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RICE UNIVERSITY

**Spatial Experiments:
Designing a Space for Living, Working, Playing and Sleeping**

by

Fani Qano

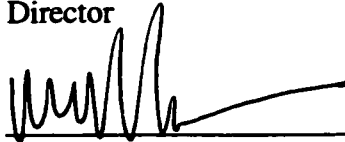
A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE

Master of Architecture

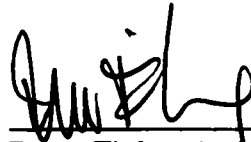
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ABSTRACT

Spatial Experiments

Designing a Space for Living, Working, Playing and Dreaming

by

Fani Qano

“Spatial experiments” is a thesis based on a design build approach. The design process was always closely connected to its execution within a limited time frame and budget possibilities. The first impetus for this thesis was a restructuring of the space for everyday living. It is not a criticism of any existing types of spatial arrangements, rather a personal take on living space.

The design consists of moveable panels that serve as partitions, furniture and lighting devices. The design was site specific. It dealt with one particular space within the Rice University School of Architecture. At the same time, it is a design that can be adopted to many different spatial conditions. The aim was to provide a framework of support for activities within a limited space. In a limited space, the design reveals its full potential.

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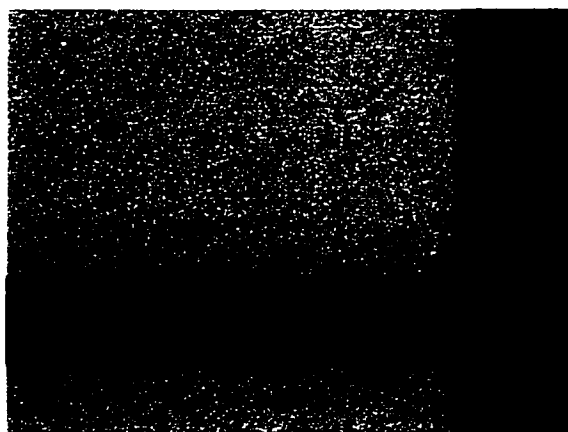
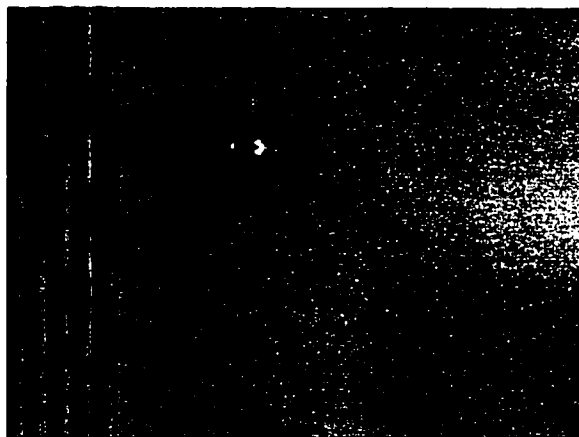
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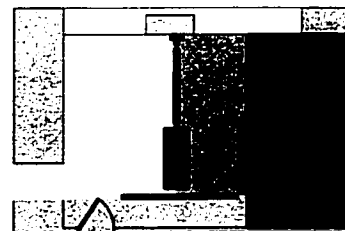
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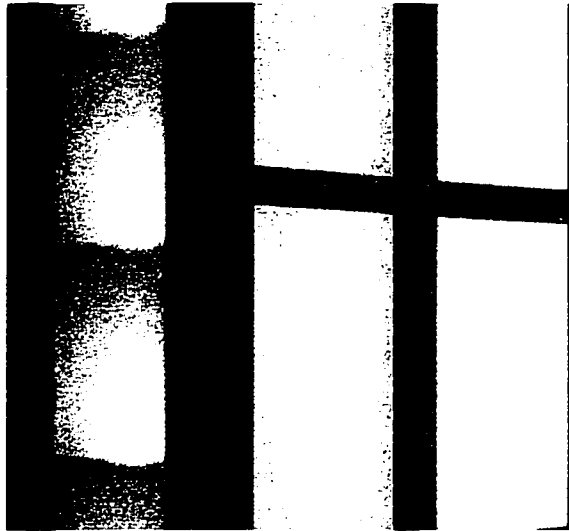
This project would not have been possible without your help, patience,
wisdom, advice and support.



