RENOVATION OF THE CLOSE FACTORY: A PROPOSAL FOR URBAN HOUSING

by

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Signature of Author .. ..
Department of Architecture

Certified by .....
Jan Wampler, Associate Professor
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Accepted by .....
Wayne Andersen, Chairman
Departmental Committee on Graduate
Students

ABSTRACT

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A PROPOSAL FOR URBAN HOUSING

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Submitted to the Department of Architecture on March 23, 1977 in partial fulfillment of the requirements for the degree of MASTER OF ARCHITECTURE.

This thesis illustrates a methodology of designing moderately priced co-operative housing for the urban dweller that may be "personalized" (e.g. housing in which the occupant can design to suit his (or her) own tastes.

This methodology is presented in two phases. Phase I deals with the development of a building support system in terms of "social" supports and mechanical supports. Phase II deals with the private dwelling spaces that fit within the "building support" and how these spaces may evolve and change within the "building support" to suit the needs of the occupant.

This thesis is presented with text, drawings, and photographs of a model that illustrate the qualities of the various spaces, both public and private.

Thesis Supervisor: Jan Wampler
Associate Professor of Architecture

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"To a greater extent than perhaps any other nation, we Americans have become an "indoor people". A large portion of our lives- working, sleeping, playing, is spent in buildings: buildings over whose design and construction we have little or no control; buildings physical and economic distribution are only remotely conditioned by our needs..."

James Marston Fitch Jr.

"American Building"

THE GEORGE CLOSE FACTORY

The George Close Factory was built in 1879 by George Close, a candy manufacturer. The building resembles in both architecture and structure many of the factories and mills that were built in New England during the latter half of the 19th century. The structure of the building consists of heavy timber beams and columns and an exterior masonry bearing wall. The flooring consists of 4 inch thick planking overlaid with 1 inch thick boards. The last occupant of the building was the Will Scientific Co., a supplier of laboratory furnishings. In 1971, the Cambridge Redevelopment Authority acquired the premises.

The Close Factory is located in an area of Cambridge designated by the Cambridge Redevelopment Authority as the Wellington-Harrington Urban Renewal Area (fig. 1). It is the intention of the Cambridge Redevelopment Authority to reinforce the predominant character of this area which consists primarily of 1 and 2 family wood frame houses and families of moderate income. Any non-conforming uses are to be phased out. A feasibility study conducted by the CRA indicated that the Close Factory should be saved and renovated into housing.

TRACT NUMBERS 5A and 5B

—·—·—·— Project Area Boundaries

WELLINGTON-HARRINGTON
URBAN RENEWAL AREA

CAMBRIDGE REDEVELOPMENT AUTHORITY
CAMBRIDGE, MIDDLESEX COUNTY, MASS
Prepared by the
CAMBRIDGE PLANNING BOARD

SCALE IN FEET

CODE NO

fig. 1

A PROPOSAL FOR URBAN HOUSING

It is the purpose of this thesis to illustrate a specific approach to providing low cost housing through renovation of existing structures. The George Close Factory will serve as a model for this investigation. The problem of providing housing for people of low and moderate income is twofold. Firstly, there is the problem of providing adequate housing cheaply enough so that families of moderate and low income can afford this housing. Secondly, there is the problem of providing a sense of place (or permanence) thus lending stability to the environment. The second problem is caused too often by design deficiencies. (In many instances, the architect is hampered by budget and code restrictions.) Spaces provided are in many cases minimal with insufficient communal spaces. Also, as tenants, many people of low income find themselves faced with insensitive management or absentee landlords. Thus, they are often forced to share a building with undesirable tenants or are confronted with unattended building repairs. These problems, disheartening at best, have forced many families to acquiesce in substandard housing surrounded by a hostile environment. Many housing "projects" built with the best intentions have become holding chambers for low income families and the elderly.

It is the premise of this thesis that the two problems previously discussed can be alleviated by 1) providing private spaces that are adequate in terms of quantity and quality with

community spaces that are well designed and 2) by providing people with a sense of place and community by allowing them to have some control over the quality of their environment through co-operative ownership and design flexibility.

The process of development of this housing is an integral part of the concepts previously discussed. It is assumthat the renovation process will be initiated by a base or "seed" corporation. (A tenant's association would be the deal base corporation.) The base corporation would purchase the building and property from the Cambridge Redevelopment Authority. Many municipalities, eager to stimulate development in decaying areas, will sell old buildings to prospective developers at bargain prices. (A developer recently purchased the building and premises for less than $20,000.) Thus, it is conceivable that a tenant's group or other private entity might be encouraged to undertake development of an existing building. Once the building and property are acquired, the corporation will obtain financing, either from a private agency, or from HUD under Section 312 for the actual renovation (up to $17,500 per unit).

The actual development is to be executed in two phases. The first phase, which is the responsibility of the base or "seed" corporation, is the construction of the mechanical system, commercial spaces, and the community "superstructure". The design of the community "superstructure" is a critical aspect of the renovation, for this "superstructure" defines the building community. The inter-relationships between in-

habitants and the progression between public and private are vital functions of the community "superstructure" (fig.3) One method of dealing with the progression between public and private is to create a series of "mini-environments" or zones through which the individual must pass in passage from the private realm to the public realm. In the Close building, I have chosen to create 4 zones that represent stages in the progression from public to private: Zones 1, 2, 3, and 4. Zones 1 and 2 lie within the public realm. (Zones 3 and 4 lie within the private realm and will be discussed later.) Zone 1 consists of the most public areas and areas of "hard" circulation (e.g. fire stairs and connecting corridors). Community and service areas (e.g. dining room and laundry) are also Zone 1 areas. Zone 2 areas are less public. These areas are areas of "soft" building circulation which relate to specific dwelling spaces. Occupants of dwellings clustered around a Zone 2 area relate to that specific area within the context of the entire building community just as one might relate to a block on which whose house is situated within the context of the entire length of street (fig. 4). Dwellings may borrow space from these areas for porches or "interior stoops" (fig. 54). Building occupants may also purchase Zone 2 space from the building co-operative. Stairs that were ince part of the public realm now become private vertical circulation, enabling dwelling spaces to expand upwards or downwards through floors (fig. 9 and 45). Zone 2 spaces may also be used for horizontal expansion in which dwellings grow horizontally

into one another (or possibly both horizontally and vertically).

Once Phase I of the development is complete, Phase II will begin. Phase II entails the development of the "dwelling space" itself. The "dwelling spaces" are areas within the "community superstructure" provided with a bathroom and kitchen or simply the mechanical core (part of Phase I development). The Phase II developer purchases his (or her) space from the Phase I developer or from the building co-operative. The cost of this space is proportional to the degree of "unfinish" of the dwelling space. For instance, if the Phase II developer does not desire a finished space (for financial or planning reasons), he (or she) may negotiate with the Phase I developer for a partially finished space. This space might contain just the kitchen and bathroom cores. When the occasion arises, the dwelling might "grow" within the contained dwelling space. Partitions might be added, subtracted, or rearranged (fig. 35-44). The financing of the dwelling space is accomplished in two ways. In the first case, the completion cost of the dwelling space is included in the original $17,000 allotment. In this case, the Phase II developer submits plans for the completion of his (or her) unit to HUD or any other financing agent during Phase I. In the second case, the buyer purchases the unfinished (or partially finished space from the corporation (building co-operative). The buyer then negotiates separate financing through a bank or other financing agent for the completion of the dwelling.

One of the most critical aspects of the renovation is the design (or more aptly, "undesign") of the dwelling space. space. The dwelling space should not be completely amorphous. Yet, the space should be so designed as to provide considerable latitude in the possibility of spacial arrangements. As mentioned earlier, Zones 1,2,3, and 4 represent stages in the progression from public to private. Zones 1 and 2 were discussed earlier. Zones 3 and 4 represent the continuation of this progression within the private realm (fig.7). Zone 3 serves as a transition zone between the more public building community and the most private areas of the dwelling space. It is assumed that certain functions will most likely occur within Zone 3. Kitchens, bathrooms, vertical circulation, and "interior windows" (fig.55) are Zone 3 "functions". Mechanical cores are generally located between dwellings and about centrally between interior (corridor) and exterior (window) walls. Raised platforms take advantage of the existing floor to ceiling heights (11feet-6inches). These platforms, which are generally 2 feet-6inches in height allow for storage, give spacial definition, and allow for horizontal distribution of mechanical services within the dwelling space (fig.6). Thus, bathrooms and kitchens may be located away from the mechanical core. Dwelling occupants may relocate kitchens and bathrooms within the dwelling space with minimum disruption to the building. Zone 4 spaces are the most private spaces within the building community. Zone 4 areas receive the most daylight. Therefore, living rooms, dining rooms, bedrooms, and

porches are Zone 4 "functions".

The physical design of the building together with the economic structure (co-operative ownership) renders the building a "co-operative community". All decisions regarding the built environment and the building's operation will be jointly shared by all of the occupants. Thus, residents have their "houses" within the larger "building community". The economic commitment of the occupants should reinforce and stabilize the social fabric of the community. The resident has a sense of place and belonging as opposed to the tenant who lives in someone else's building. The resident does have greater control of his (or her) environment.

PROGRAM

Available Floor Area:

Basement	9469	Sq. Ft.
1st Floor	8128	" "
2nd Floor	8128	" "
3rd Floor	8128	" "
4th Floor	8728	" "
5th Floor	8728	" "
6th Floor	8728	" "
Total	60,000	" "

Apartment Breakdown *

Studio	576	Sq. Ft.
1 Bedroom	594	" "
2 Bedroom	796	" "
3 Bedroom	1062	" "
4 Bedroom	1264	" "

*Note: The area breakdowns given are solely for design purposes. These areas provide the developer of "Phase I" with a general idea of the size of the "dwelling areas". The actual design of the dwelling area lay-out will be the responsibility of the "Phase II" developer, or occupant.

Number of Apartments

10 Studio	@	576	Sq. Ft.	=	5760	Sq. Ft.
12 1 Bedroom	@	594	" "	=	7128	" "
7 2 Bedroom	@	796	" "	=	5572	" "
8 3 Bedroom	@	1062	" "	=	8496	" "
6 4 Bedroom	@	1264	" "	=	7584	" "
Total					34,540	" "

Community

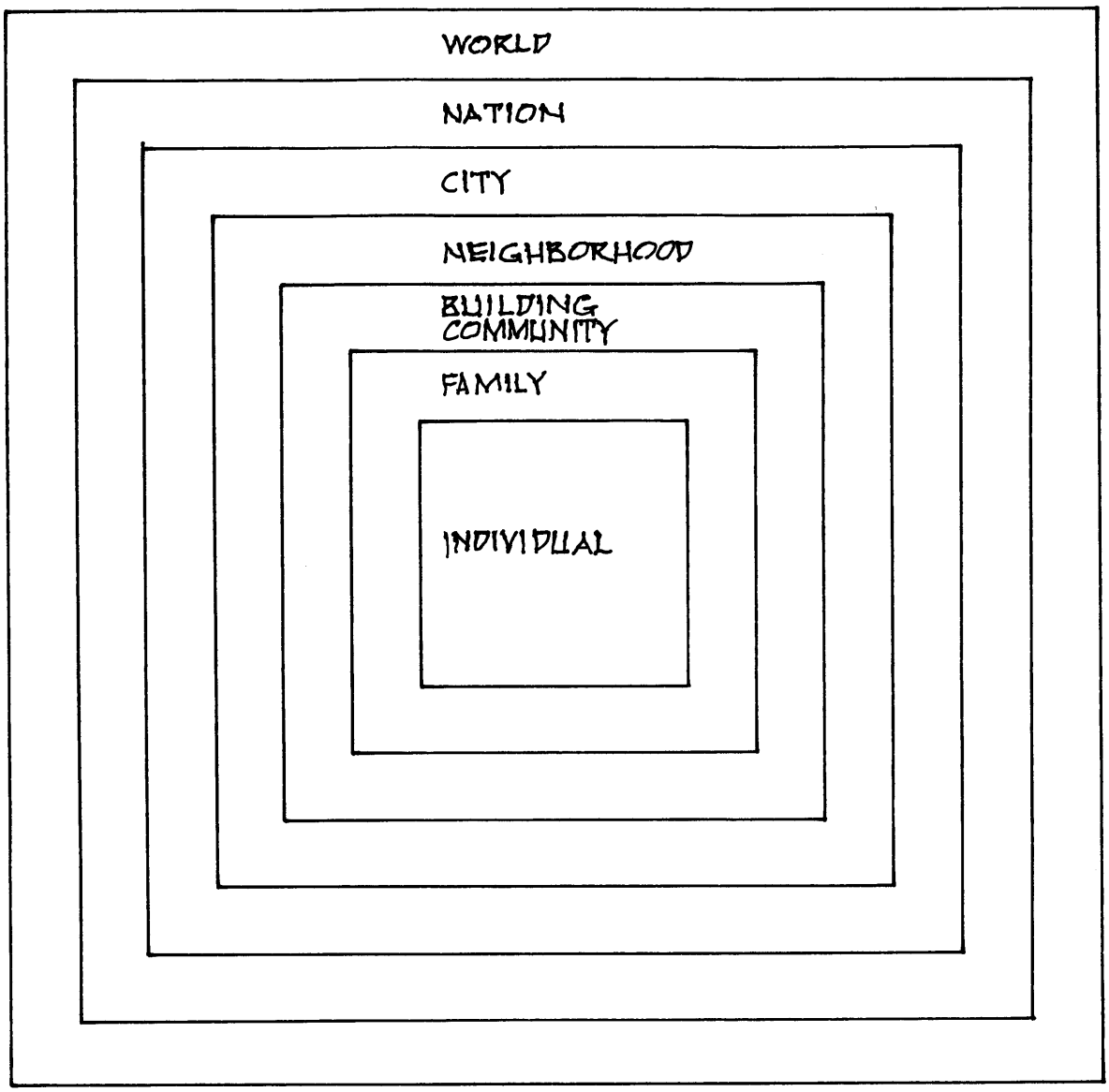
All Purpose Room (Resident meetings, games, parties, etc.)	800	Sq. Ft.
Dining Room-Kitchen	800	" "
Library-Study	800	" "
Workshop	800	" "
Laundry	200	" "
Management Office	300	" "
Roof Garden (Greenhouse)	4000	" "

PROGRAM (Continued)

Sundeck (Roof)	2400 Sq. Ft.
Community Living Room	400 " "
Total	10,500 " "
Commercial Space	7600 Sq. Ft.

Service and Support Facilities

Tenant Storage	1440 Sq. Ft.
Boiler Room	600 " "
Compactor Room	300 " "
Service and Entry	2028 " "
Total	4368 " "
Outdoor Community Space	3800 Sq. Ft.



THE INDIVIDUAL LIVING WITHIN THE URBAN ENVIRONMENT SHOULD BE ABLE TO EXPERIENCE A SERIES OF "MINI-ENVIRONMENTS" THAT ENCOMPASS A RANGE OF EXPERIENCES FROM PUBLIC TO PRIVATE.

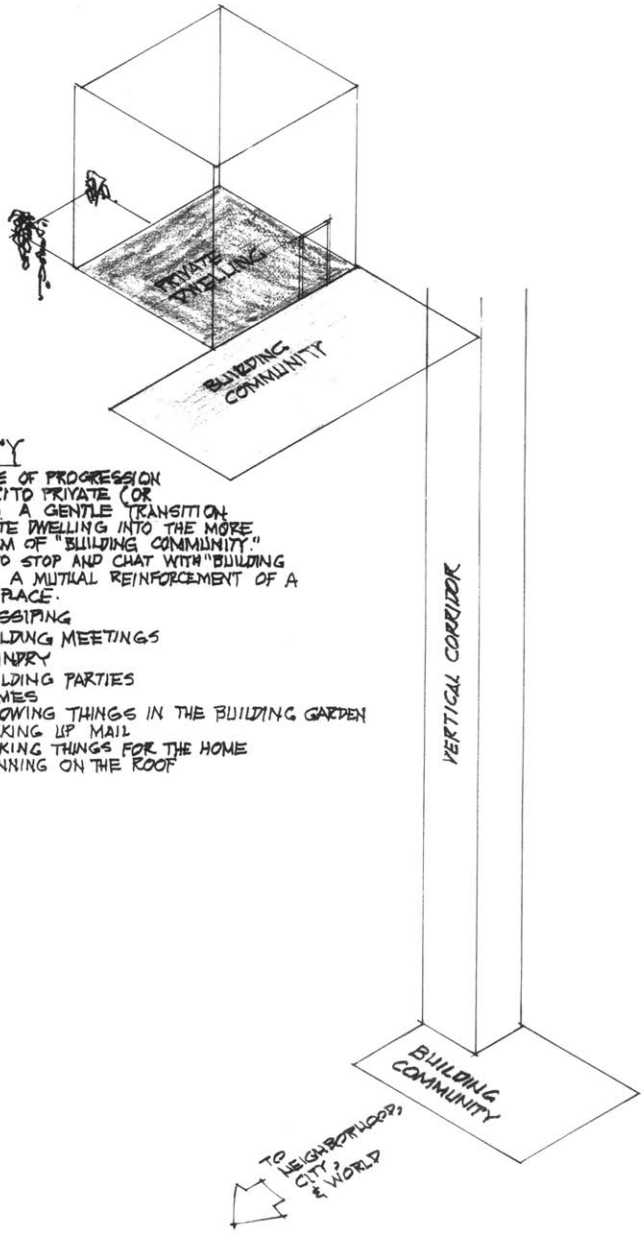
fig. 2

THE PRIVATE REALM

A PLACE FOR THE INDIVIDUAL TO COMMUNE WITH LOVED ONES OR TO RETREAT TO THE PRIVATE WORLD OF INNER SELF.

RELAXING
EATING
READING
COOKING
SLEEPING
FAMILY GATHERINGS
SOLITUDE

PRIVATE OUTDOOR SPACES



BUILDING COMMUNITY

ONE STAGE OF PROGRESSION FROM PUBLIC TO PRIVATE (OR VICE VERSA). A GENTLE TRANSITION FROM PRIVATE DWELLING INTO THE MORE PUBLIC REALM OF "BUILDING COMMUNITY." A PLACE TO STOP AND CHAT WITH "BUILDING NEIGHBORS!" A MUTUAL REINFORCEMENT OF A SENSE OF PLACE.

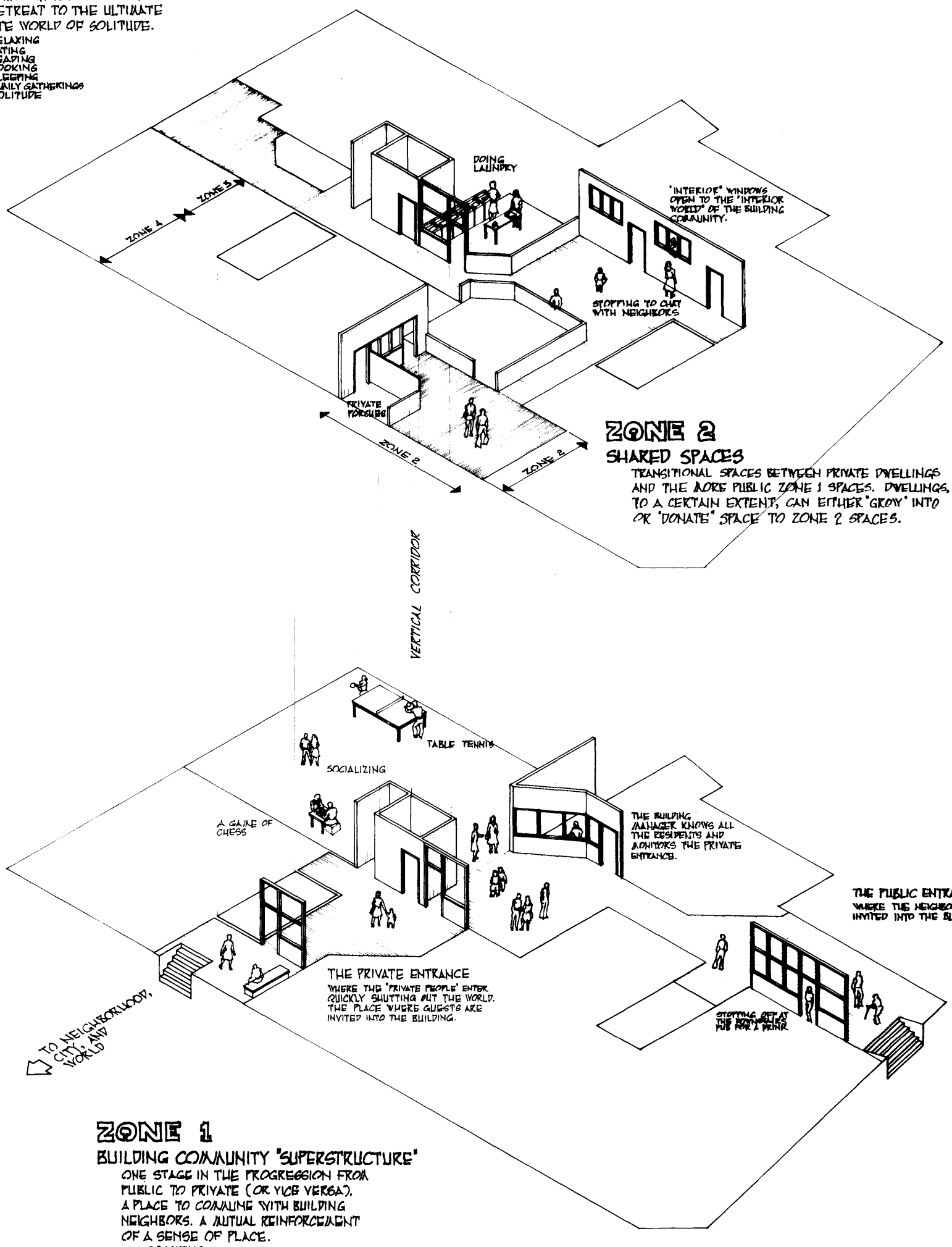
GOSSIPING
BUILDING MEETINGS
LAUNDRY
BUILDING PARTIES
GAMES
GROWING THINGS IN THE BUILDING GARDEN
PICKING UP MAIL
MAKING THINGS FOR THE HOME
SUNNING ON THE ROOF

fig. 3

THE PRIVATE REALM

A PLACE FOR THE INDIVIDUAL TO COMMUNE WITH LOVED ONES OR TO RETREAT TO THE ULTIMATE PRIVATE WORLD OF SOLITUDE.

