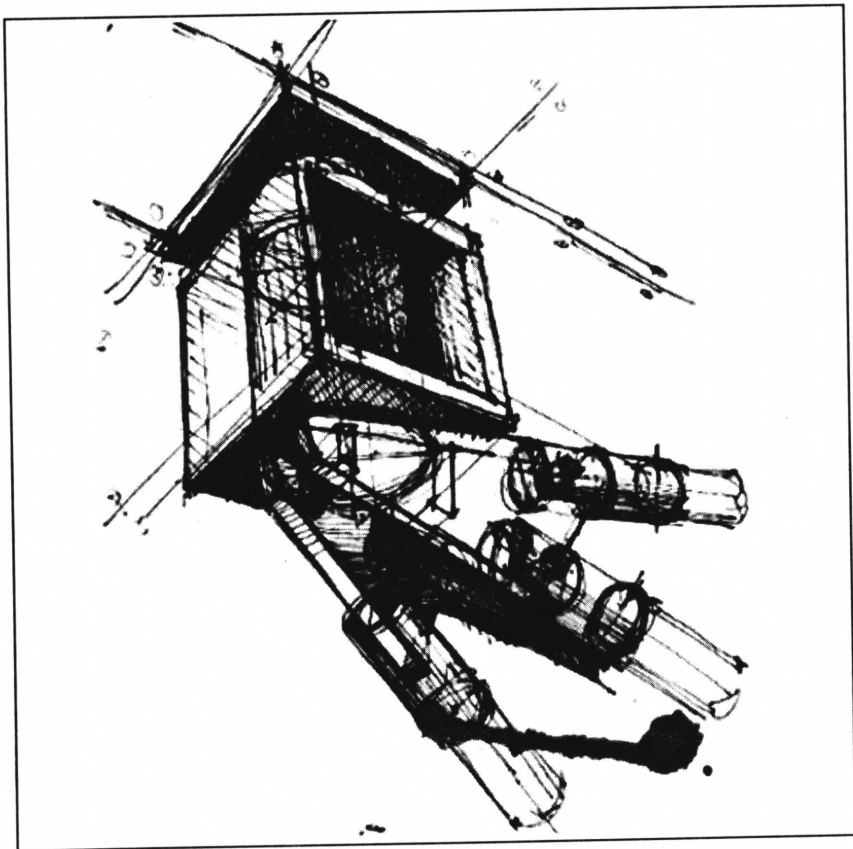
One of the new relations is use. Originally, with the thesis project considered as a potential house, the "cube" played the role of a living room. This living room gathered most of the daytime indoor activities. Within the "cube", one can find the kitchen, the dining area, the library, the fireplace, etc. Later in the project, with use as a multiple and changing condition, all the spaces within the cube become much less restricted. In this new set of relations, the "cube" could have a variety of uses, such as, for example, a pottery studio or a furniture studio. The configuration of its interior would remain nearly the same. The basic components would not have to alter their simple shapes in order to accommodate different or changing uses. The quality of the space would be the same, although the form would be changing with the use.