Introduction

The following thesis deals with the day-to-day living space. During my life as a student I've inhabited many apartments, each one different from the others. However, the prevailing characteristic throughout all these spaces has been their limited surface area. Each of these apartments was populated by a collection of objects that I introduced into the space. Arranging these objects, throughout the space, in ways that would allow many day-to-day activities to coexist and be performed satisfactorily, has always been a challenge. More often than not, I've found myself

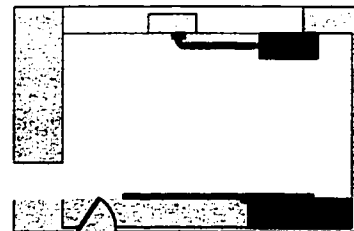




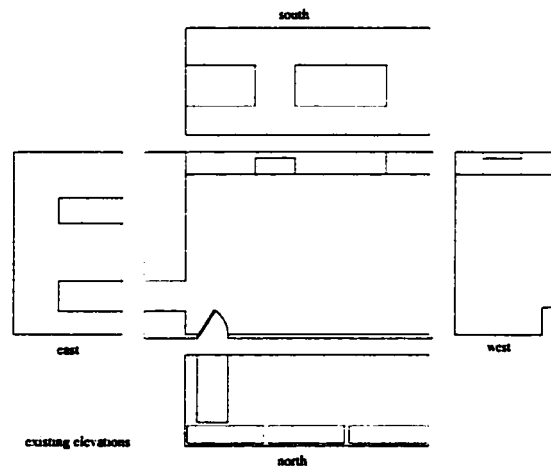
rearranging my apartment whenever I wanted to have a dinner party, built a model, paint or clean. Almost all objects I own, flow in and out of the space according to their function and need in relation to a certain activity. My apartments interior space is in constant flux, whose consequences are not always pleasurable.

'Spatial experiments' became my opportunity to explore ways of dealing with the challenge of tight space. It is one that many people face in their everyday life. It was my intent, therefore, to design a space, within a relatively small floor area, for living, working, playing and sleeping. Living, working, playing and sleeping describe a variety of day-to-day activities which are subject to individual preferences and, which I will not enumerate here.

An important first step into the thesis was the selection of site. This thesis was conceived as



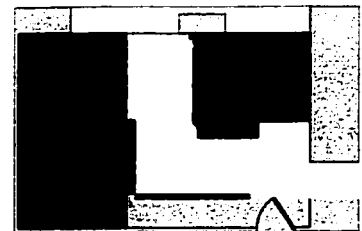
a design/ built experiment. It needed to respond to specific conditions, in addition to suggesting general ways of spatial organization. The design process was viewed as an experiment. I decided to experiment by constructing my ideas full scale experimenting thus directly with space and materials. Design informed building and building informed design

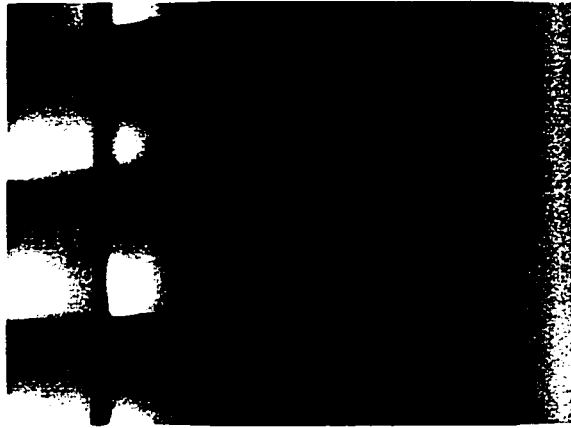


Site

The student lounge at the Rice University School of Architecture was a desirable site for this thesis. It is a rectangular room, with an uninterrupted floor area that measures approximately 370sq. feet. The walls are basic stud frame construction, while the floor is concrete. I could not interfere structurally with the walls, floor or ceiling. Only temporary, and easily removable, structures could be attached to them.

The student lounge was widely used as a space for studio work, storage, sleeping and, sometimes, entertainment. Because of its opened and lim-

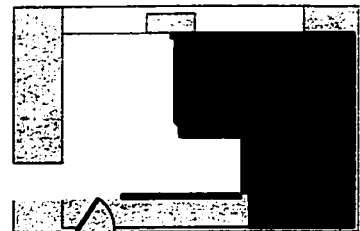


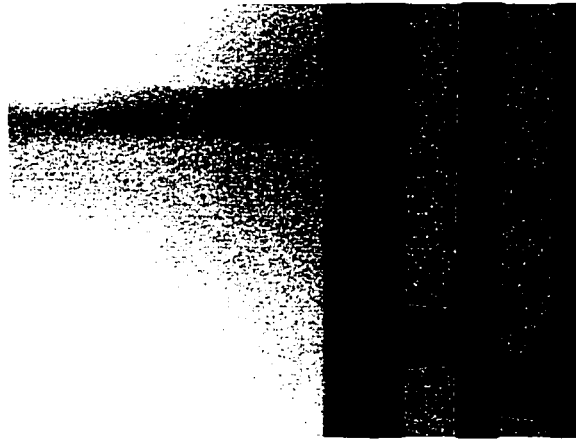


ited floor area it was constantly crowded with objects. Moving them around to make space for any particular activity was a common occurrence. Everyday, objects and furniture shifted from one corner of the room to another, oftentimes even removed from the room itself only to be brought back again. It was this flux of objects within that space that caught my attention. Had I not experienced the same occurrence in my own apartment? Could I possibly introduce an organizing structure upon this room, which would facilitate activities occurring within? What could this organizing structure be?