- RELAXING
- EATING
- READING
- COOKING
- SLEEPING
- FAMILY GATHERINGS
- SOLITUDE



ZONE 2

SHARED SPACES

TRANSITIONAL SPACES BETWEEN PRIVATE DWELLINGS AND THE MORE PUBLIC ZONE 1 SPACES. DWELLINGS, TO A CERTAIN EXTENT, CAN EITHER "GROW" INTO OR "DONATE" SPACE TO ZONE 2 SPACES.

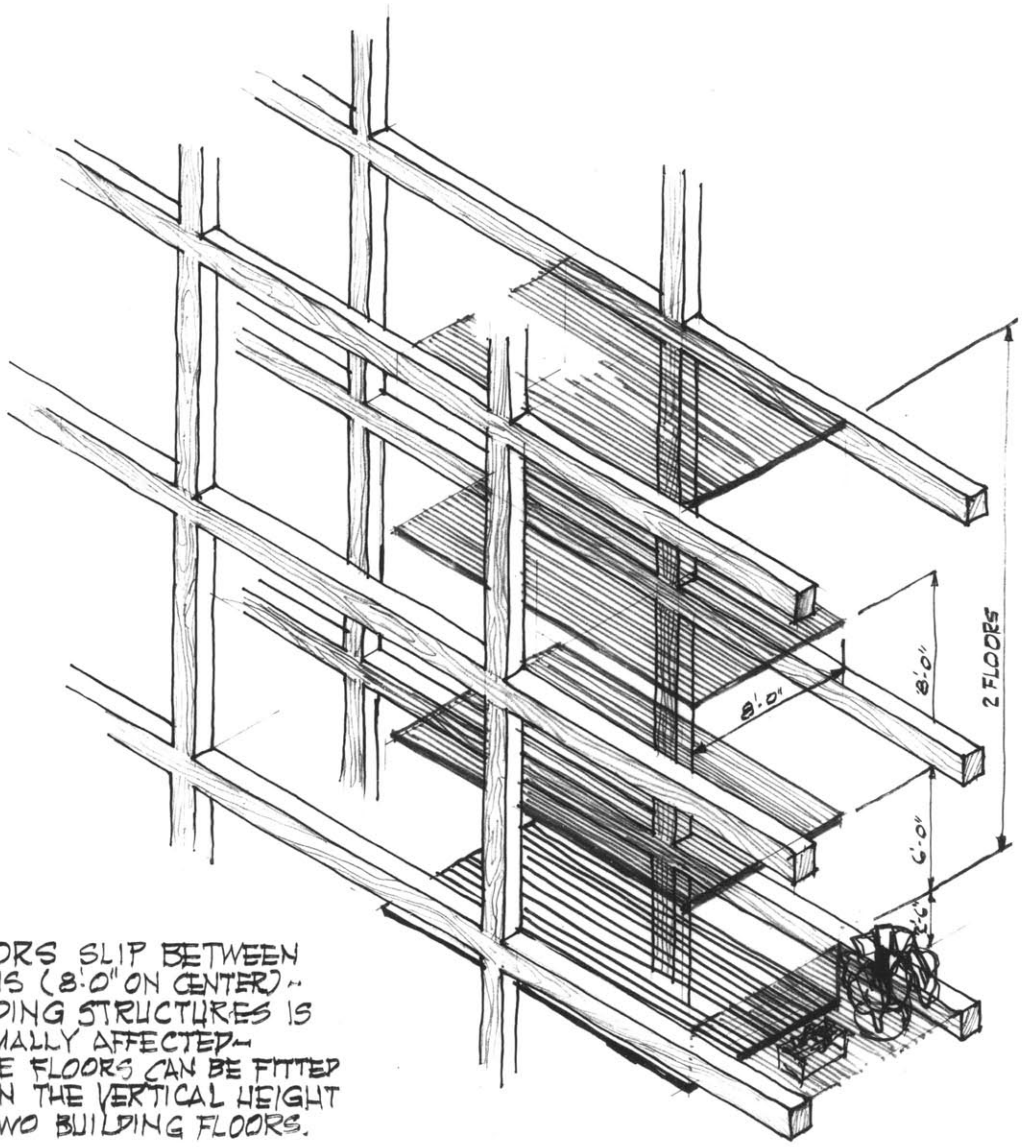
ZONE 1

BUILDING COMMUNITY "SUPERSTRUCTURE"

ONE STAGE IN THE PROGRESSION FROM PUBLIC TO PRIVATE (OR VICE VERSA). A PLACE TO COMMUNE WITH BUILDING NEIGHBORS. A MUTUAL REINFORCEMENT OF A SENSE OF PLACE.

- GOSSIPING
- BUILDING MEETINGS
- LAUNDRY
- PARTIES
- GAMES
- GROWING THINGS IN THE ROOF GARDEN
- PICKING UP THE MAIL
- SUNNING ON THE ROOF

fig. 4



FLOORS SLIP BETWEEN BEAMS (8'-0" ON CENTER) -- BUILDING STRUCTURES IS MINIMALLY AFFECTED-- THREE FLOORS CAN BE FITTED WITHIN THE VERTICAL HEIGHT OF TWO BUILDING FLOORS.

fig. 5

THE MECHANICAL CORE

THE MECHANICAL CORE CONTAINS ALL OF THE MECHANICAL SUPPORT SYSTEMS NECESSARY TO FULFILL THE NEEDS OF EACH DWELLING SPACE. MOST DWELLING SPACES HAVE ACCESS TO TWO MECHANICAL CORES. THE CORES ARE SITUATED SO THAT KITCHENS AND BATHROOMS CAN BE PLACED WITH MAXIMUM FLEXIBILITY.

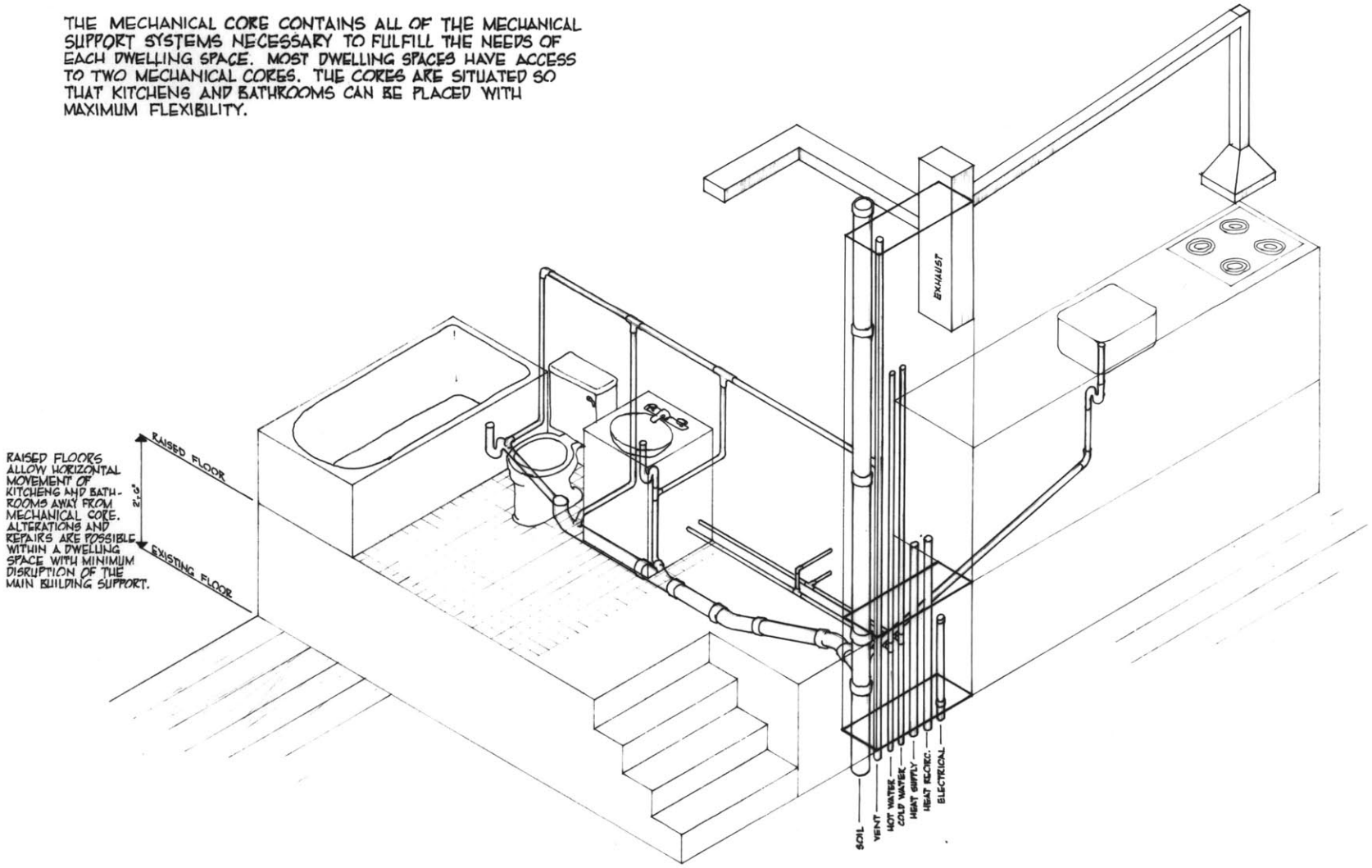


fig. 6

ZONE 3

ZONE 3 DOES NOT RECEIVE DIRECT DAYLIGHT. THEREFORE, SPACES NOT REQUIRING DIRECT DAYLIGHT ARE MOST LIKELY TO OCCUR WITHIN THIS ZONE. THE SPACES IN ZONE 3 NOT ONLY RELATE TO THE DWELLING SPACE, BUT ALSO TO THE "INTERIOR WORLD" OF THE BUILDING COMMUNITY. WINDOWS OPEN TO THE INTERIOR WORLD. THE RESIDENT MAY ACHIEVE CONTACT WITH HIS (OR HER) NEIGHBORS OR MAINTAIN PRIVACY BY OPENING OR CLOSING THE SHUTTERS OF THE "INTERIOR WINDOWS".

ZONE 4

ZONE 4 RECEIVES DIRECT DAYLIGHT. THEREFORE, SPACES REQUIRING DIRECT DAYLIGHT AND AIR WILL MOST LIKELY OCCUR IN THIS ZONE.

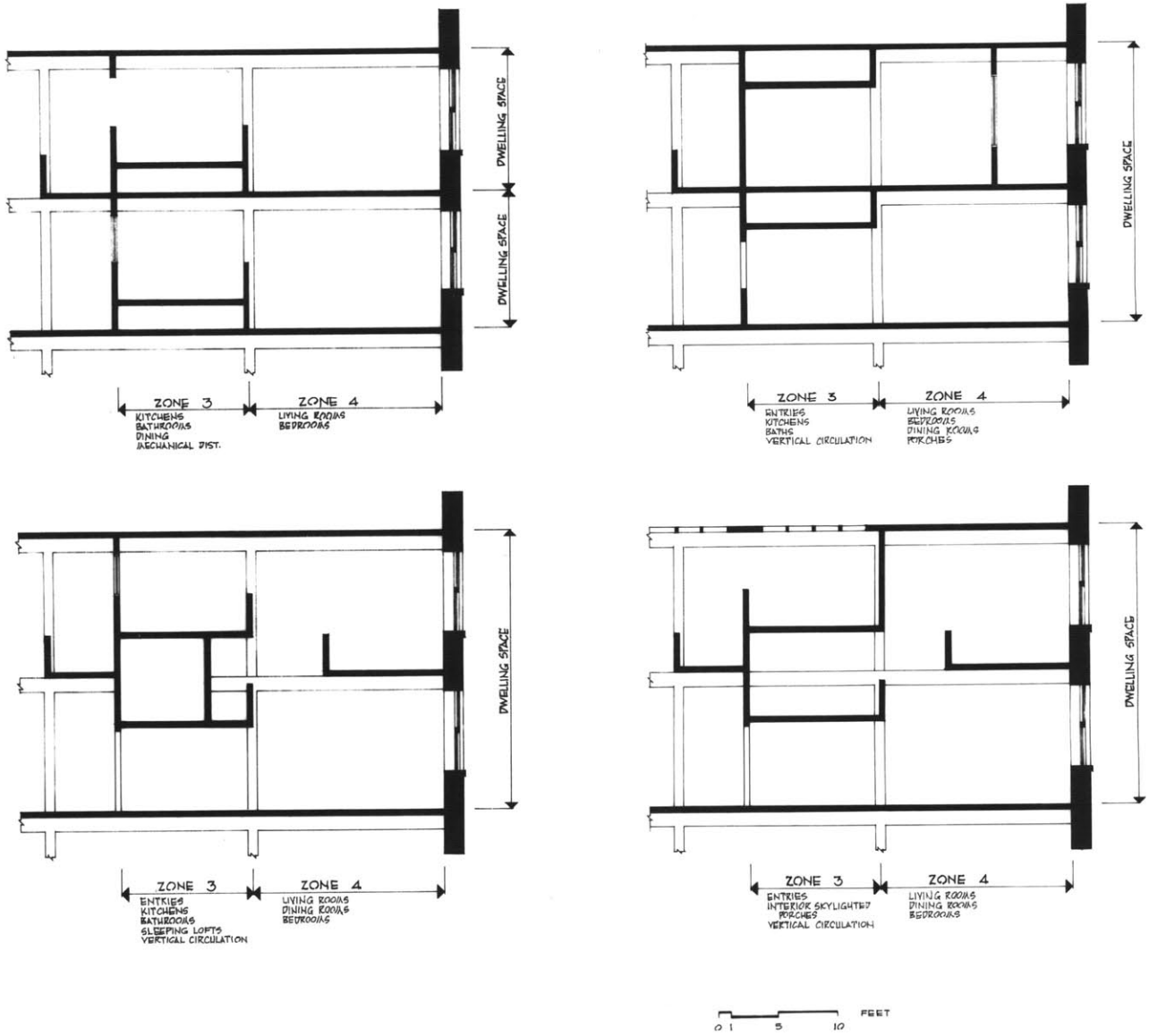
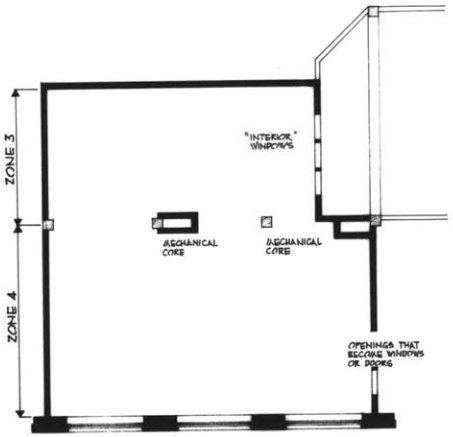
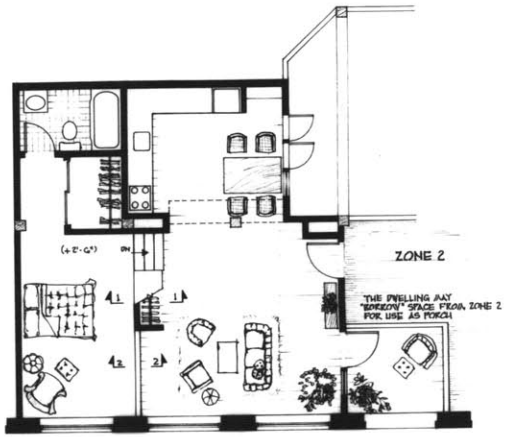


fig. 7

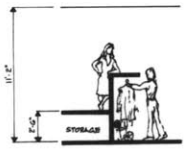
VARIATIONS



THE SHELL

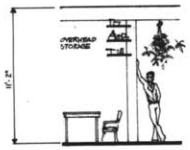


VARIATION 1



SECTION 1

SECTION 2



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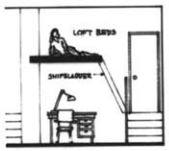

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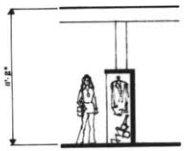
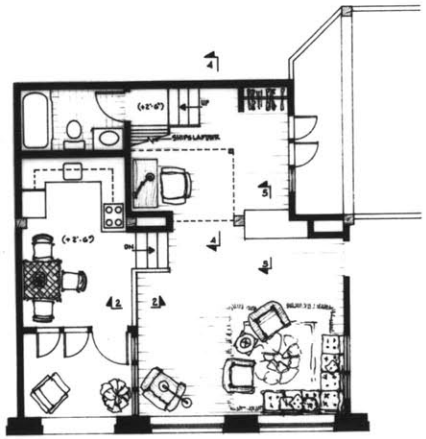
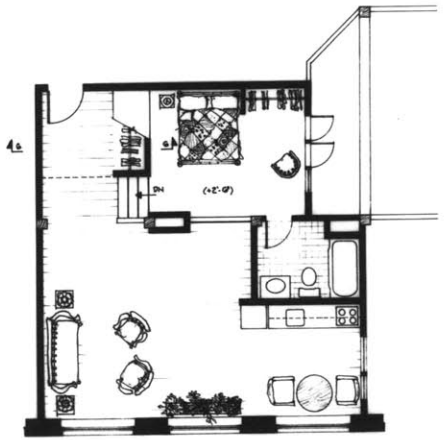


SECTION 5

SECTION 6



VARIATION 2

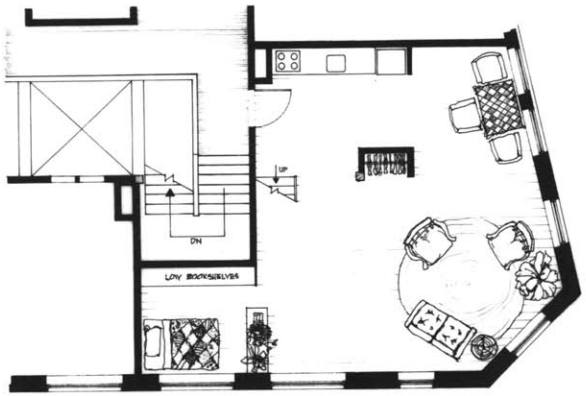


VARIATION 3

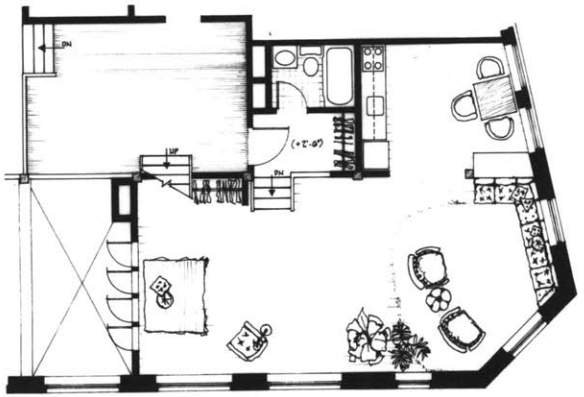
fig. 8

DWELLINGS THAT...