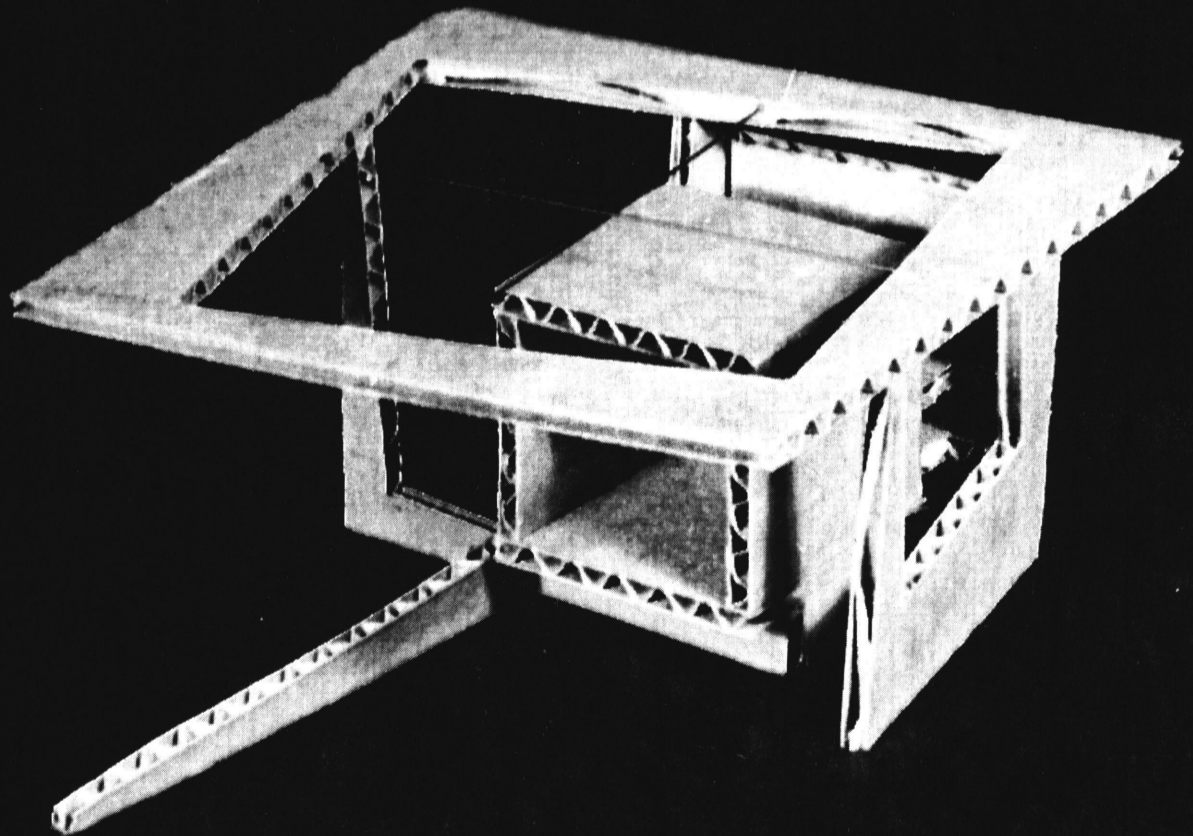


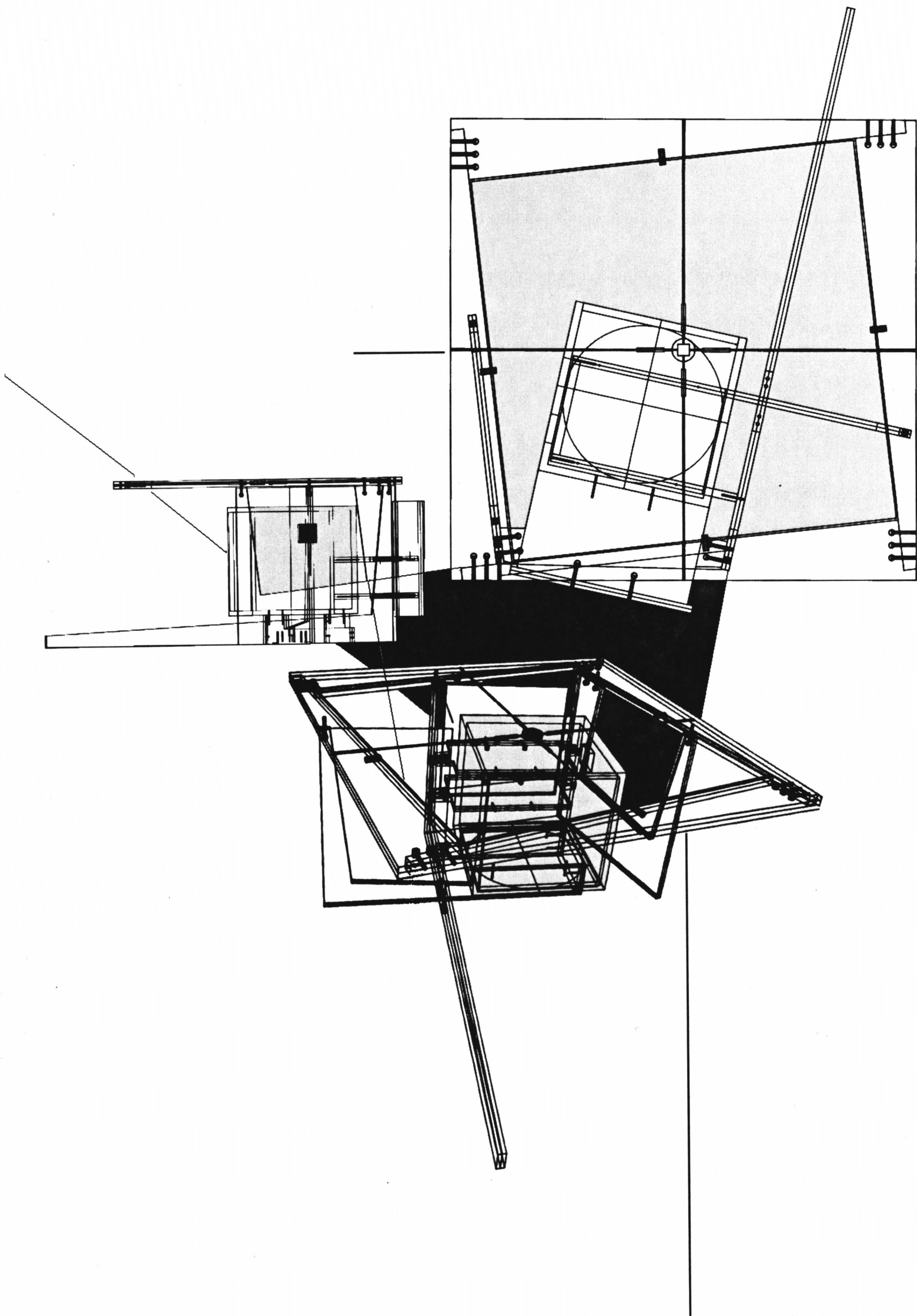
Another new relation, connected to use through the limits of the human body, is scale. Scale, with my choice of materials, has brought further implications to the visual conditions and the involved static relations. Considering the scale, has resulted in a few samples of details within the "cube".