DESIGN

In order to facilitate my thinking process I categorized the basic components that define interior space into three groups: Dividers, furniture and lighting

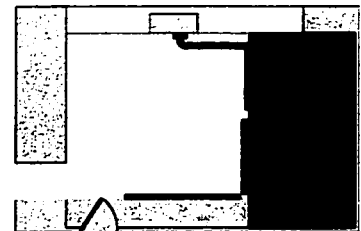




ities occurring, thus defining ways the space can be used.

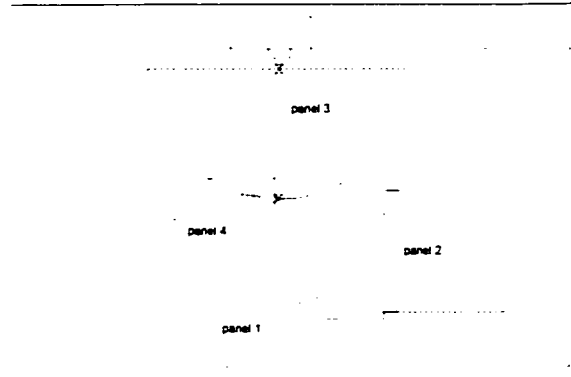
Objects used to illuminate space are grouped under 'lighting'. Lighting is a very important component of space. It can be used to define a specific area of activity, by virtue of its existence or absence, intensity, color, directionality and so on. It creates mood in addition to its primary function of visually revealing or concealing space.

In reorganizing space, one has to contend with objects from each of the above categories. Each activity would ideally position objects differently from other activities, in response to its particular needs. These objects, more often than not, find their little niche in space and remain there, for long periods of time, until their repositioning becomes a necessity. When space is tight, repositioning objects becomes a frequently occurring necessity. It was this necessity that I responded

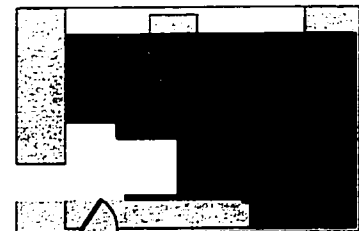


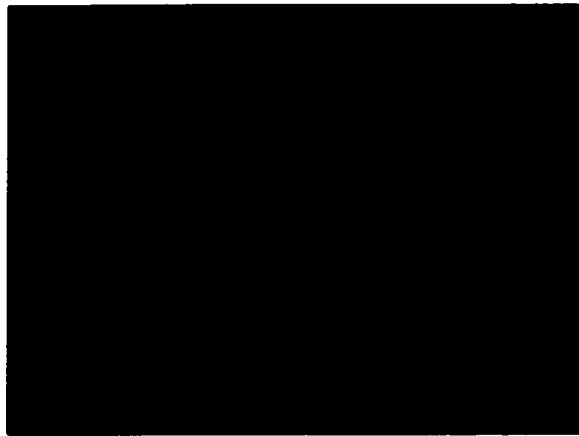
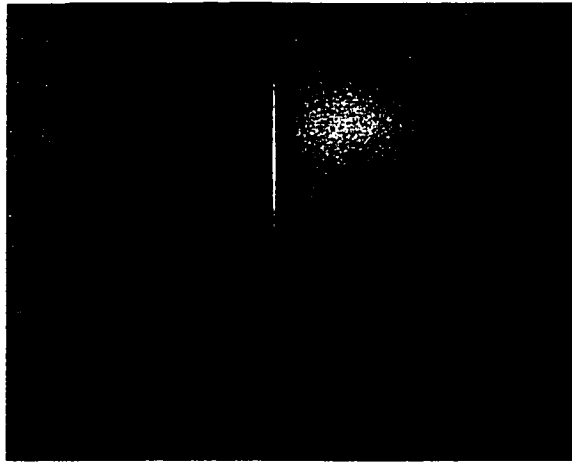
to, in my thesis. The response was a straightforward, practical one. By creating objects composed of elements from each of the three categories, it aimed at facilitating a quick conversion of space with respect to a desired activity in terms of physical shape, character of space and mood.

A series of four panels was designed. Each panel had in-built furniture and lighting. They served as dividers, furniture and lighting fixtures.