CONTRACT

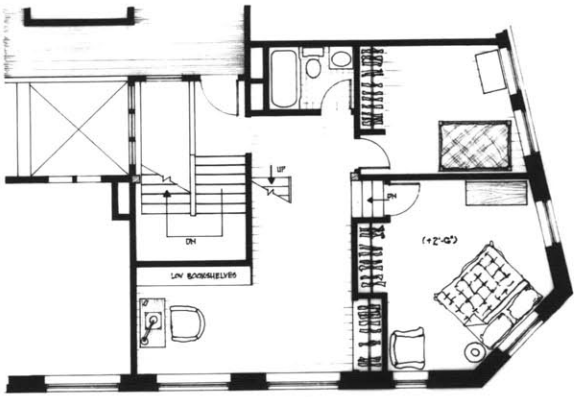


DWELLING A
SIXTH FLOOR

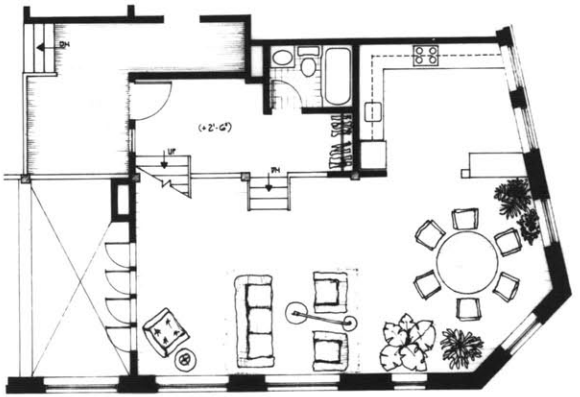


DWELLING B
FIFTH FLOOR

OR EXPAND



DWELLING C
SIXTH FLOOR



DWELLING C
FIFTH FLOOR

fig. 9

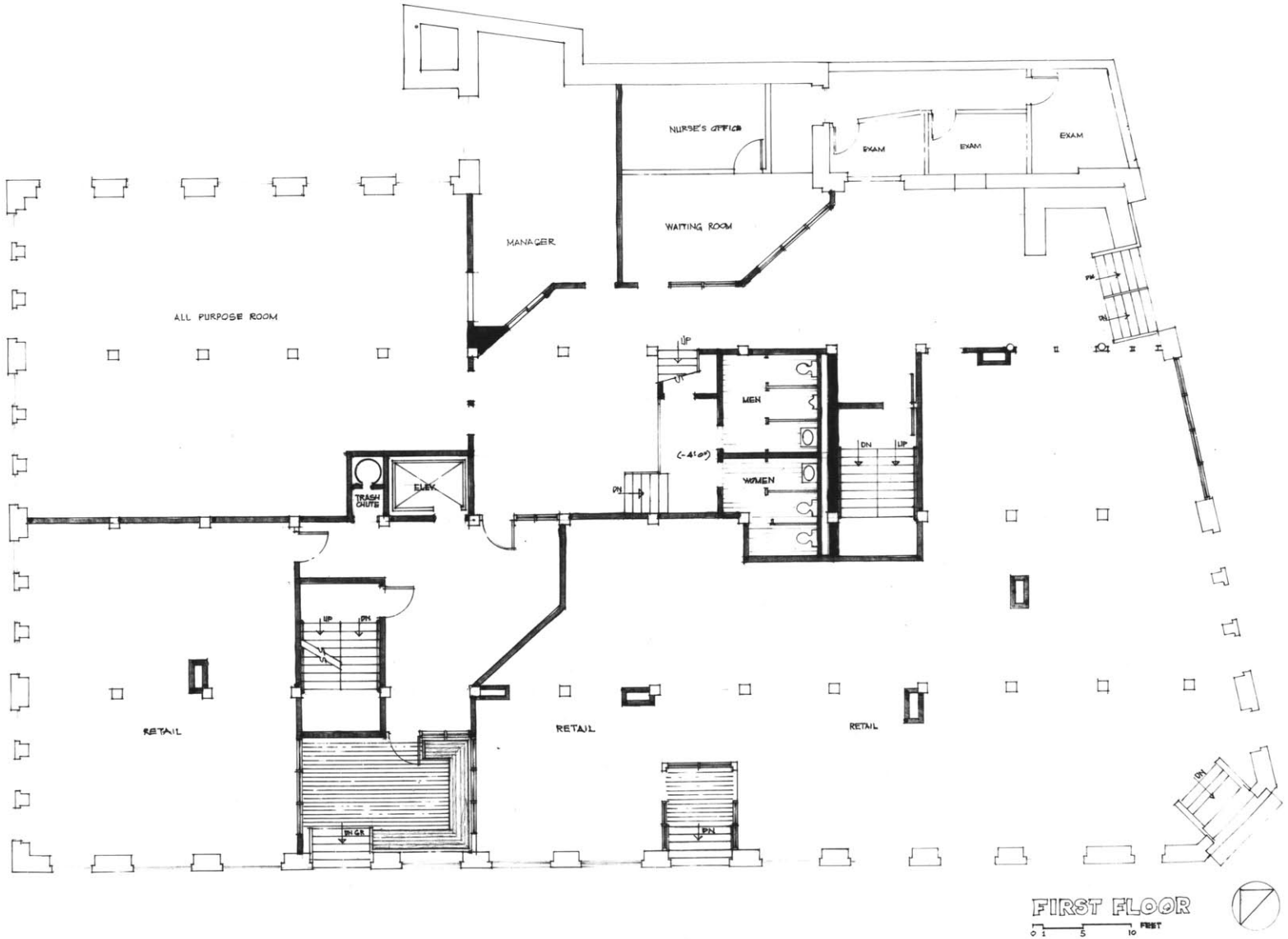

NURSE'S OFFICE
EXAM
EXAM
EXAM
WAITING ROOM
MANAGER
ALL PURPOSE ROOM
MEN
WOMEN
(-4'-0")
TRASH CHUTE
ELEV.
UP
DN
RETAIL
RETAIL
RETAIL
FIRST FLOOR
0 1 5 10 FEET

fig. 10

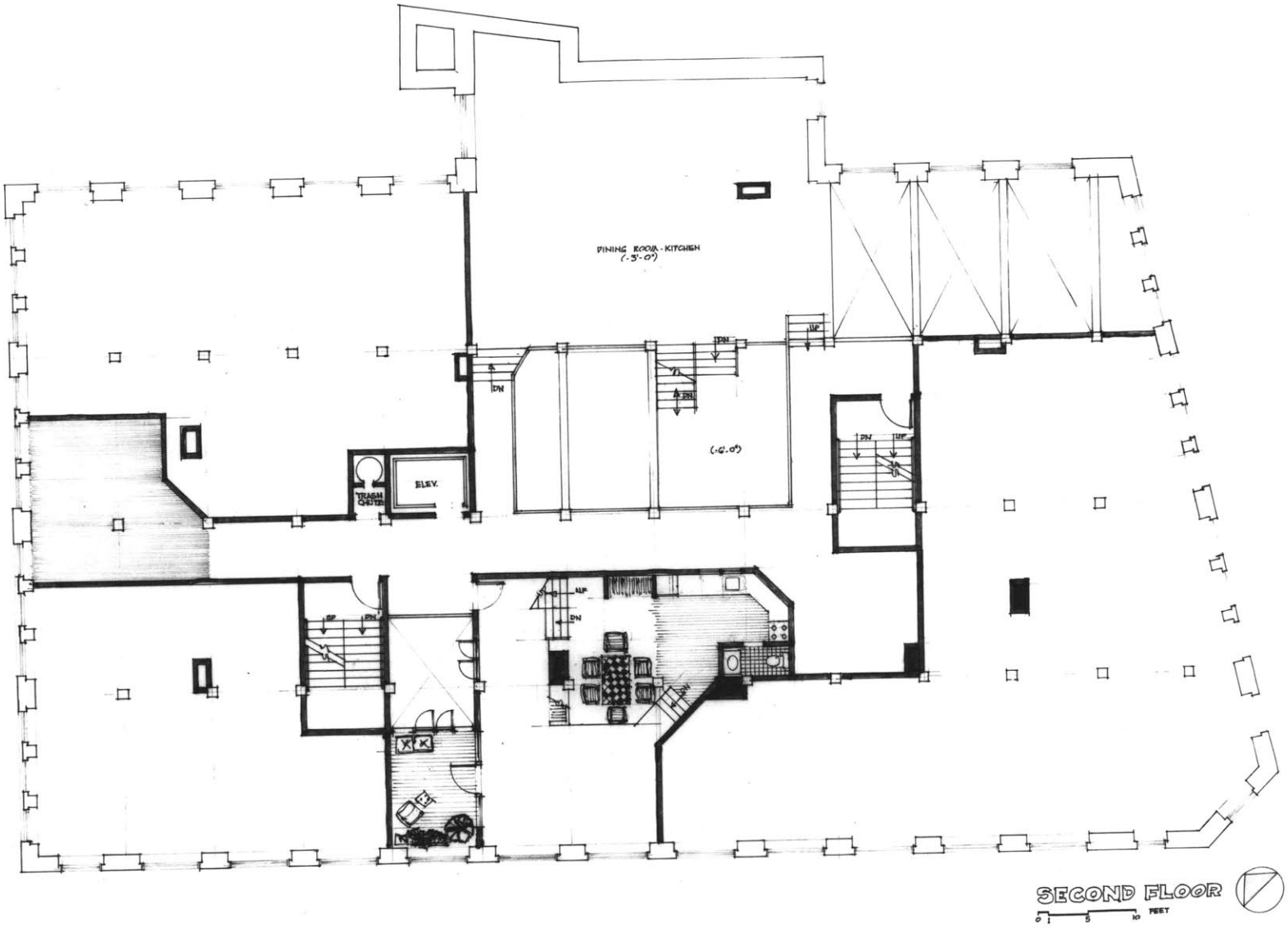

DINING ROOM - KITCHEN
(-3'-0")
(-6'-0")
ELEV.
TRASH CHUTE
DN
UP
SECOND FLOOR
0 5 10 FEET

fig. 11

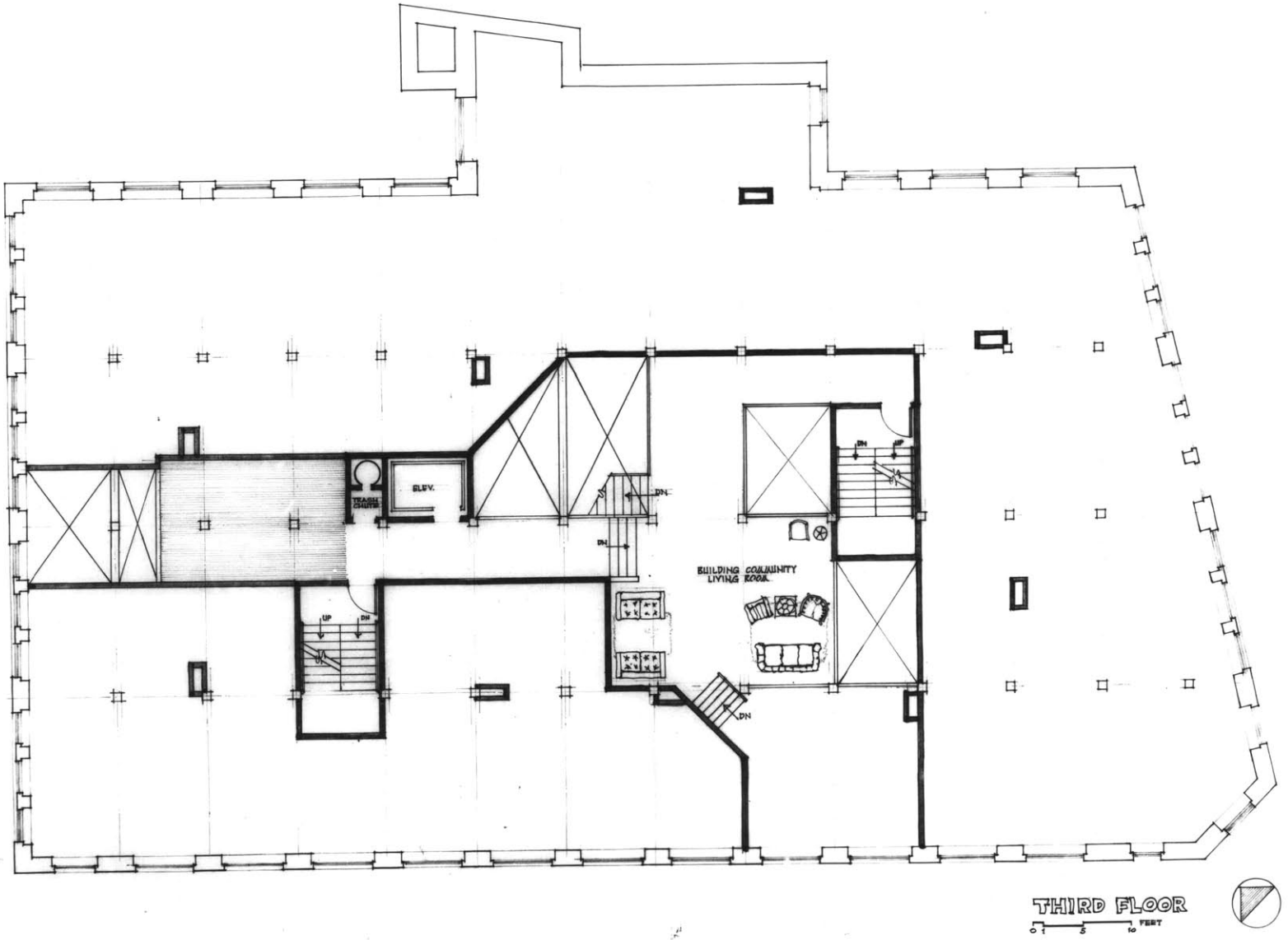

TRASH CHUTE
ELEV.
UP
DN
BUILDING COMMUNITY LIVING ROOM
THIRD FLOOR
0 1 5 10 FEET

fig. 12

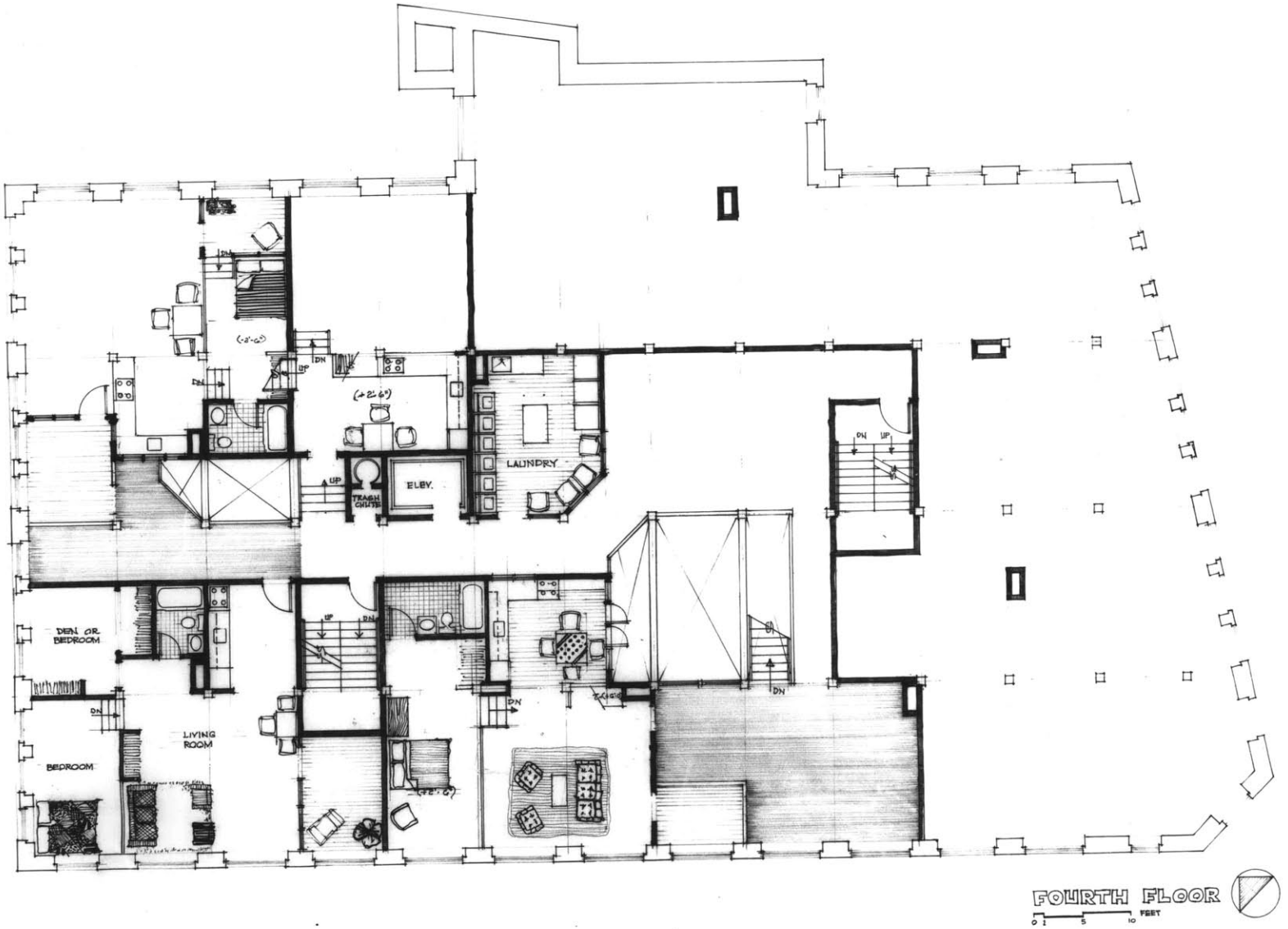

DEN OR BEDROOM
LIVING ROOM
BEDROOM
LAUNDRY
ELEV.
TRASH CHUTE
UP
DN
FOURTH FLOOR
0 1 5 10 FEET

fig. 13

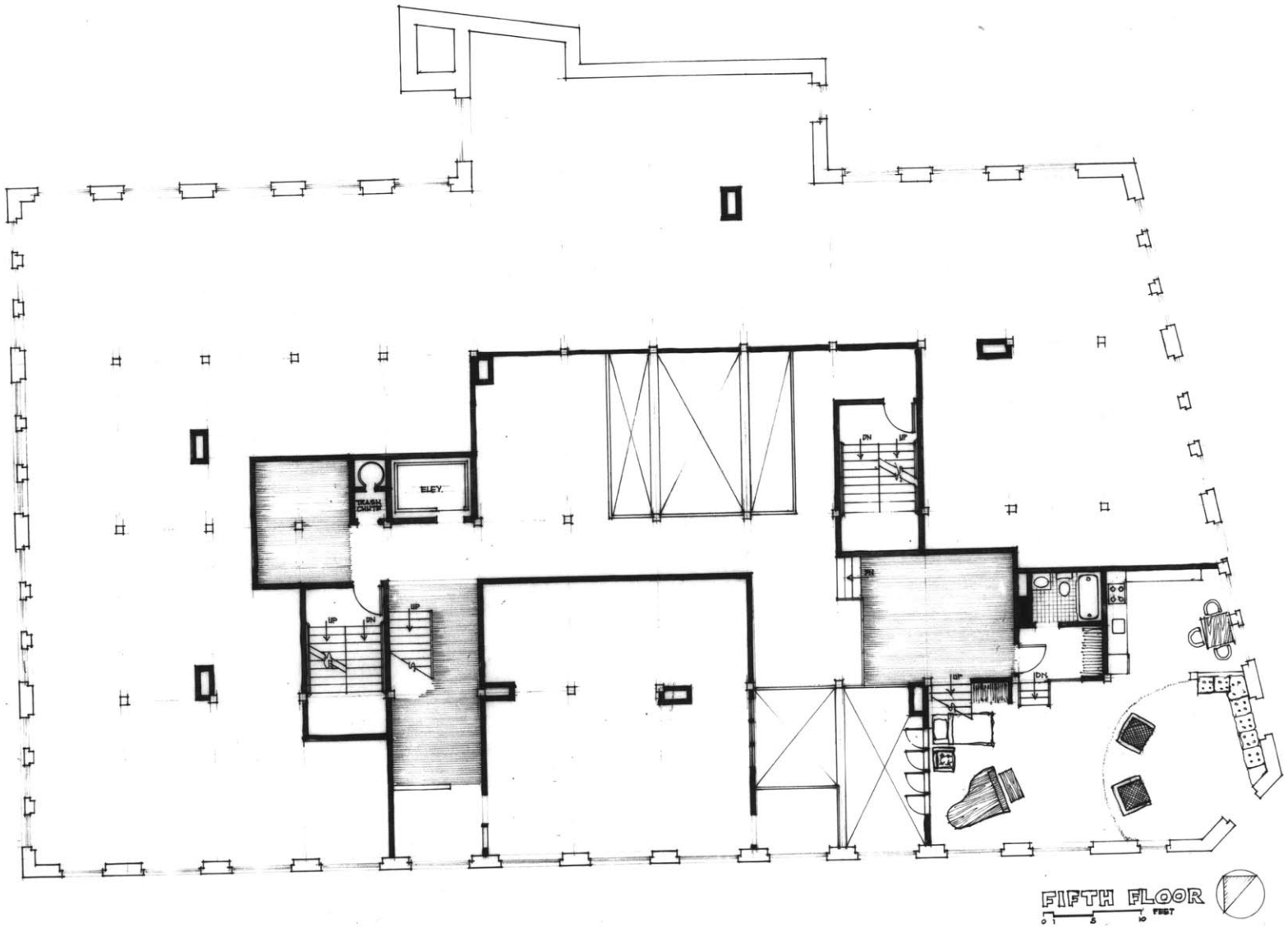


fig. 14.