Table

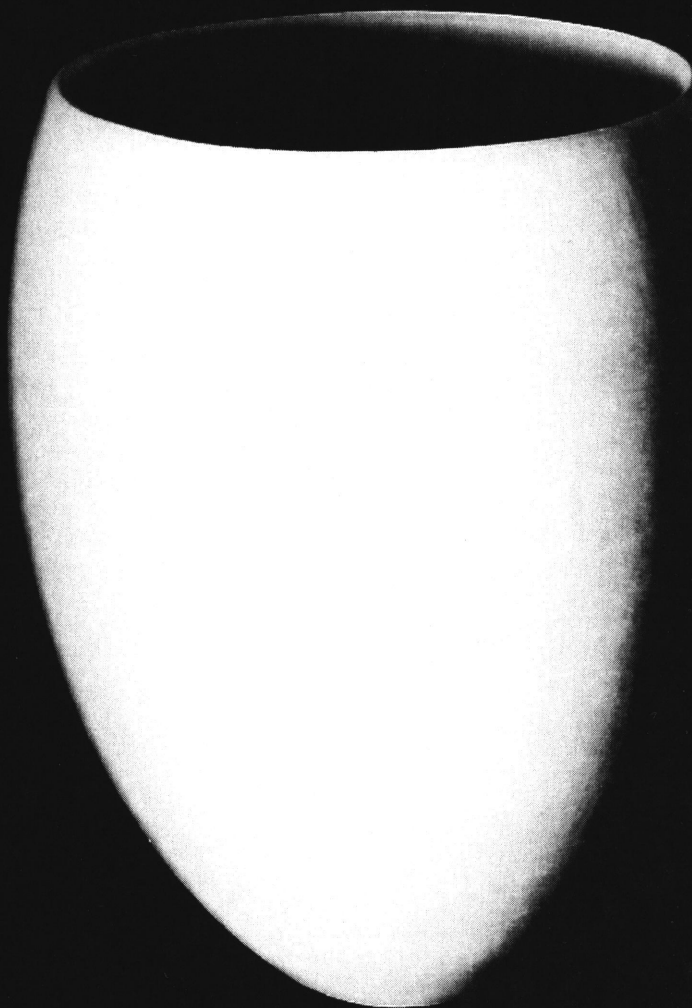
All the aspects of my main thesis project can be described as "realistic". In order to fully investigate the tendencies present in my design, a real object was introduced and built. Its scale and complexity provided the opportunity for a diversity of conditions, and it had to be within the limits of school shop production capabilities. A table was the chosen object.