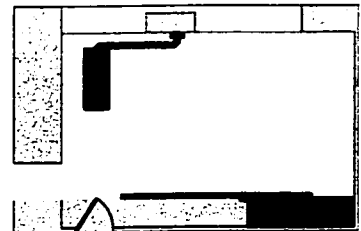
The first was inserted between the ceiling and the floor and is fixed. A table and a bench were built into it. This panel serves as a fixed support for another. Lighting proceeds into the room through the table and bench both when they are folded into the panel and when they are being used. This panel is constructed like any divider wall in a house. It has two openings to receive the table and bench. Both table and bench mirror the construction of other panels. They consist of an internal frame sheathed

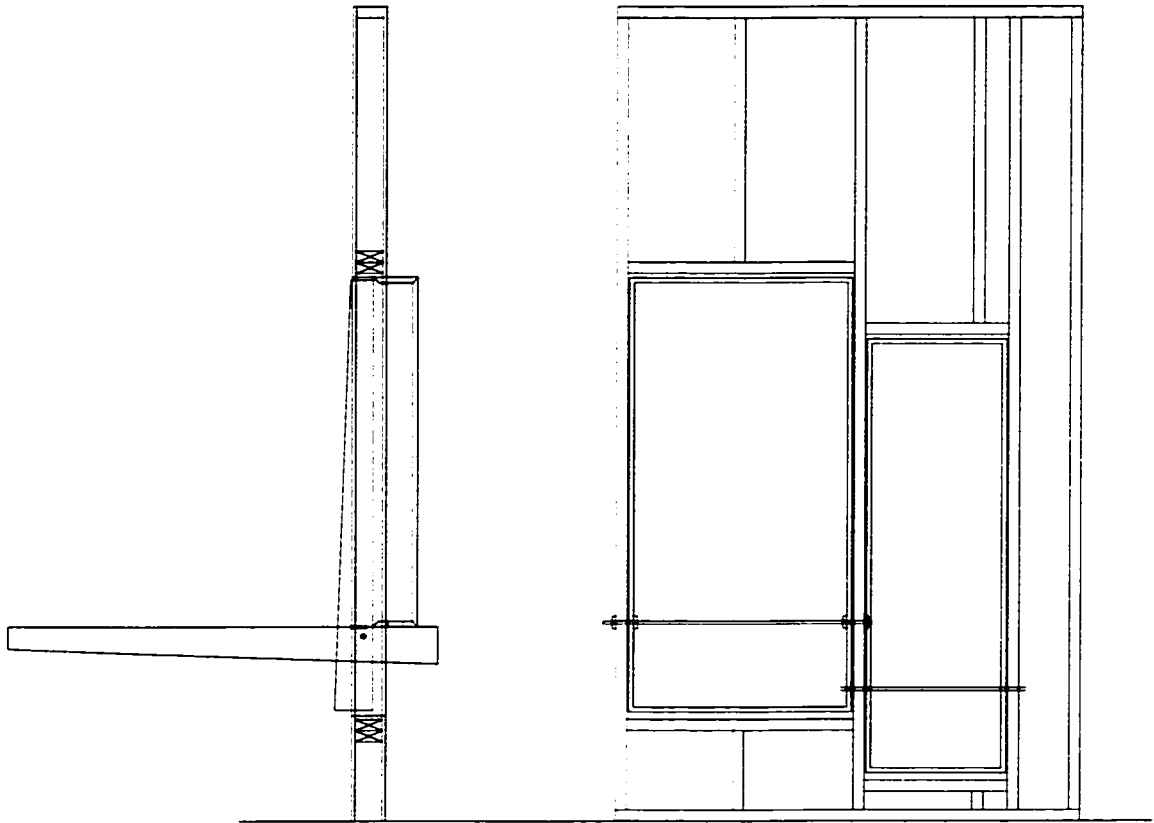




on both sides with translucent material (sand-blasted plexi-glass). When not in use they reside within their niches in the panel. Through their surface characteristics they modify the lighting into the room. When not in use, they can be seen as framed art pieces on the wall.

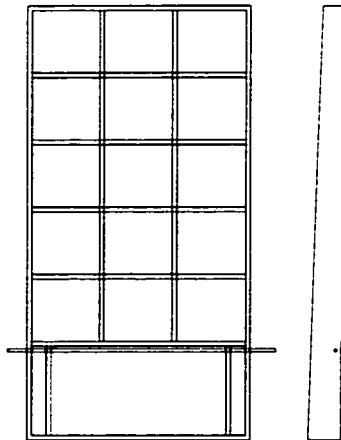
Folding down the table and bench reveals canvas covered boxes mounted at the openings in the wall. They are used to house the lighting fixtures, as support for table and bench while in use and as light modifiers. The canvas surface glows softly