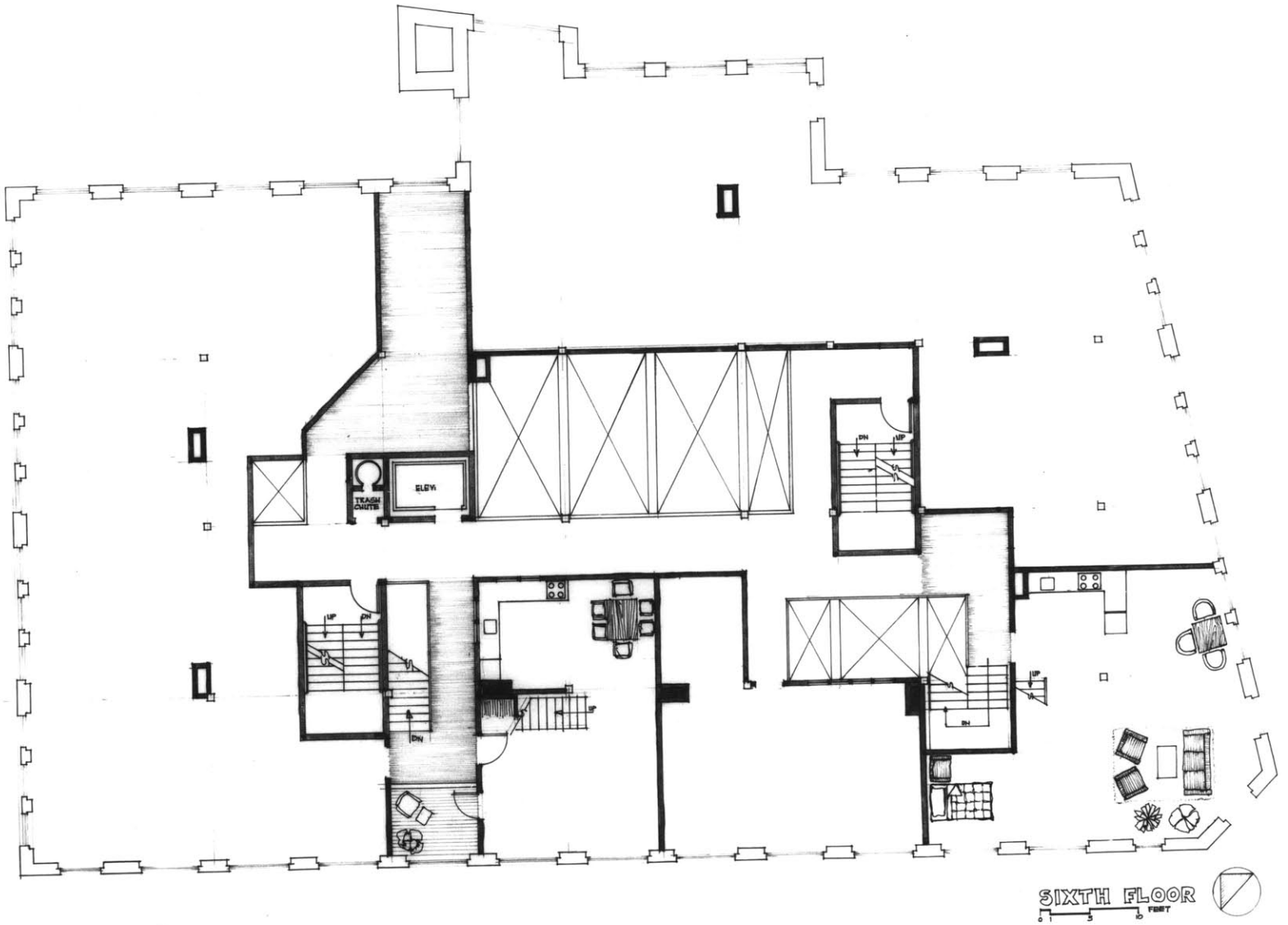


fig. 15

fig. 16

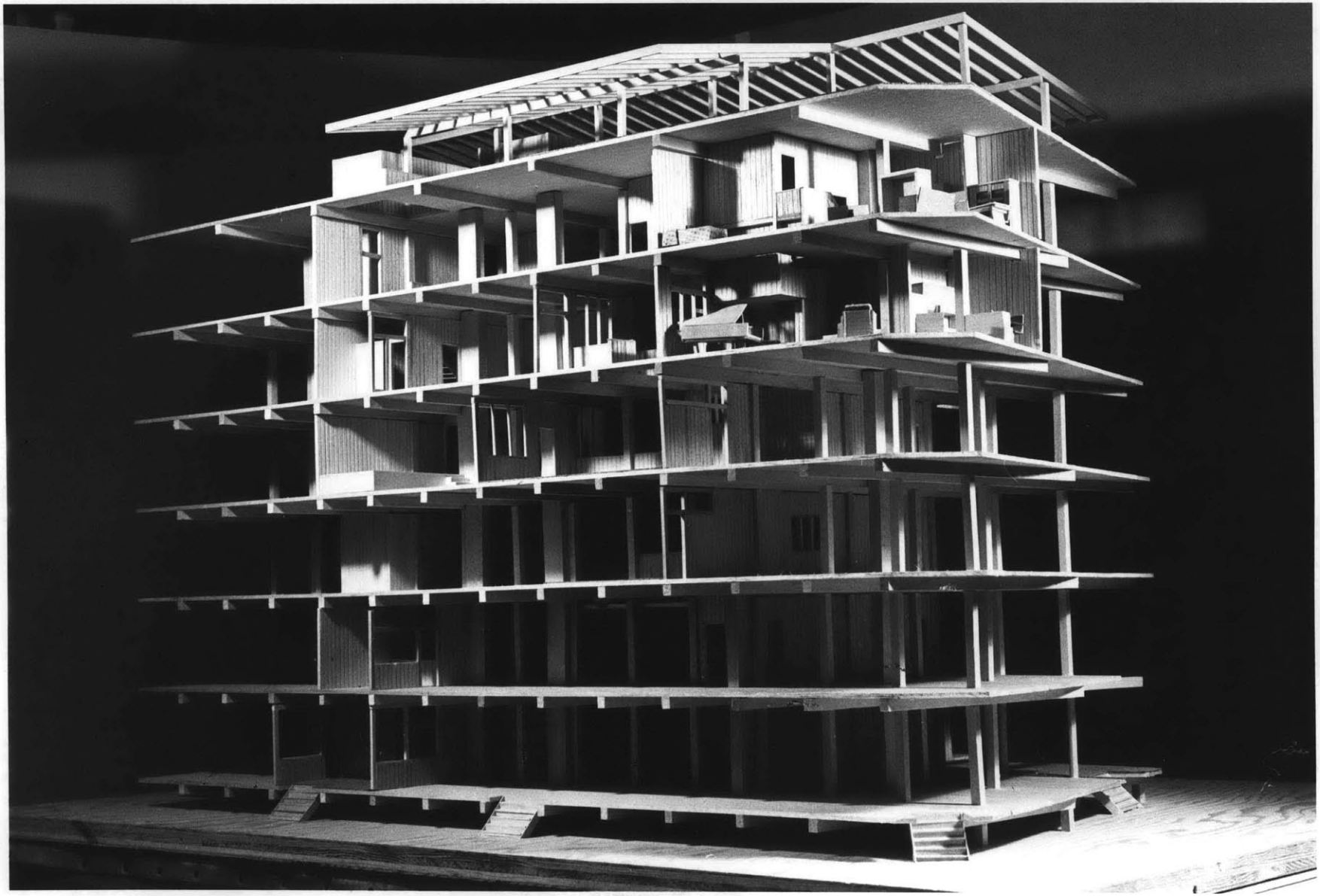
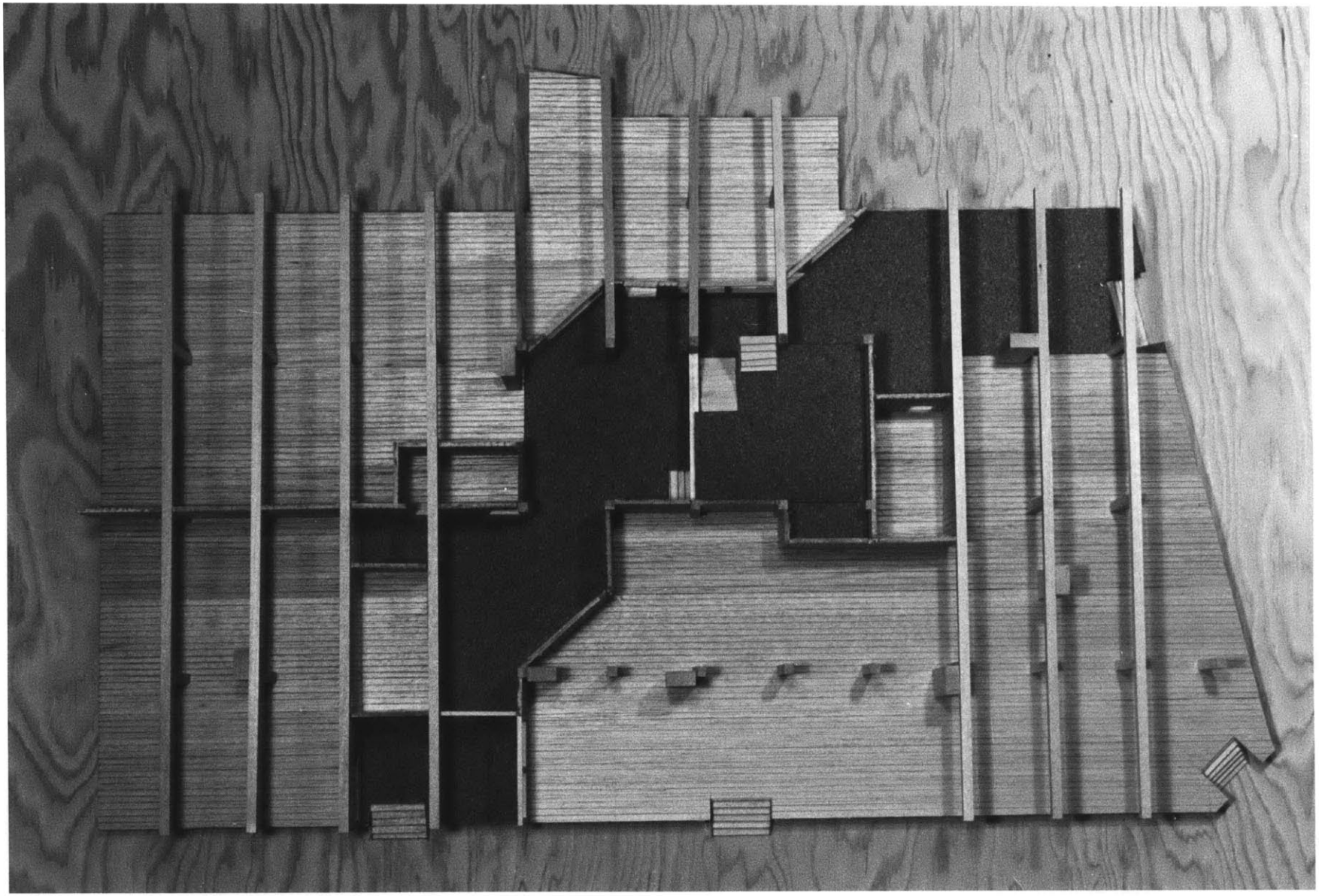


fig. 17



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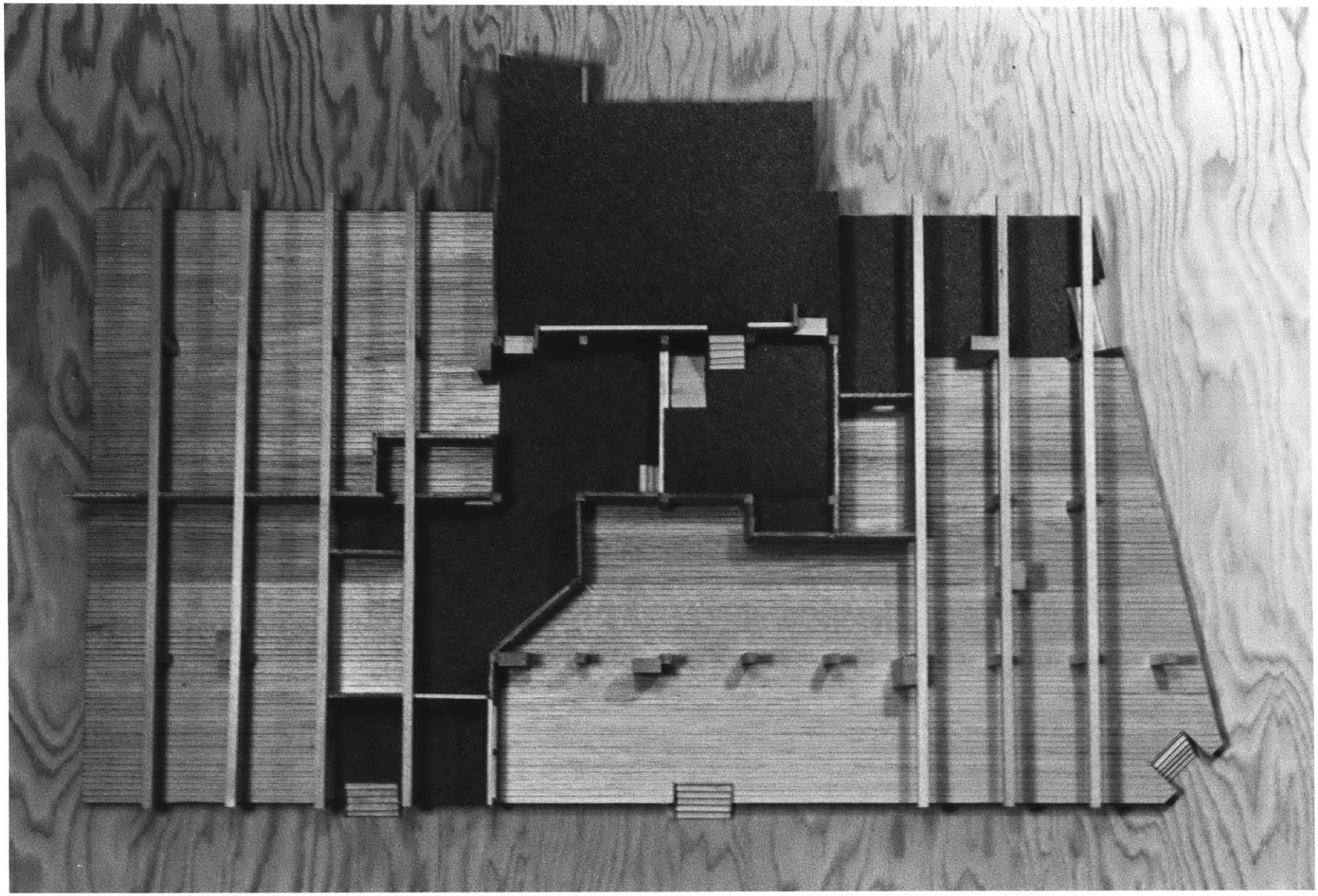

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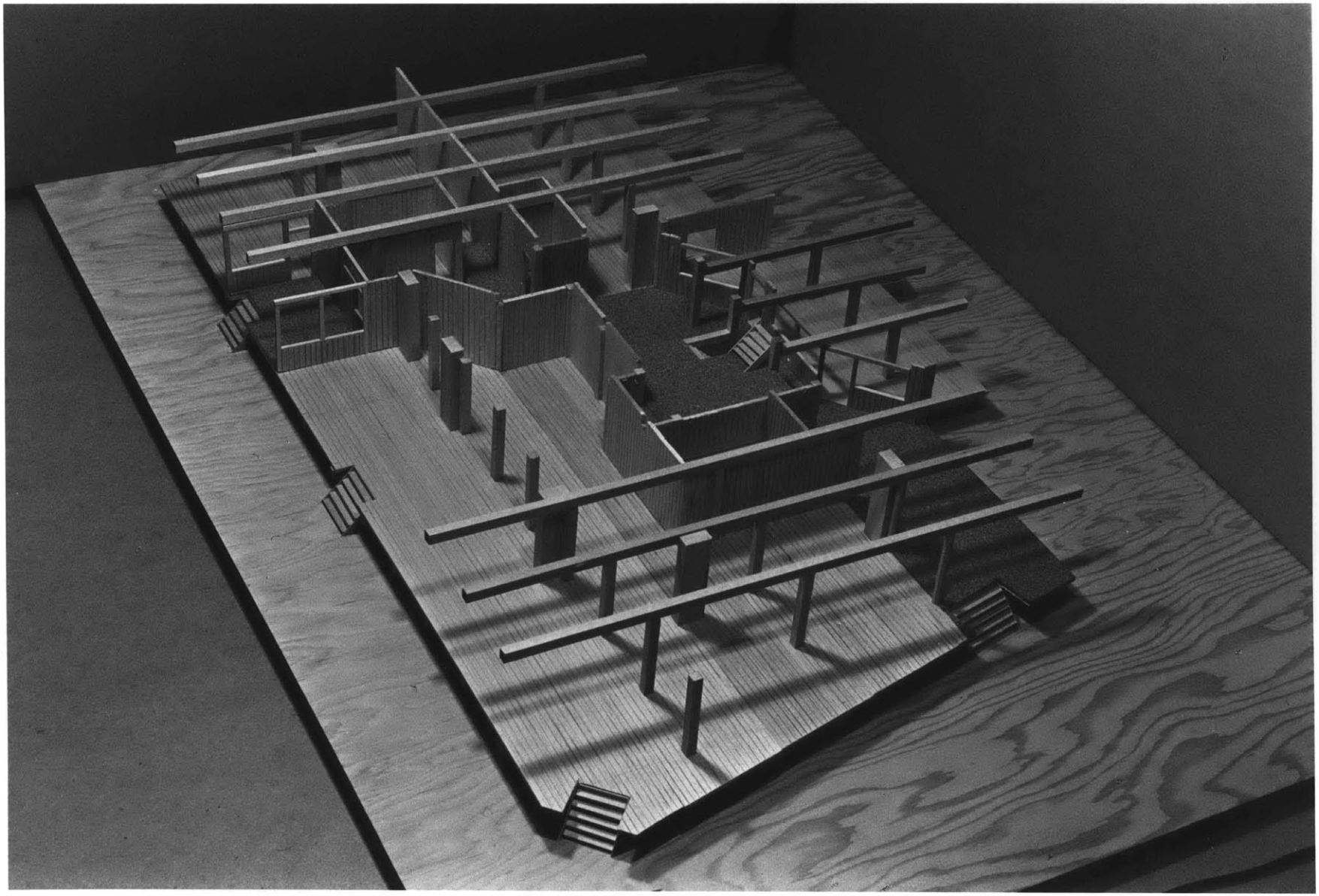

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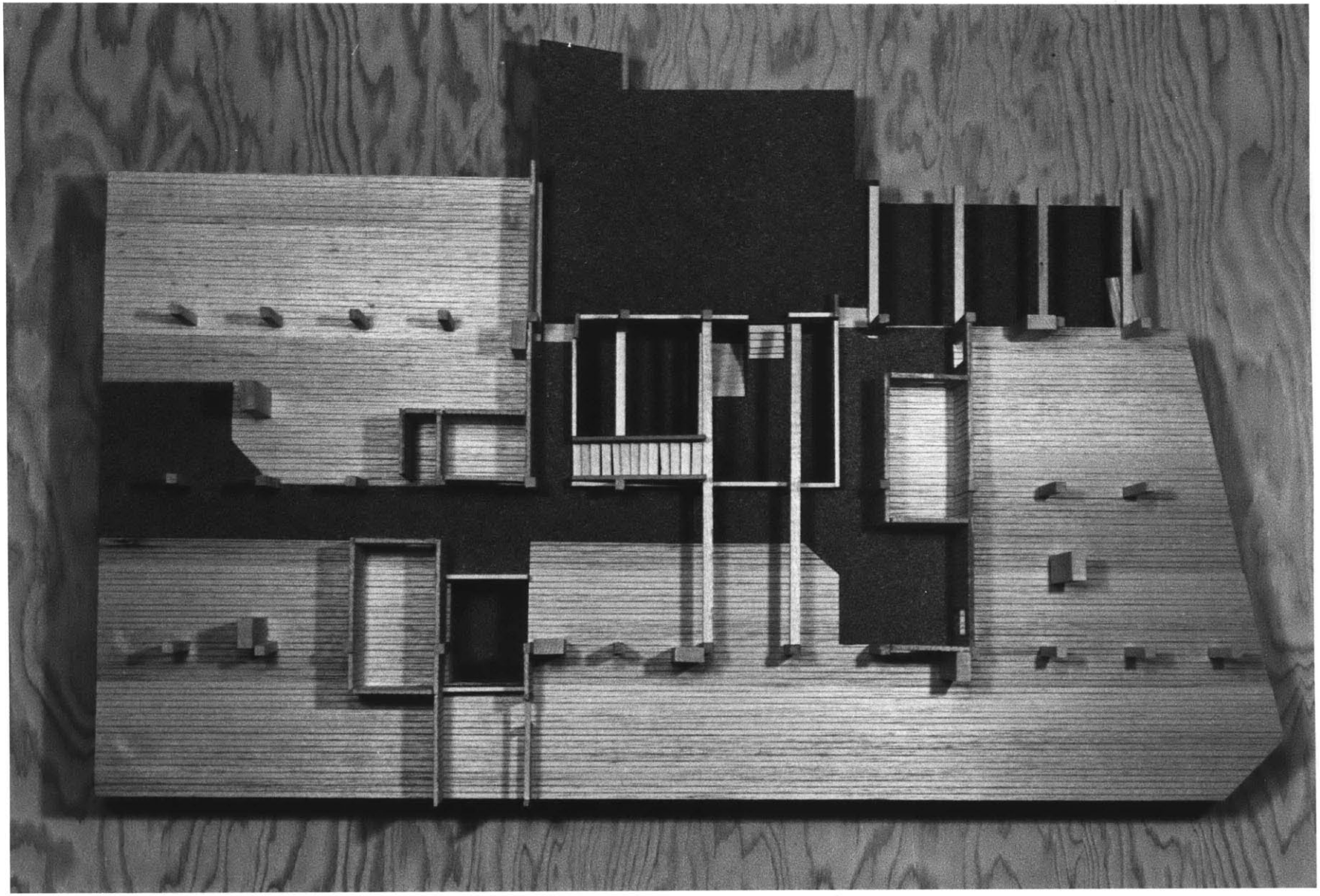

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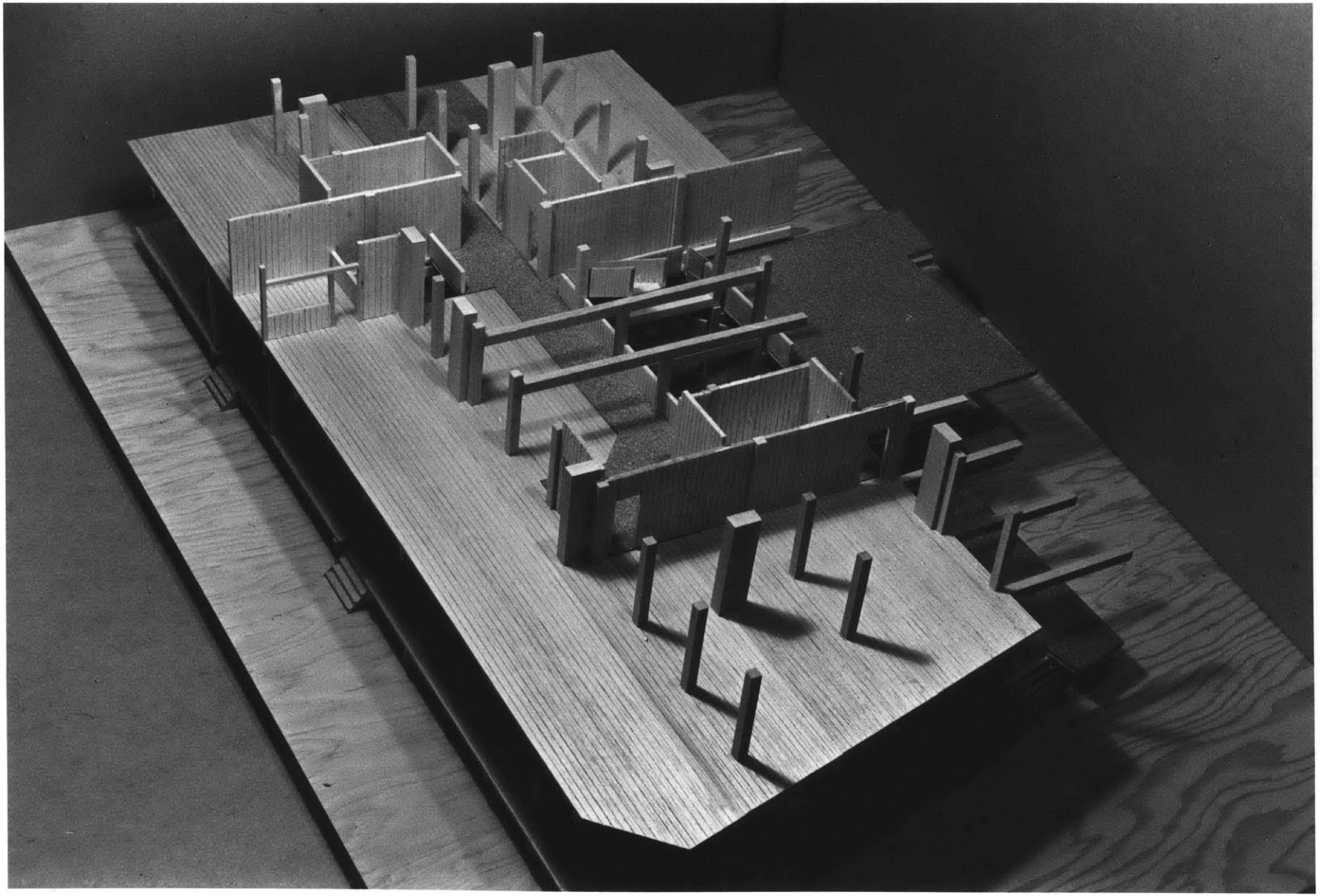