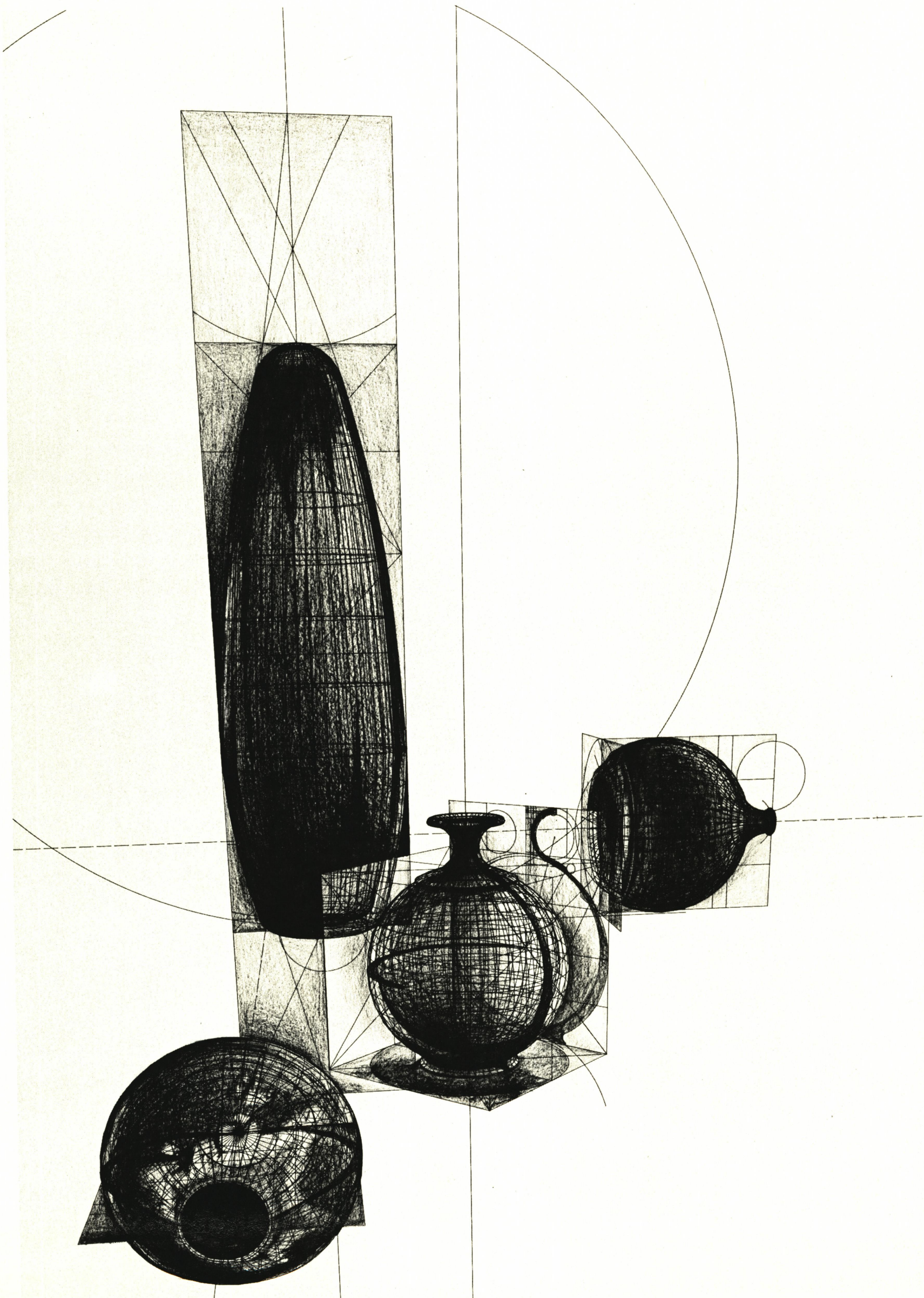




Pottery

When designing the table, I remained within the same family of shapes as in my main object. Certain set routines became apparent during the design process. In order to further isolate the relations I had chosen to impose on the object, I decided to use pottery as a means of investigation. With pottery, the given conditions became entirely different. The material (clay), with its strength, the technique (forming on the wheel), the finishing process (firing), and tools (mainly hands), were completely detached from my previous experiences. Use, although still multiple since nobody can predict all the uses of any pot, was very different from those of the previous projects. What was left was the framework of relations which I imposed on the "given" ones. The result was a different network where contrast, contour, balance, both visual and static, formed new relations and created a form that "functioned" differently - a pot.







In order to further mature architectural tendencies and realizations, the obligation of engagement within the "given" relations becomes my priority.

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