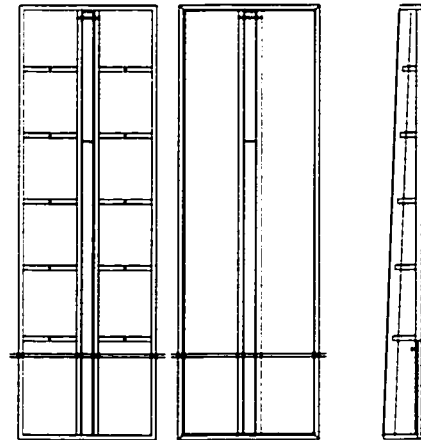


**section of fixed panel
with table in
opened position**

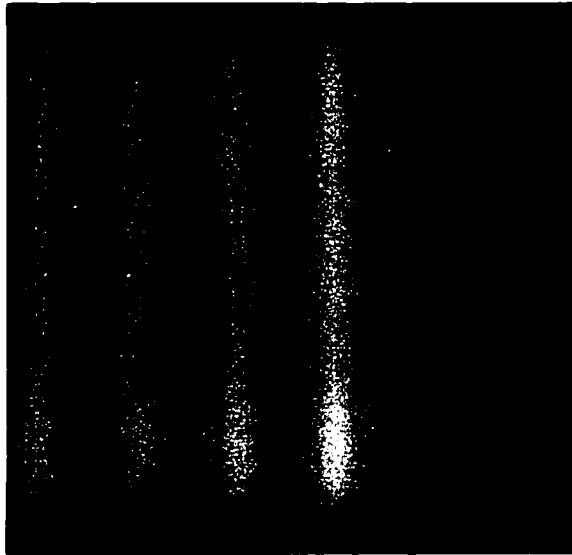
**framing for table
and bench on
fixed panel**



**front and side view
of table inner structure**

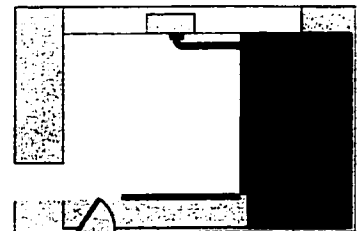
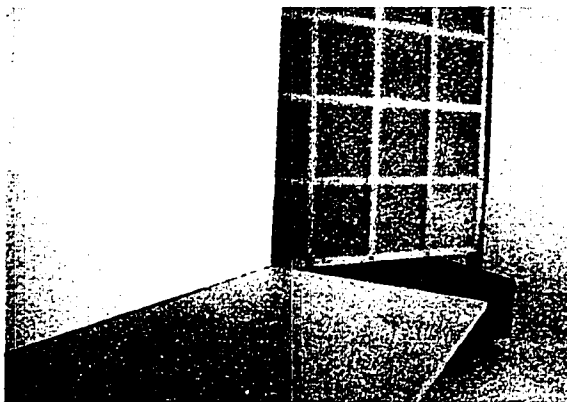


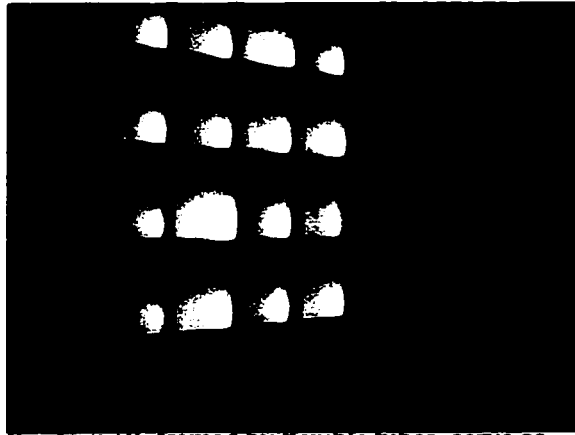
**front and side view
of bench structure**



mood, be it for eating, drinking tea or just conversing.

The second panel is affixed to the first one on one side while the other side is allowed to swing 90 degrees in and out of the room. It is built similar to a large light box. Its structure consists of a 1x6 stud frame sheathed in canvass on the front and drywall on the back. Four fluorescent light bulbs are inserted between the stud members. A folding, worktable is incorporated in the back, underneath the drywall. When the table is in use it is possible to access the light