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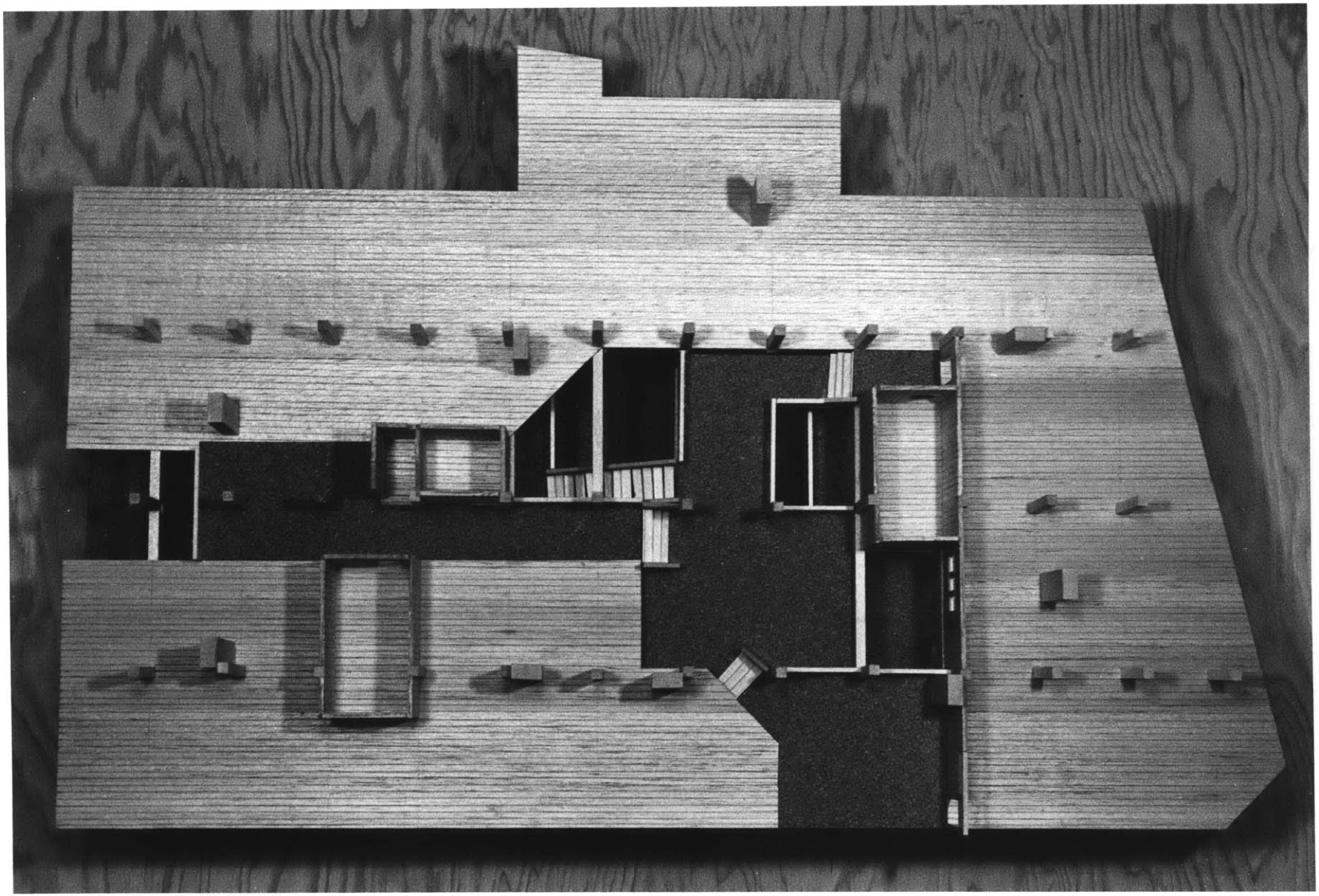

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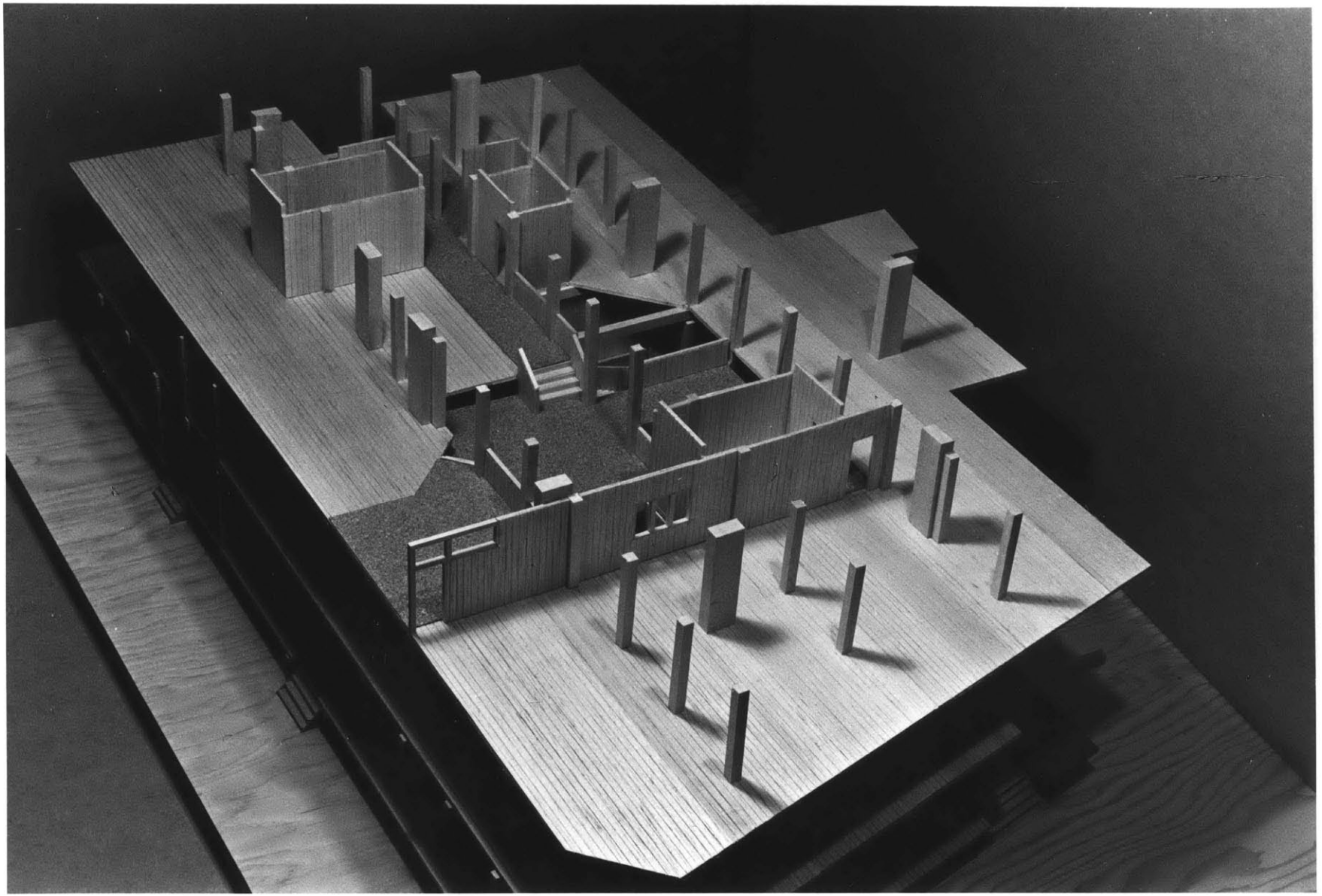

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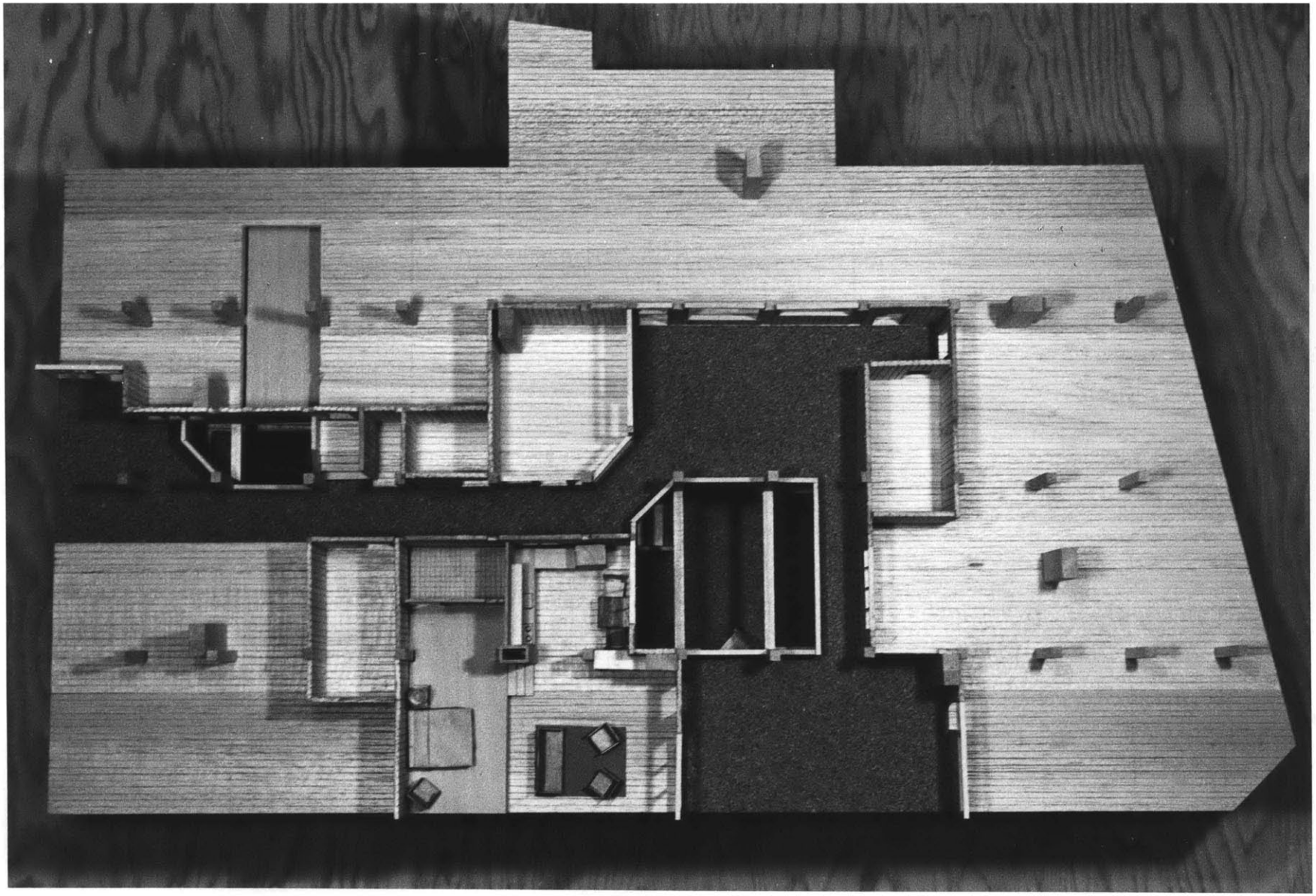

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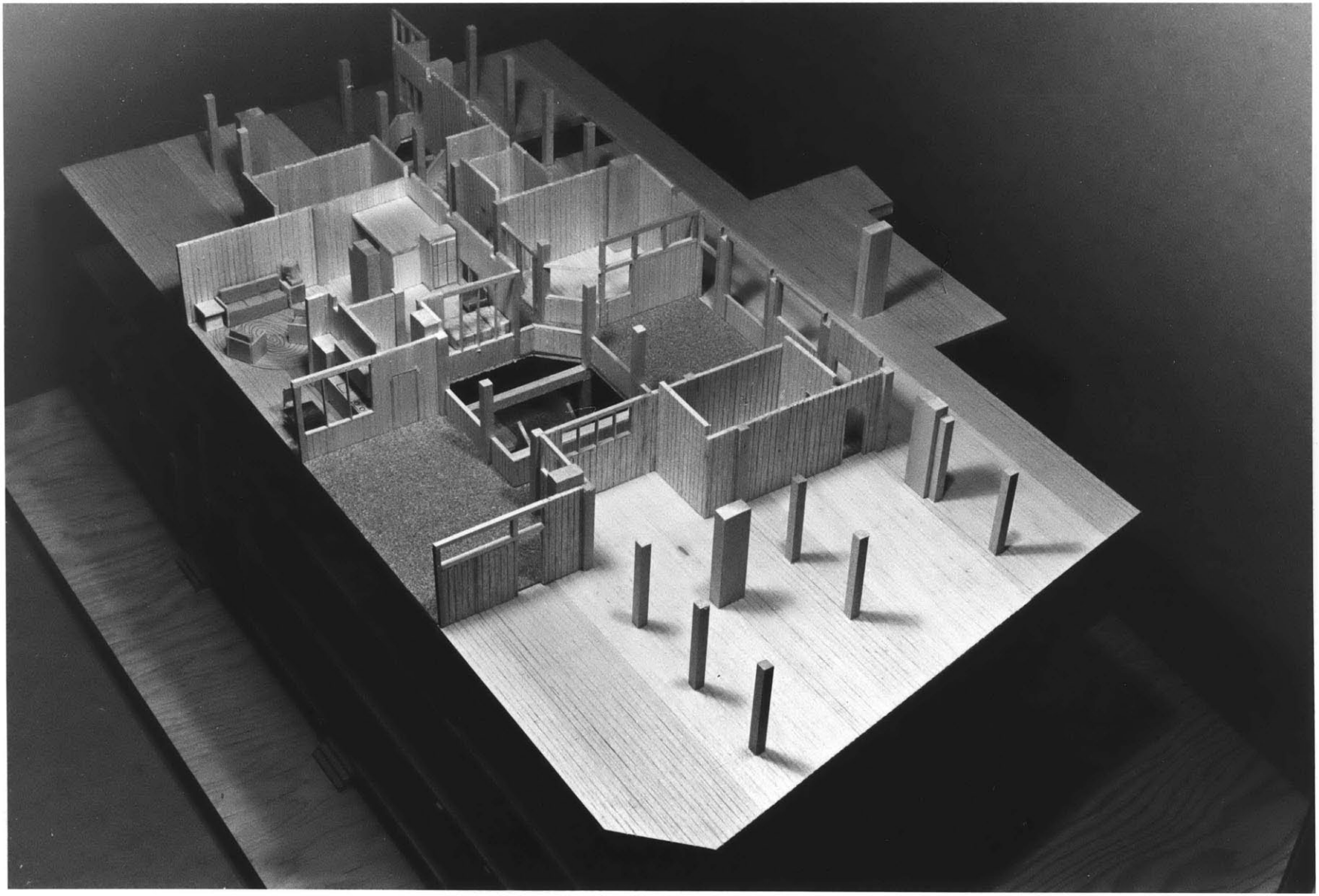

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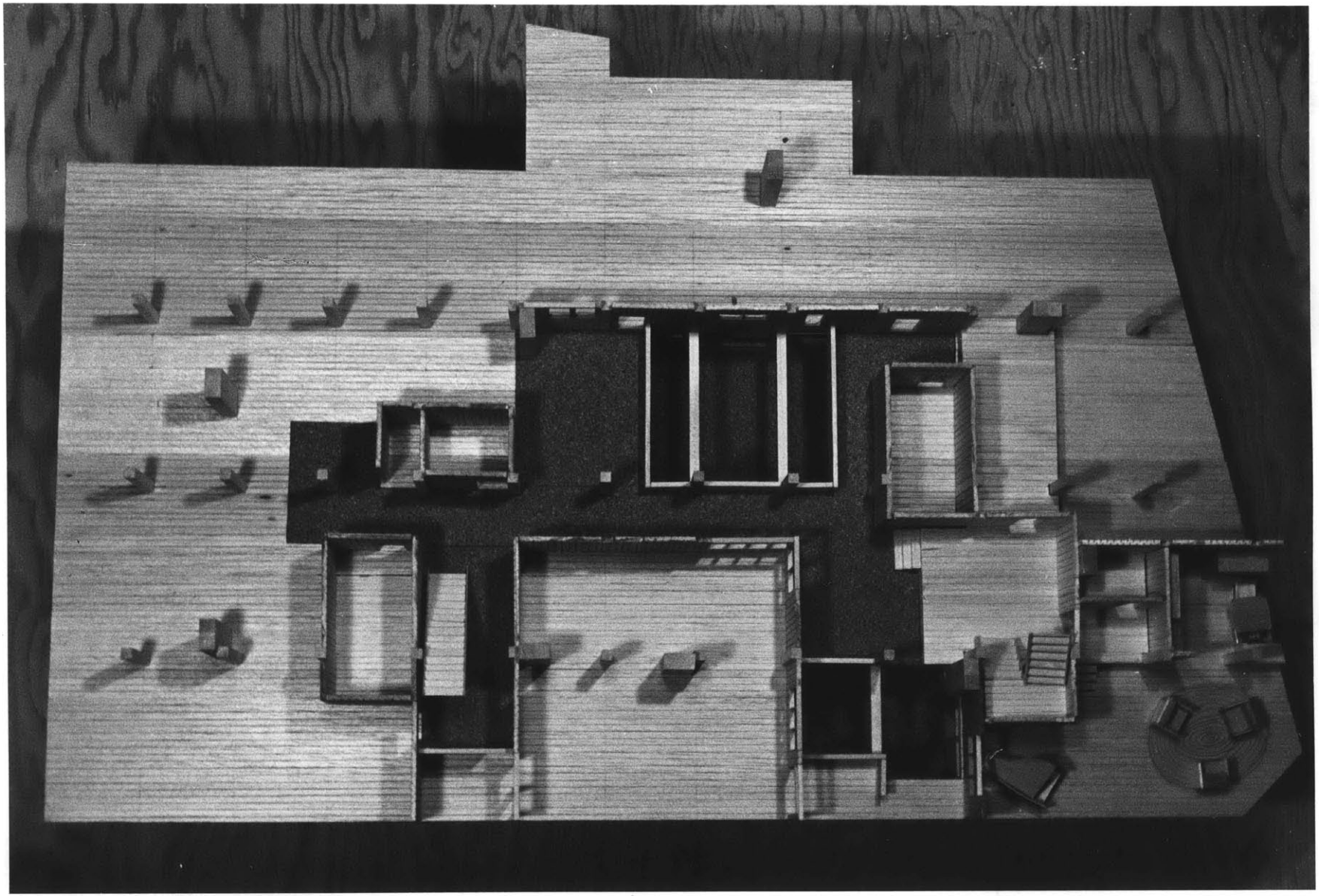