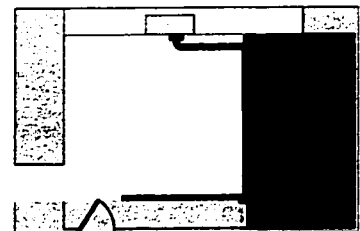


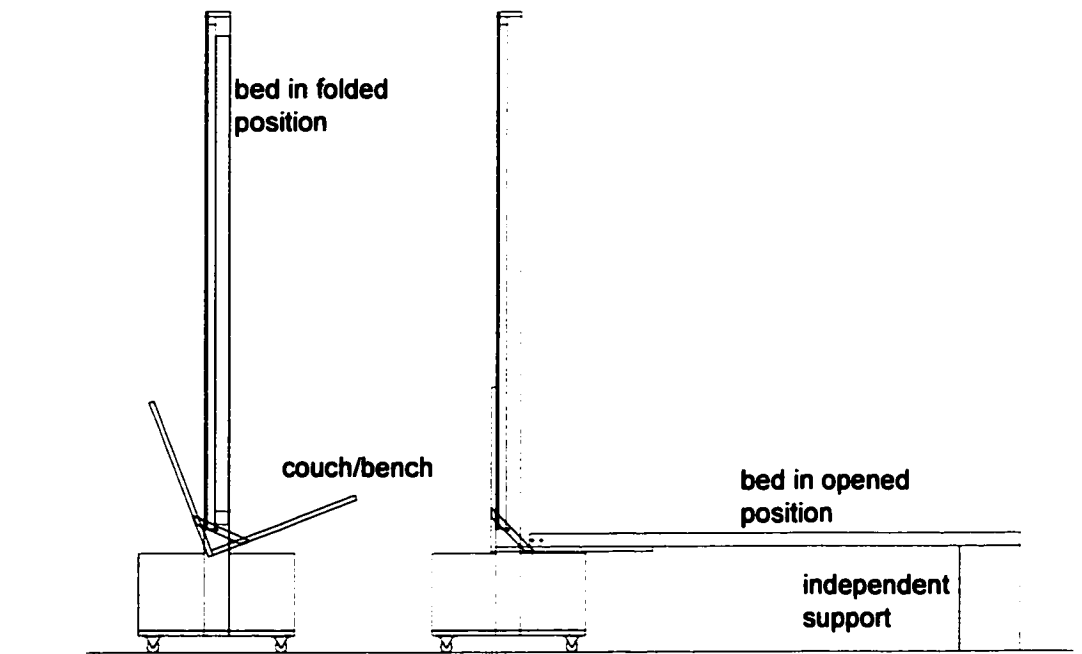
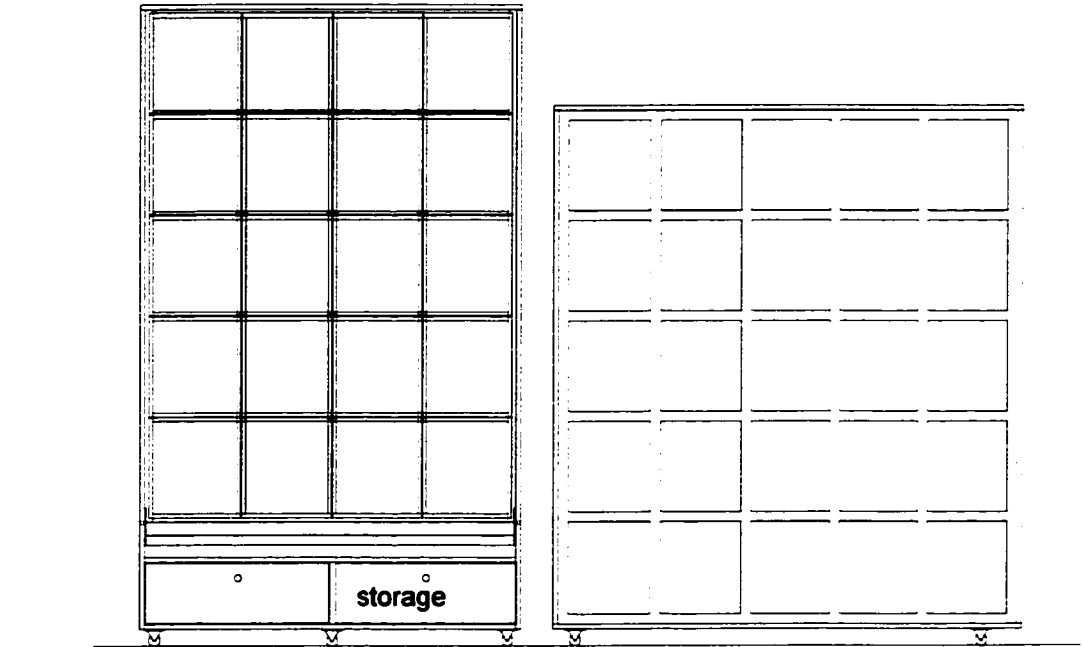
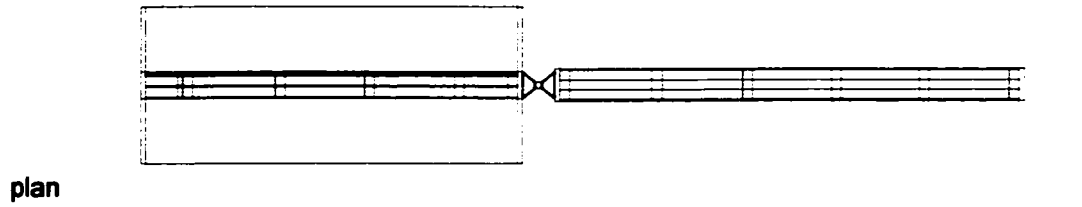


the drywall, framed by flexible tubes, serve as directional lighting fixtures for the work surface. This was the first moveable panel installed in the space. When put to use it divided the space into zones, one public and one private. The canvas surface, 6ft.x9ft, faces the more public space of the room with its glowing quality and imposing presence. It welcomes people into a space filled with a dreamy light. The drywall surface, facing the more private space allows one to carry out activities that require concentration while serving as a pin-up wall for drawings and objects.

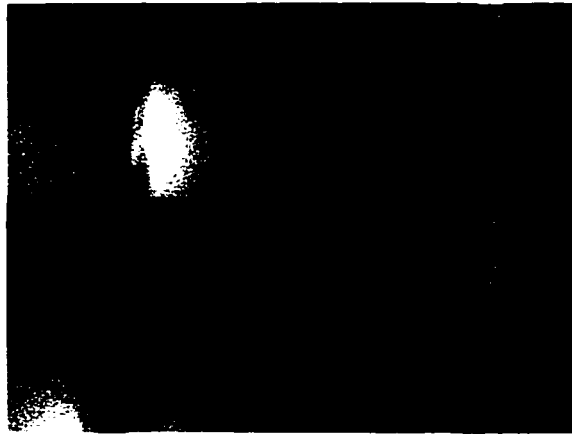
The third and fourth panels have the same internal structure. It consists of a 2x2 stud frame, constructed as a grid. This decision resulted from the need to minimize torque during movement and use of furniture.

The third panel is affixed on side to the south wall of the room while the other side is allowed to swing at 180 degrees, by means of a steel hinge. This panel does not incorporate any fur-



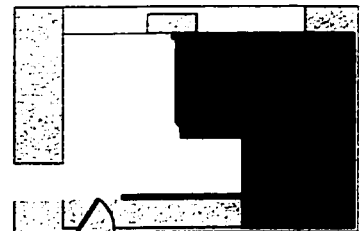


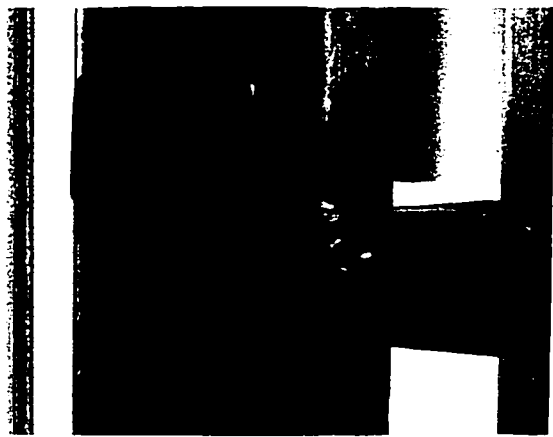
niture. However, it incorporates lighting and its design responds to the requirements imposed by it. Its surface needs to be translucent and at an



acceptable distance from the light bulbs, which in turn are placed at each rectangle of the grid. These needs determine the thickness of the panel as well as its surface treatment. Since it rotates to 180 degrees both sides of the panel are translucent. One is sheathed in sand-blasted plexi-glass and the other in canvas. To the free-rotating end of this panel, the fourth is affixed on one side, while its other side can rotate to 180 degrees. The third and the fourth panel resemble a flexible arm.

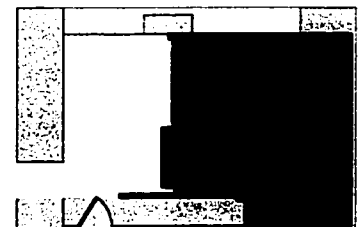
The fourth panel incorporates a set of storage shelves, storage, a couch/ bench and a bed. A luminescent wire, threaded through the central structure illuminates it. The wire is very thin, emits strong light and no heat. The couch/ bench consists of two flat boards joined at 90