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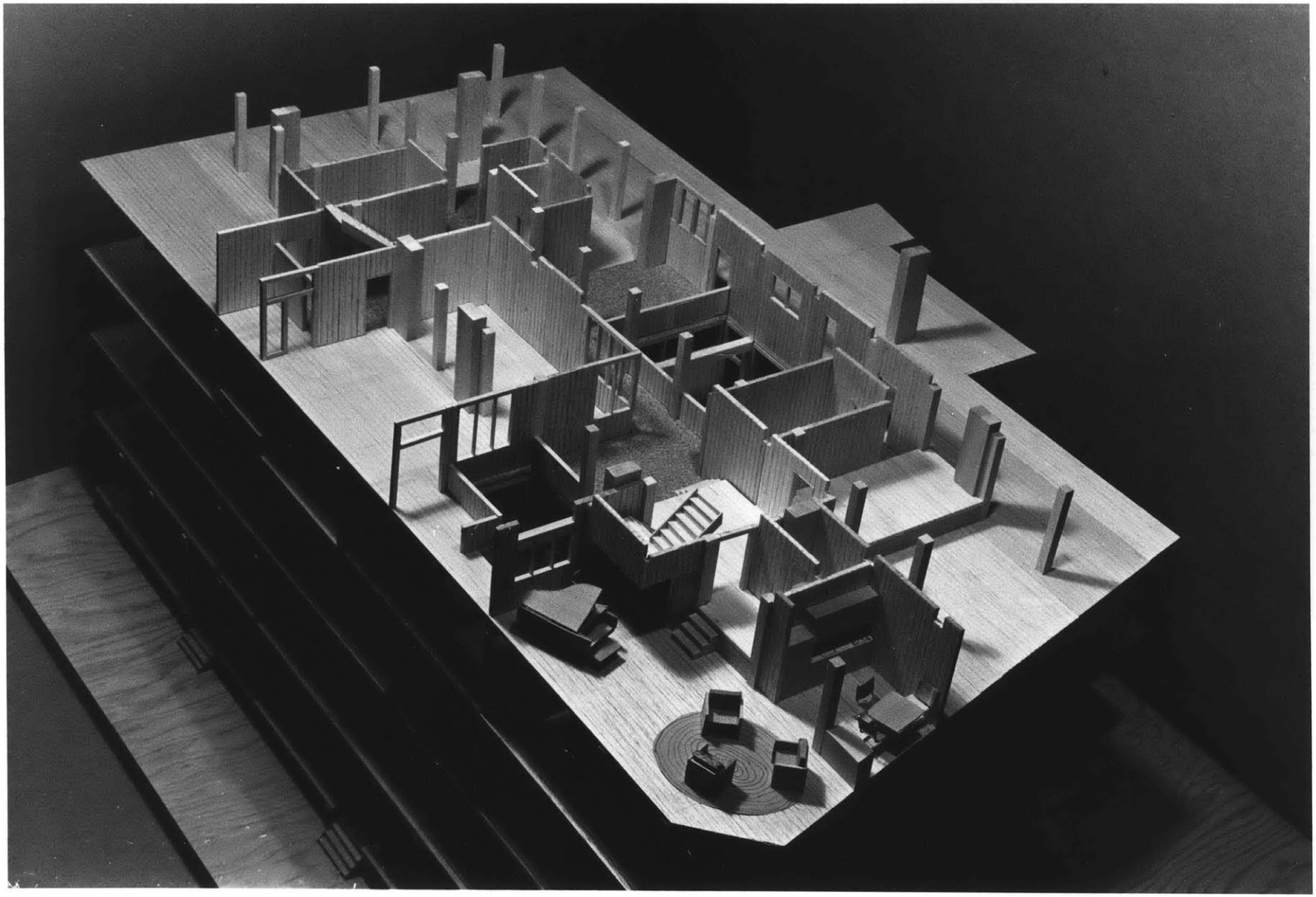

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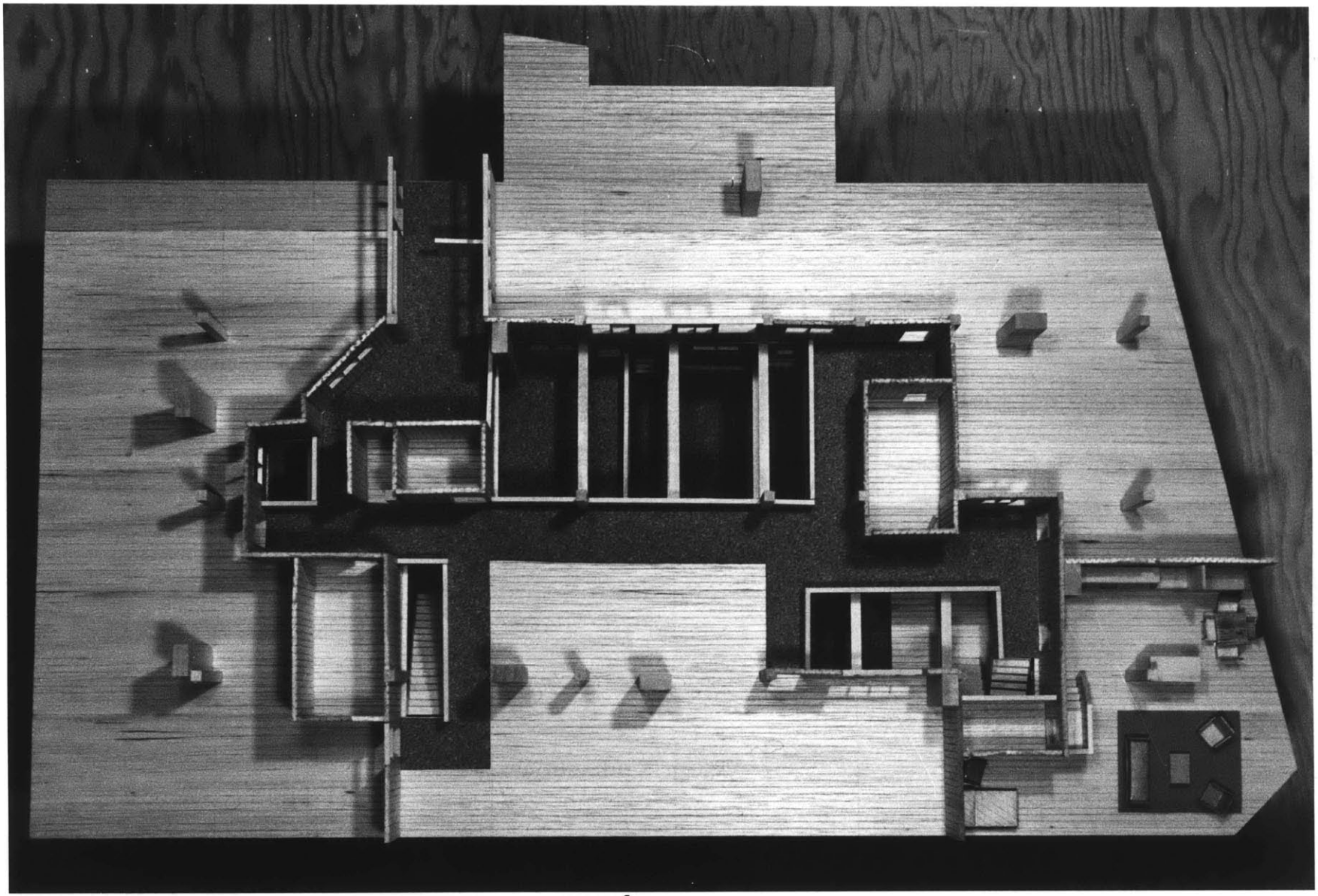

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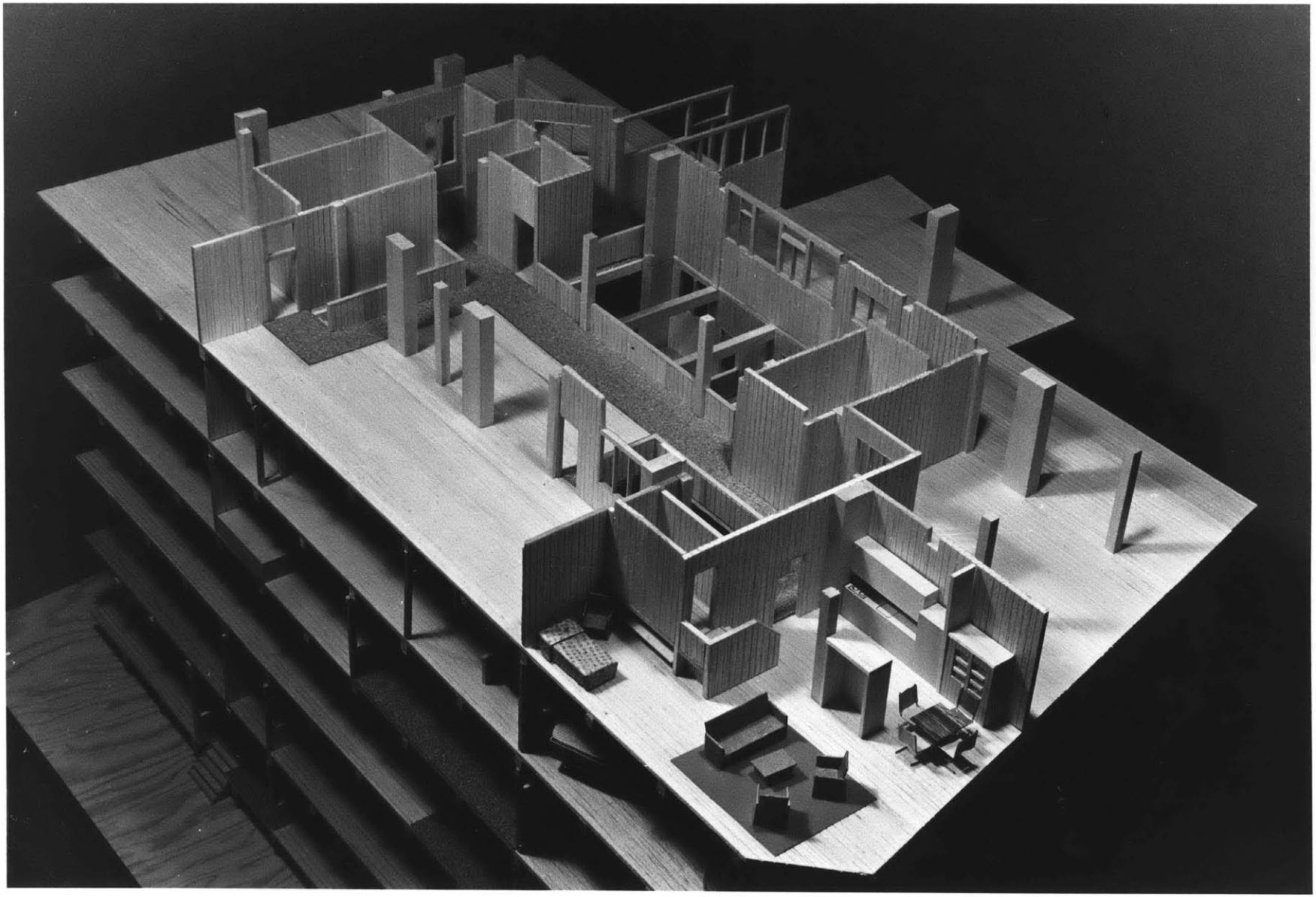
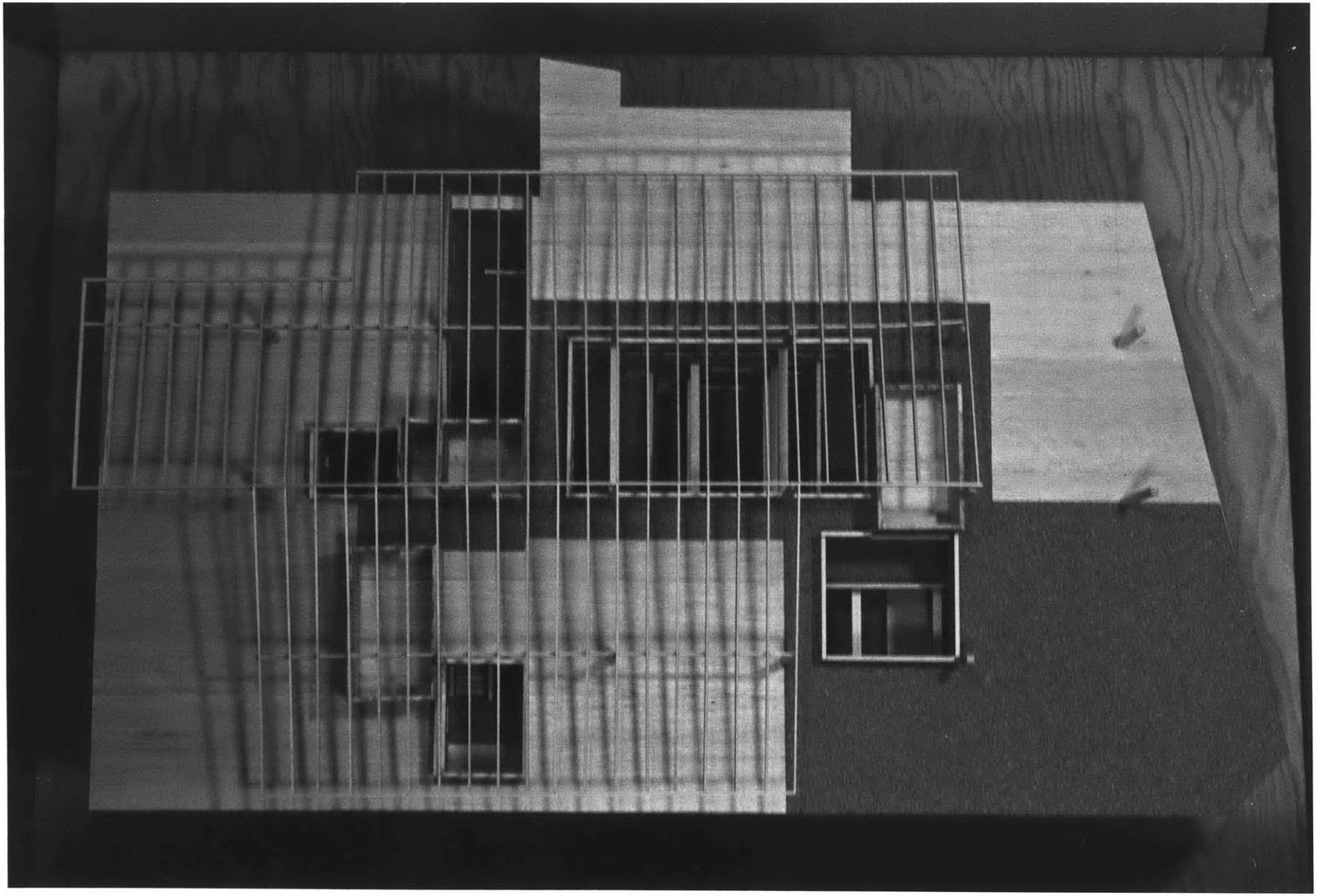


fig. 30

fig. 31



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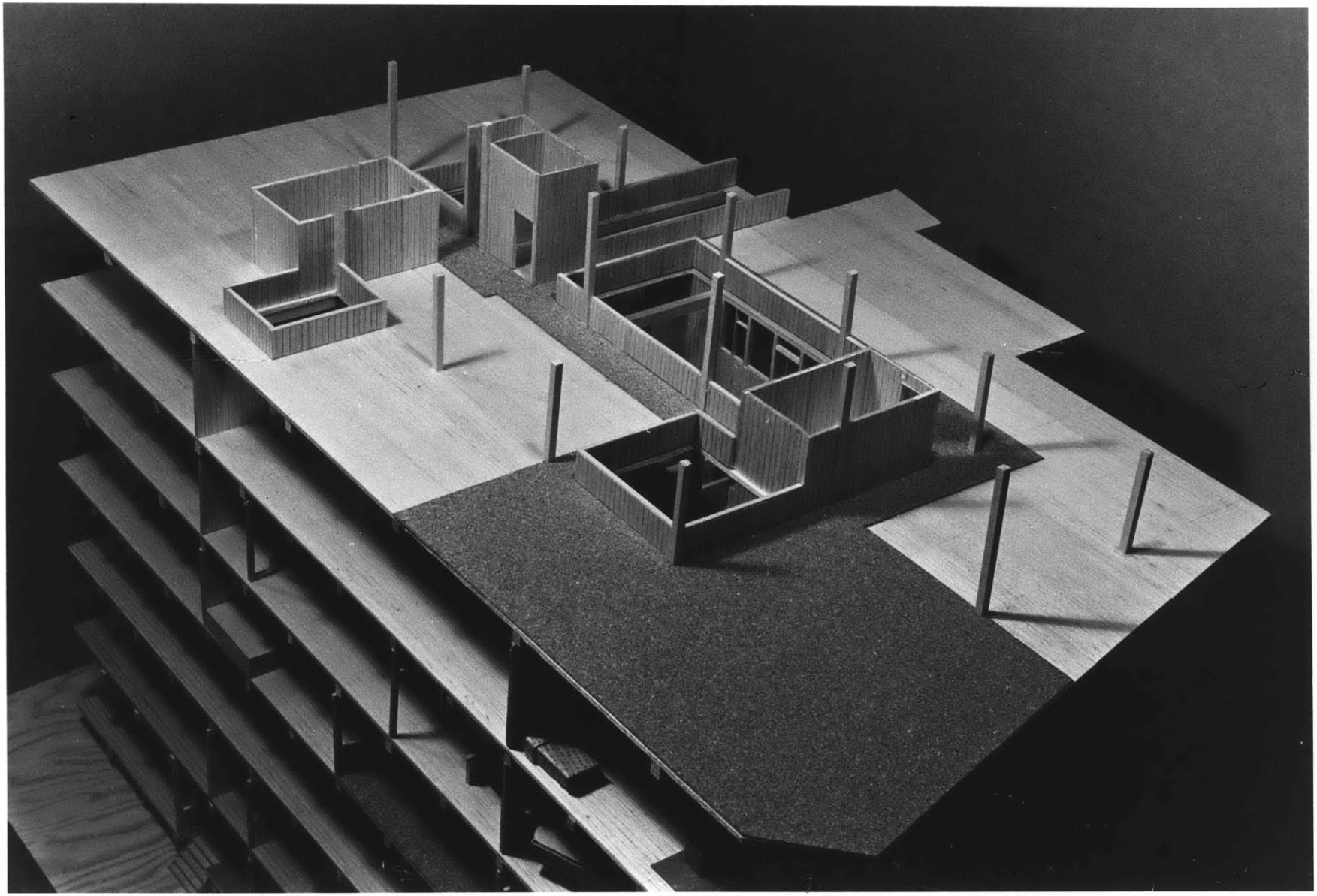

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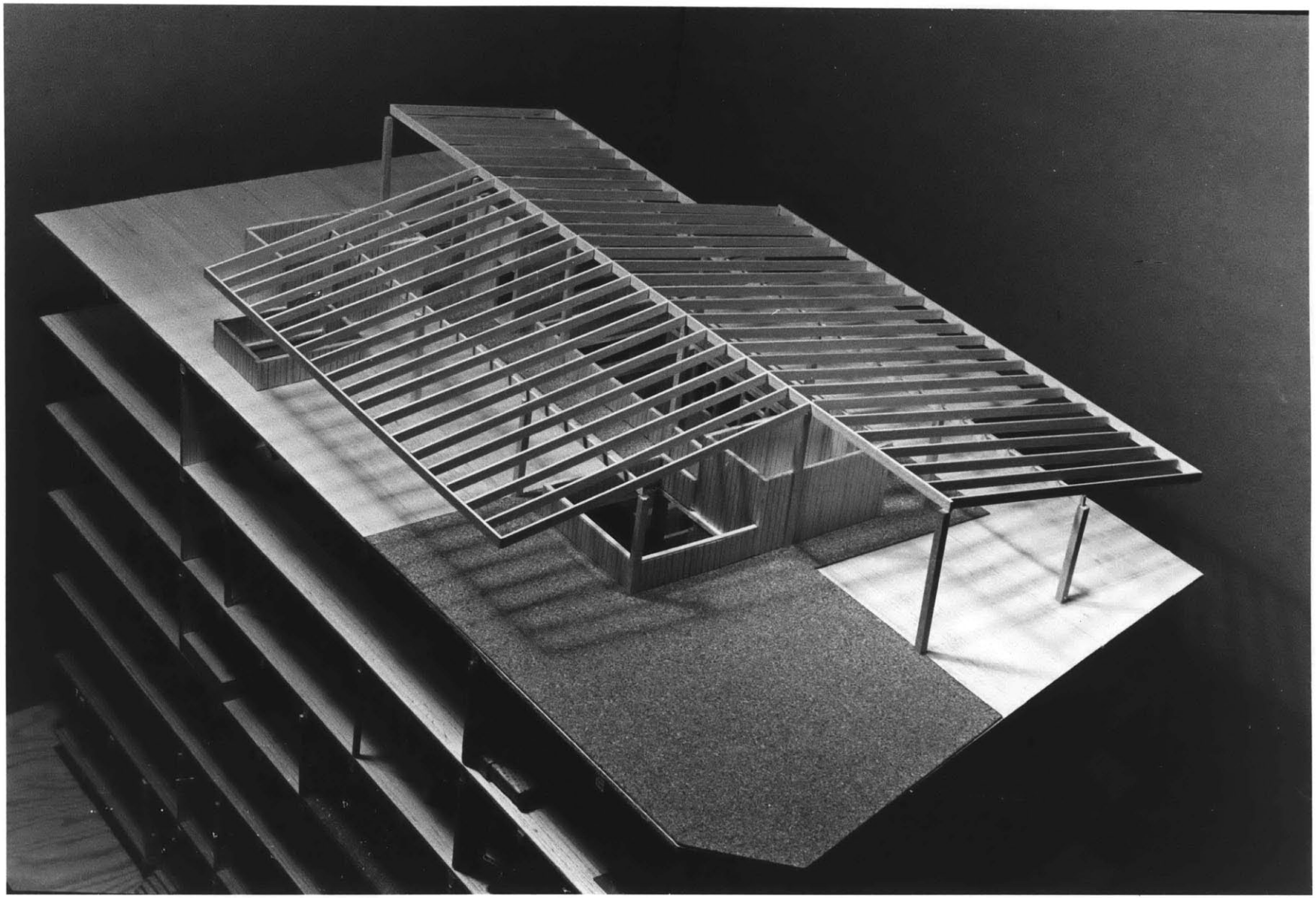