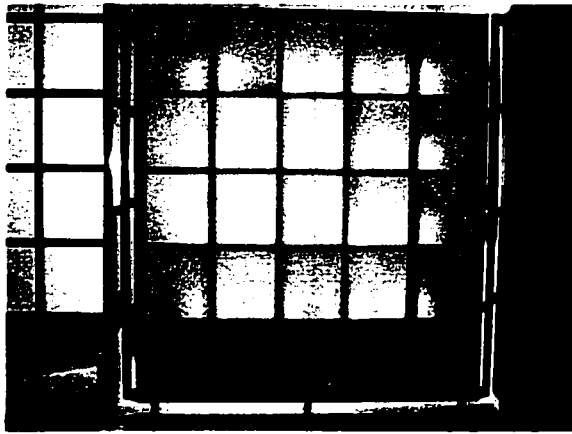
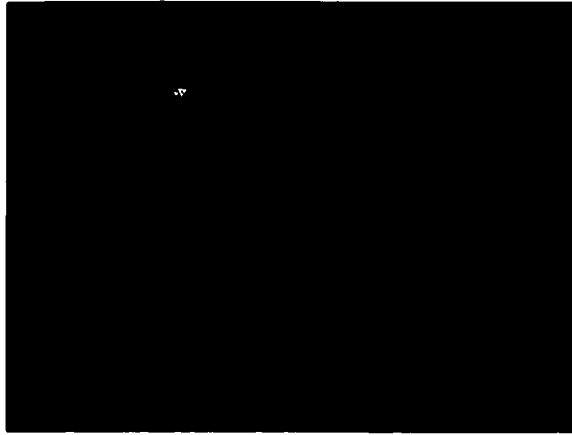




degrees and stabilized with steel angles, upon which they rotate. The frame of the bed is the same as that of the central structure. On one side transparent, plastic floating mattresses are mounted while the other side, when the bed is folded into the structure, is covered by a canvas window blind. The other side of the panel is covered with sandblasted plexi-glass.

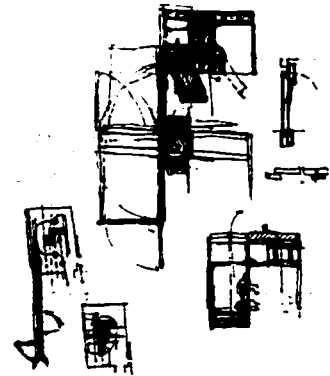
Except for the first one, all other panels are placed on castors. They can roll around the space and take various positions inside the room, according to need. Otherwise, they can be pushed against the walls re-opening the floor area to its already





existing condition.

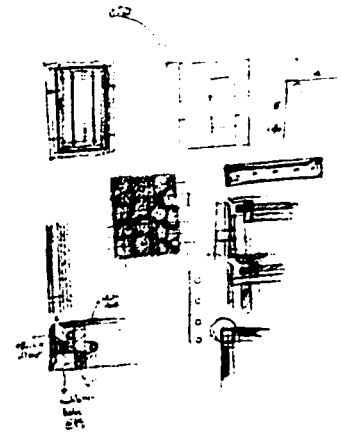
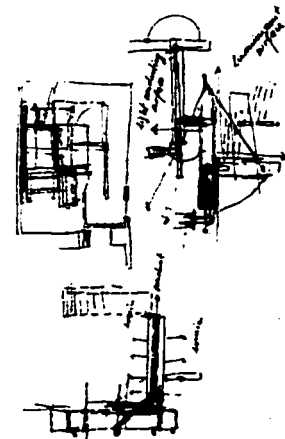
The addition of the third and fourth panels to the space created the possibility of more complex spatial configurations in the room. The space could now be divided in many areas of different size and quality. A series of diagrams showing several possible configurations is distributed throughout this book. The diagrams show the panels in right angles with each other and the walls of the room. However, many different angles can be adopted, making possible a wider variety of configurations. Each diagram



is color coded, simply to suggest possible areas of activity for each configuration. However the possibilities are many, and left to the user to decide upon. Ultimately it is the user that will give meaning to the space and release the potential of the design.

This design provides only a framework for restructuring space. A variety of objects can be introduced into the space to further adapt it to the needs of specific activities.

As I mentioned previously, this thesis was an experiment. It is one of many design choices that could work with this particular site. A large amount of sketches was generated in order to understand the space itself and to integrate my design ideas within it. A trial and error construction process led to a further improvement of the design, as I was able to test my design in real space and with real people. Many materials and ways to make them work with my idea and each other, were tested. Going from sketchpad to the shop, to the site and back to the sketchpad was a great learning experience. Building full scale allowed me to fine tune my design with respect to the mechanics of each panel, the quality of lighting inserted inside them, the way lighting worked with each structure and the way panels interacted with each other within the space, both in terms of their movement and in terms of light-



ing.

The materials I chose were simple and easy to work with. Their relationship to each other and to lighting begins to suggest a variety of fruitful experiments.

What is described in the above paragraphs is only the beginning of a long exploration of space.

Enjoy