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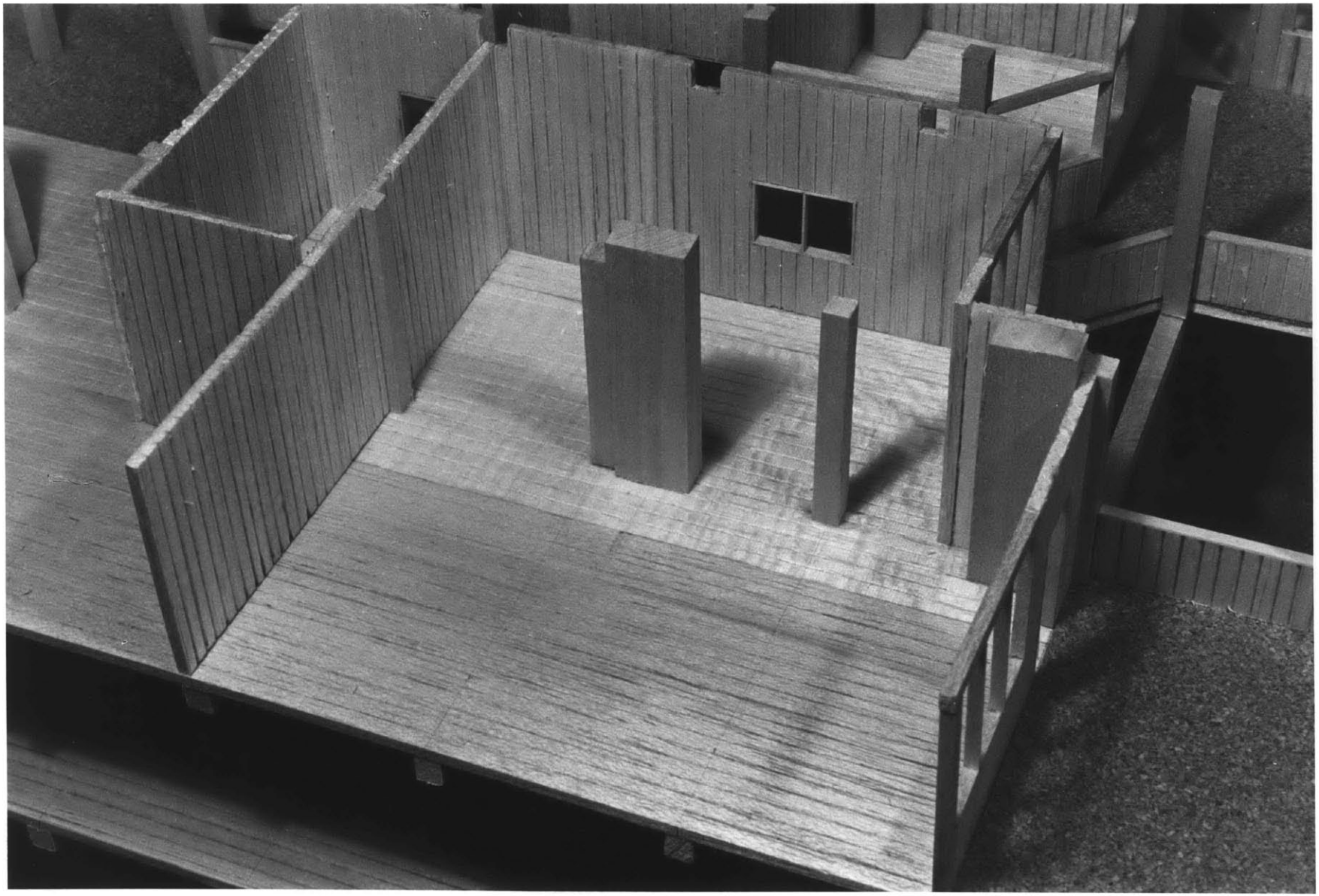

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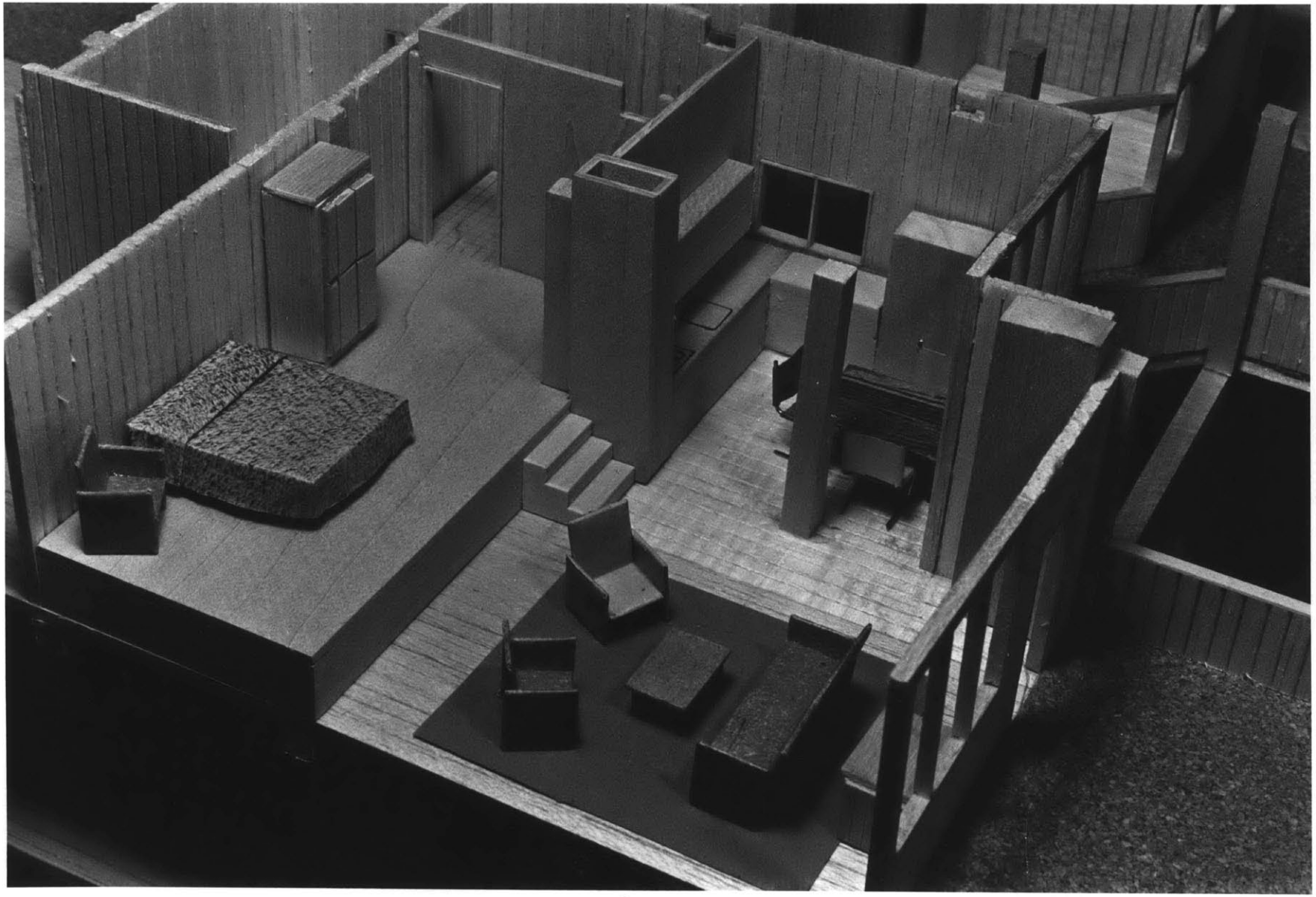

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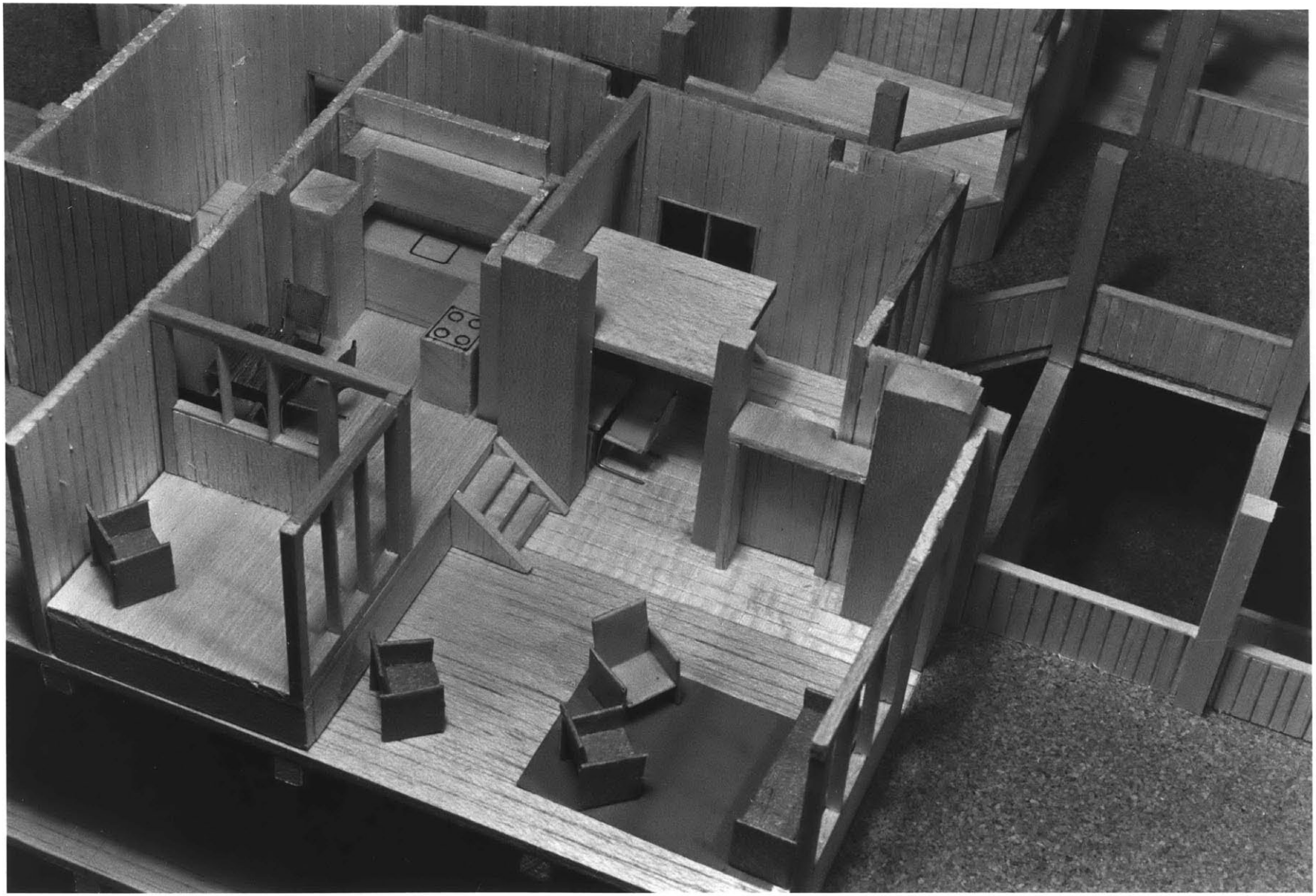

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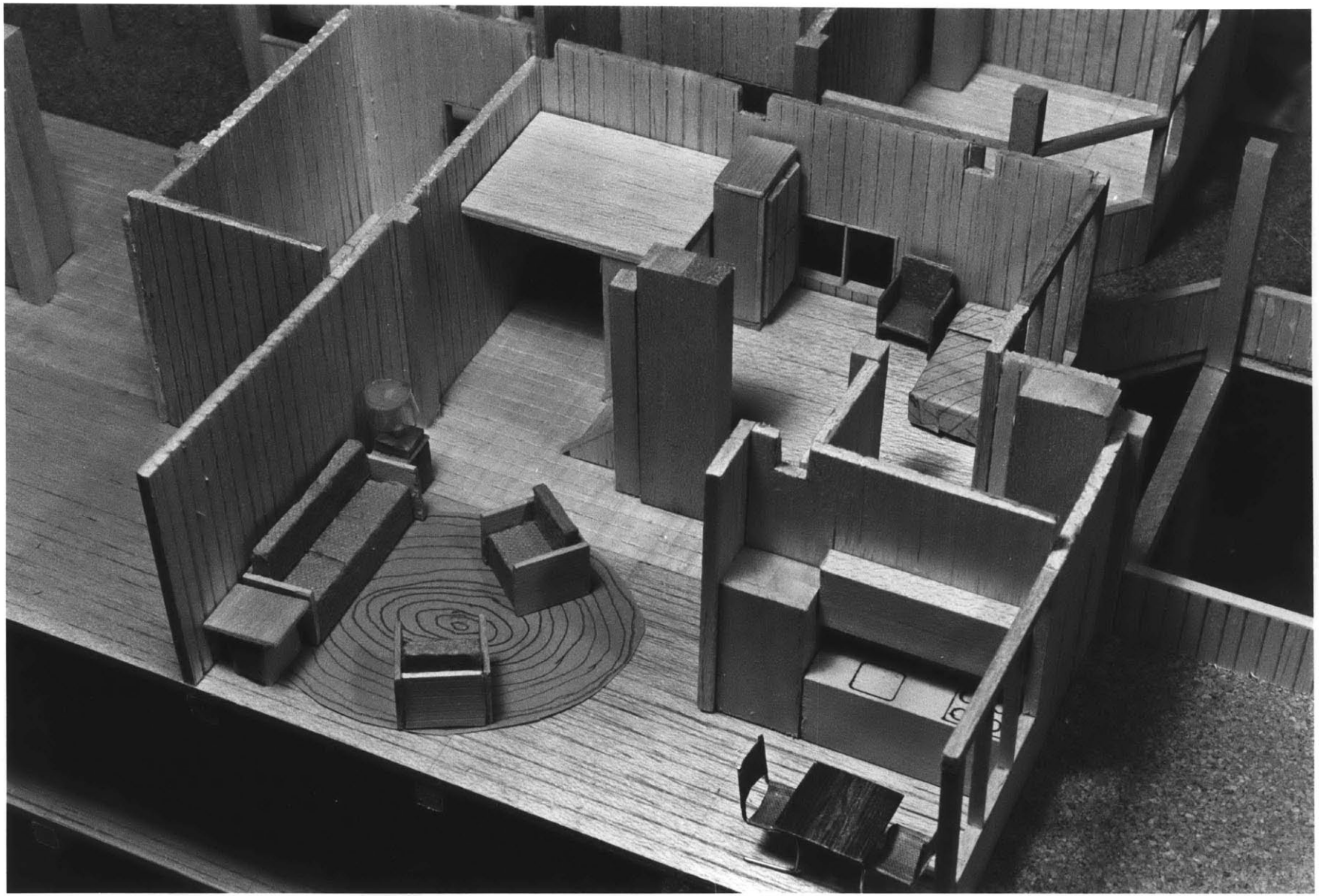

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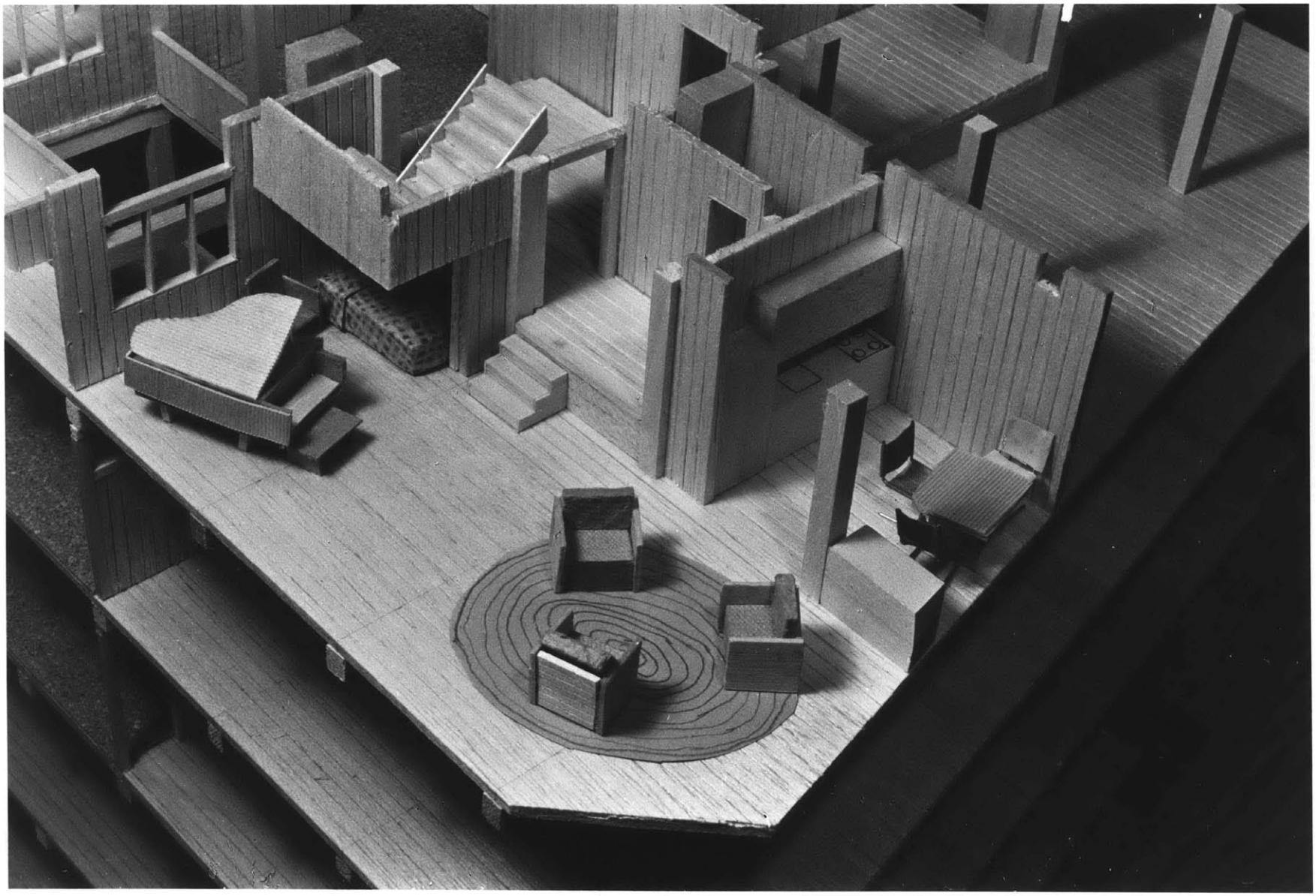
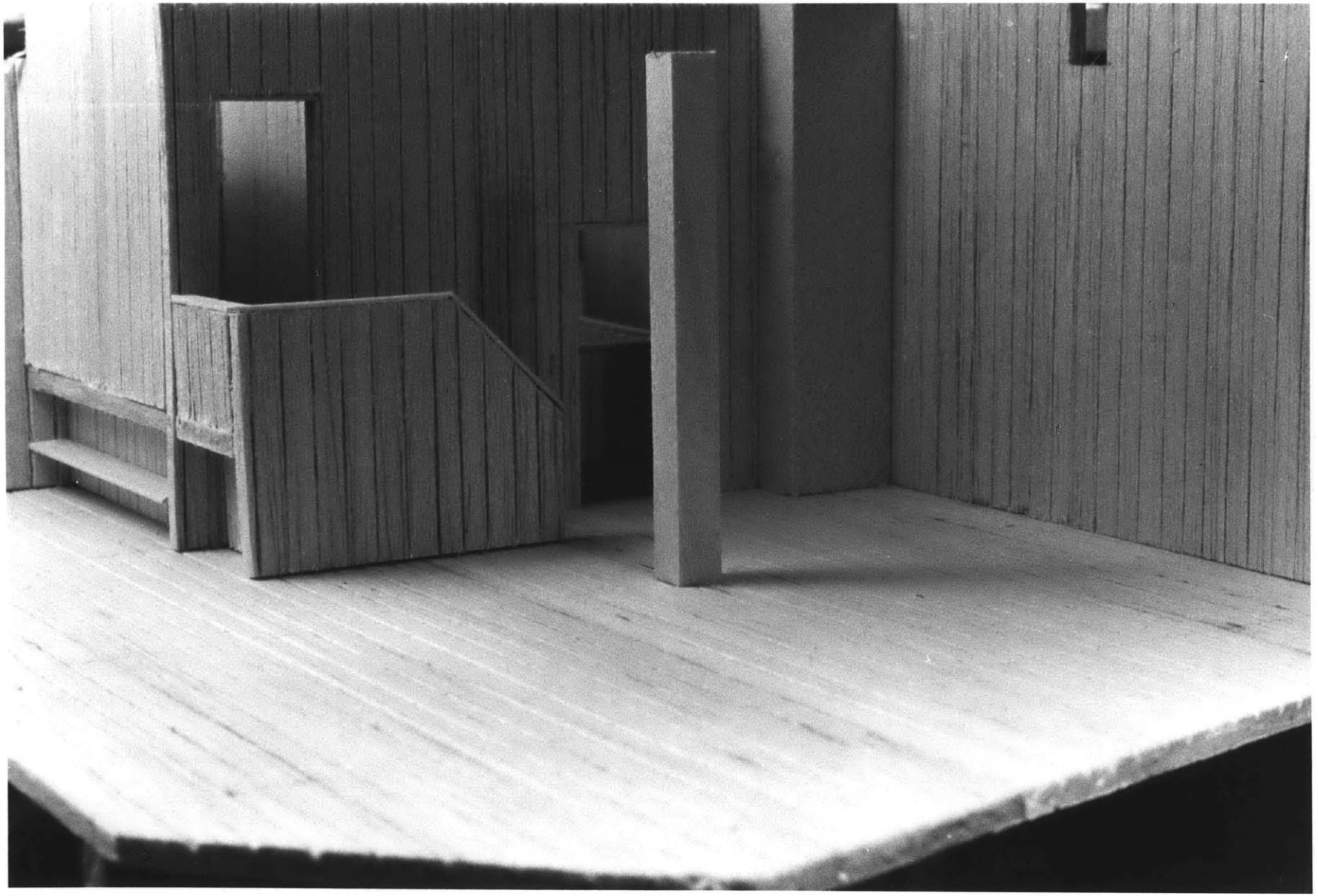


fig. 39

fig. 40



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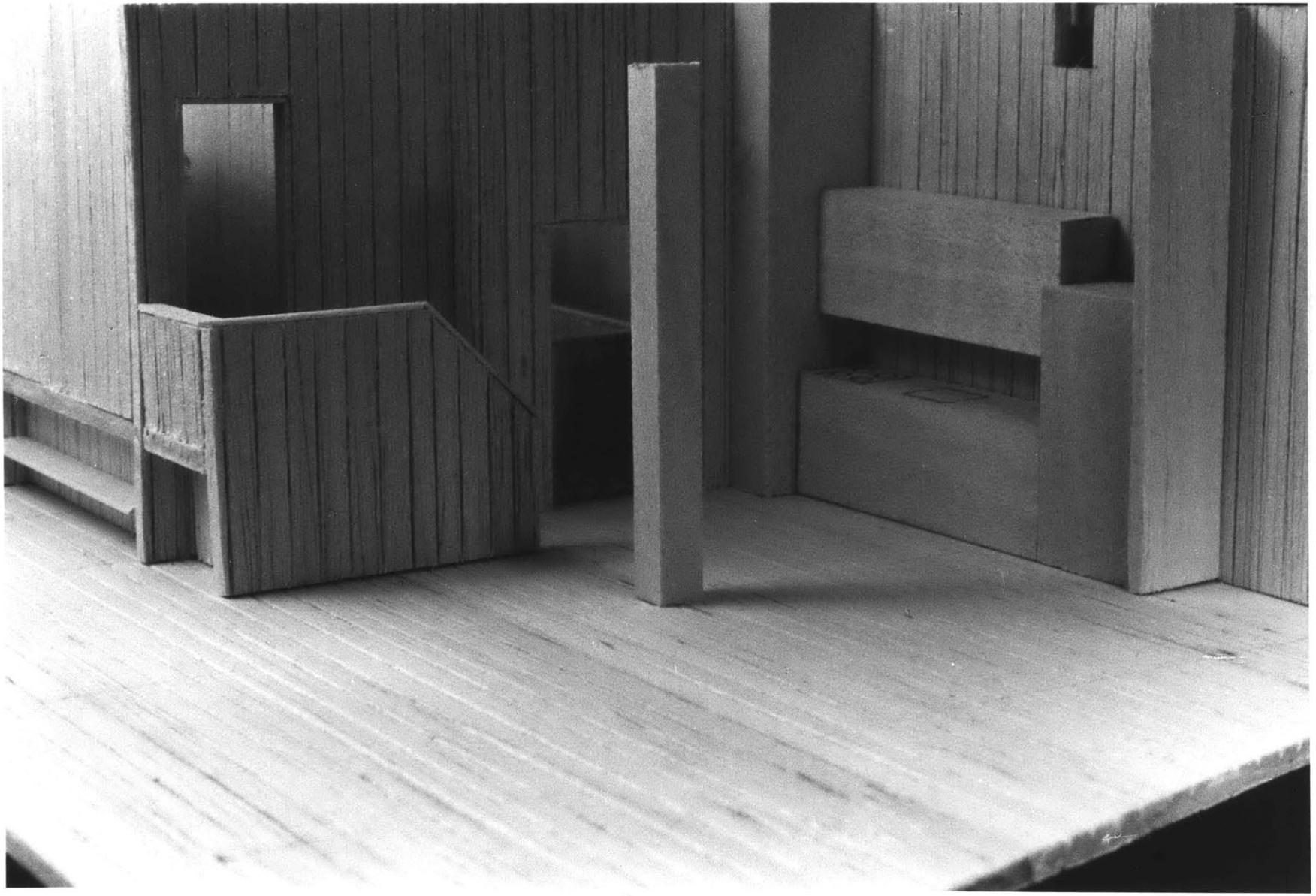

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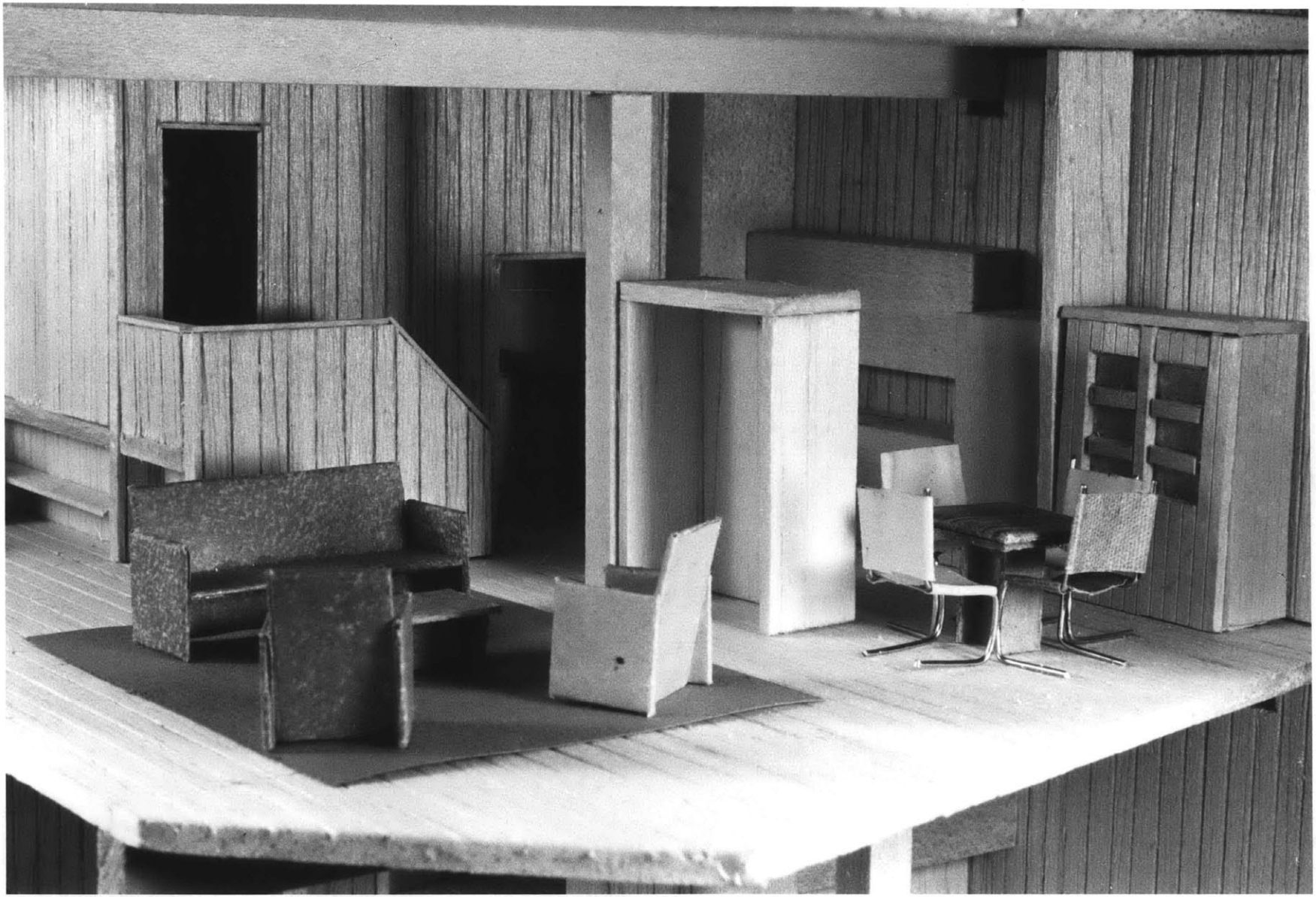

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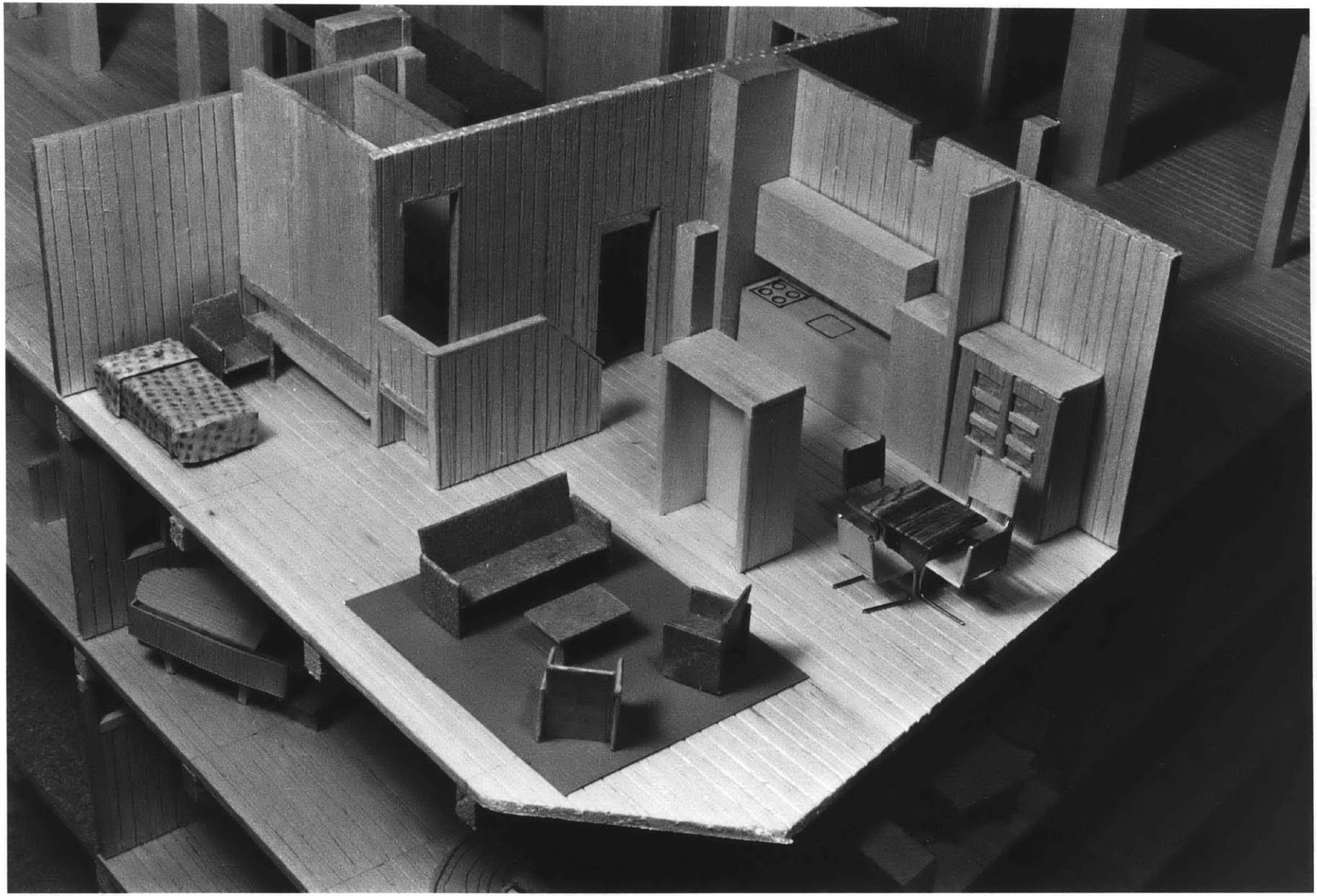

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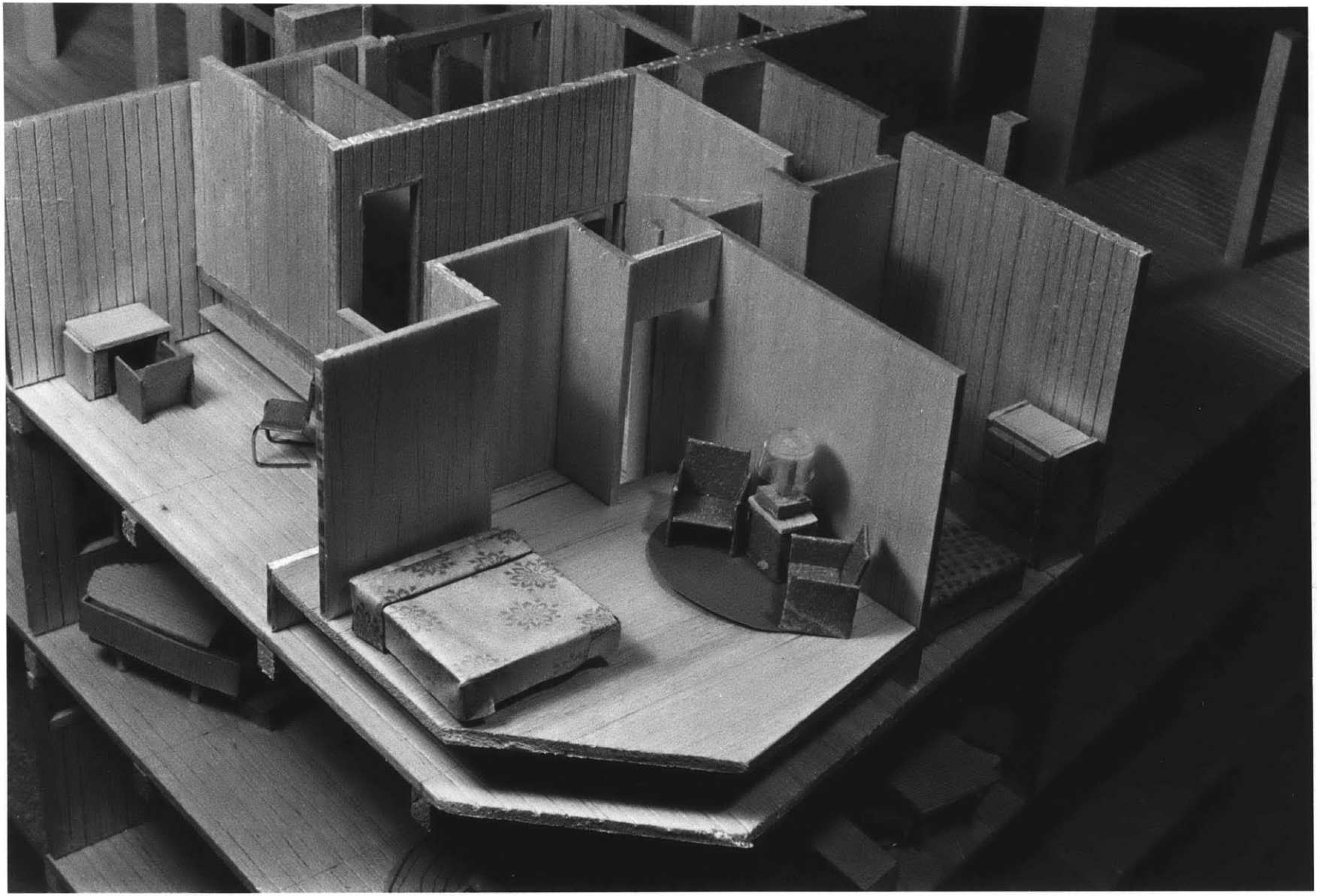

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fig. 46

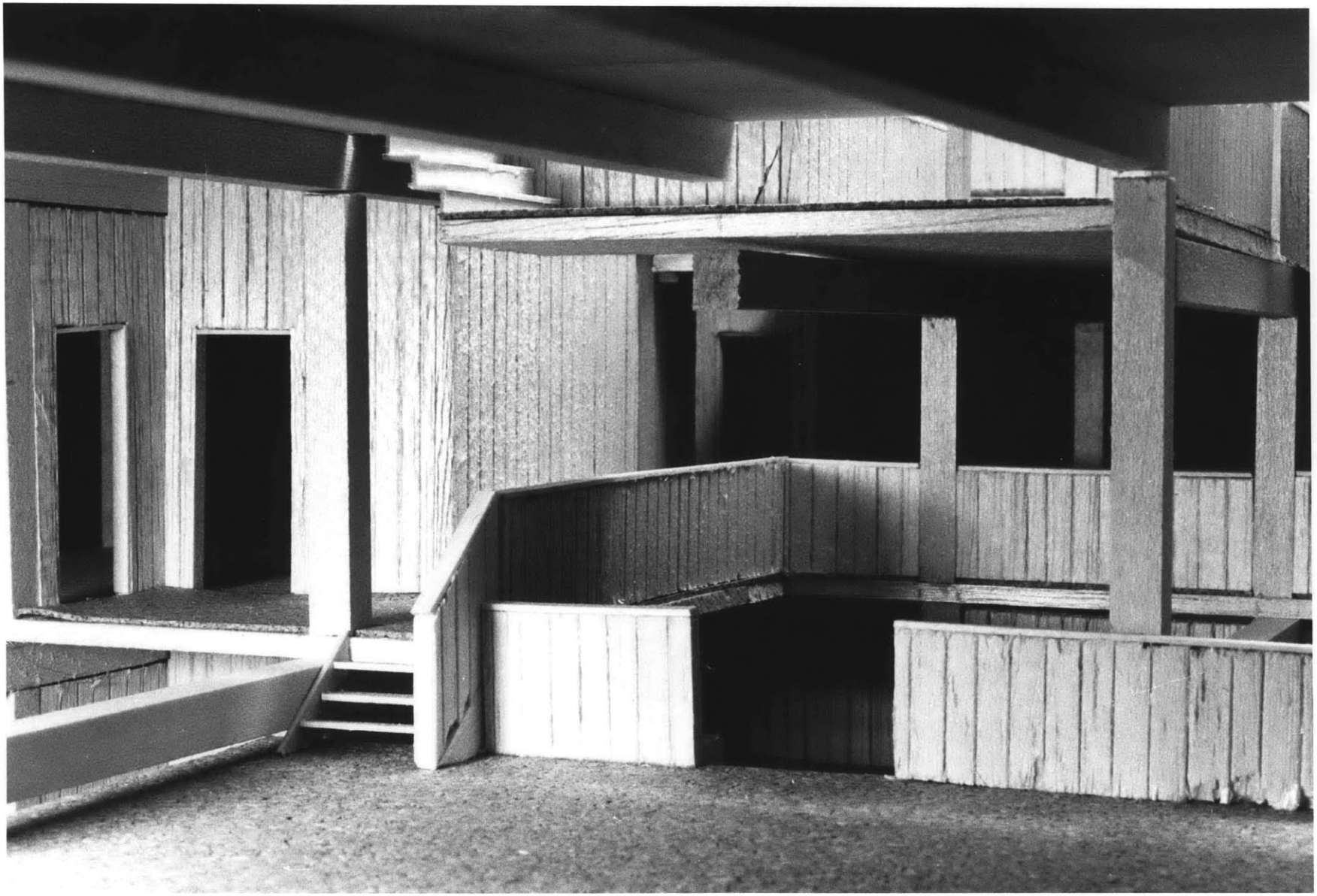

fig. 47

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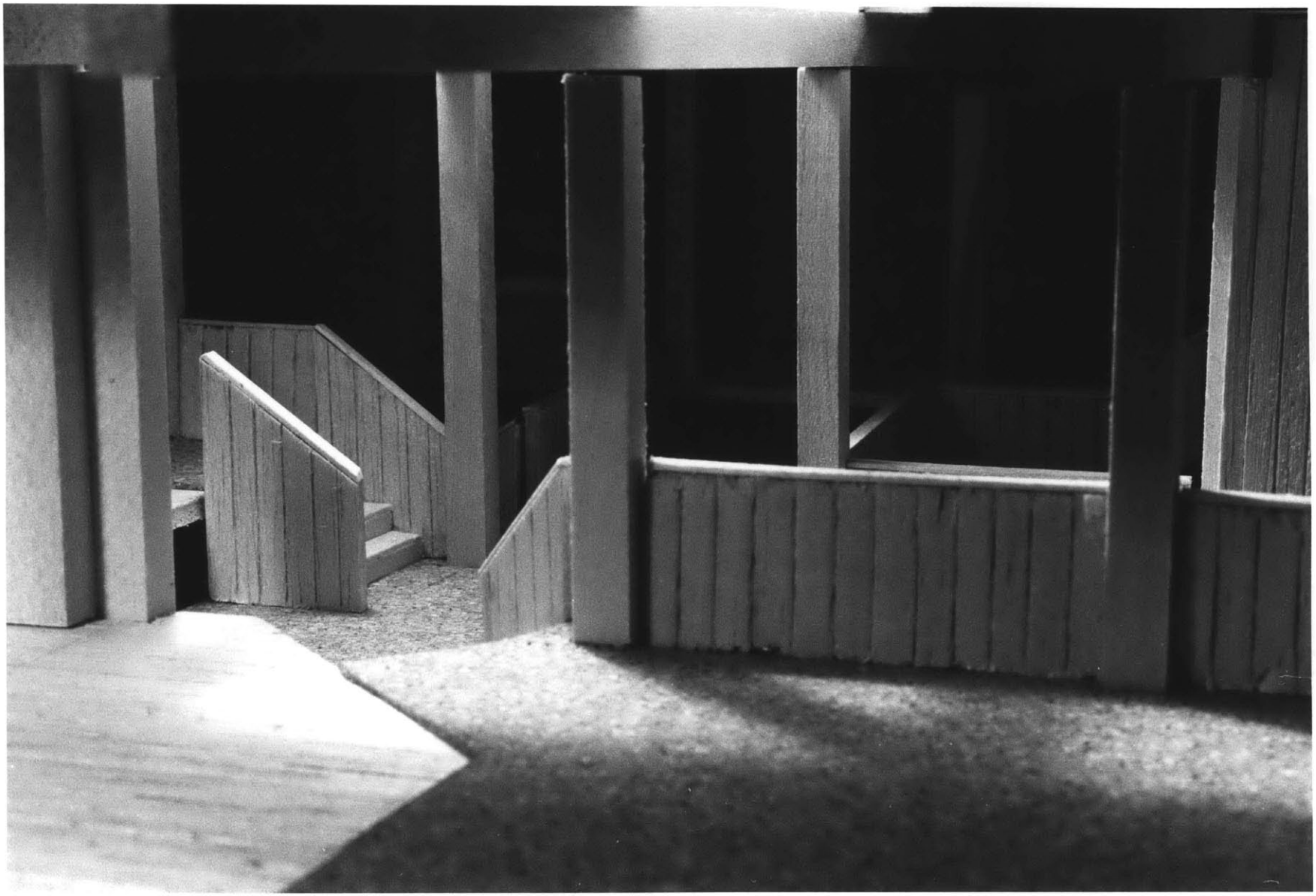
fig. 49



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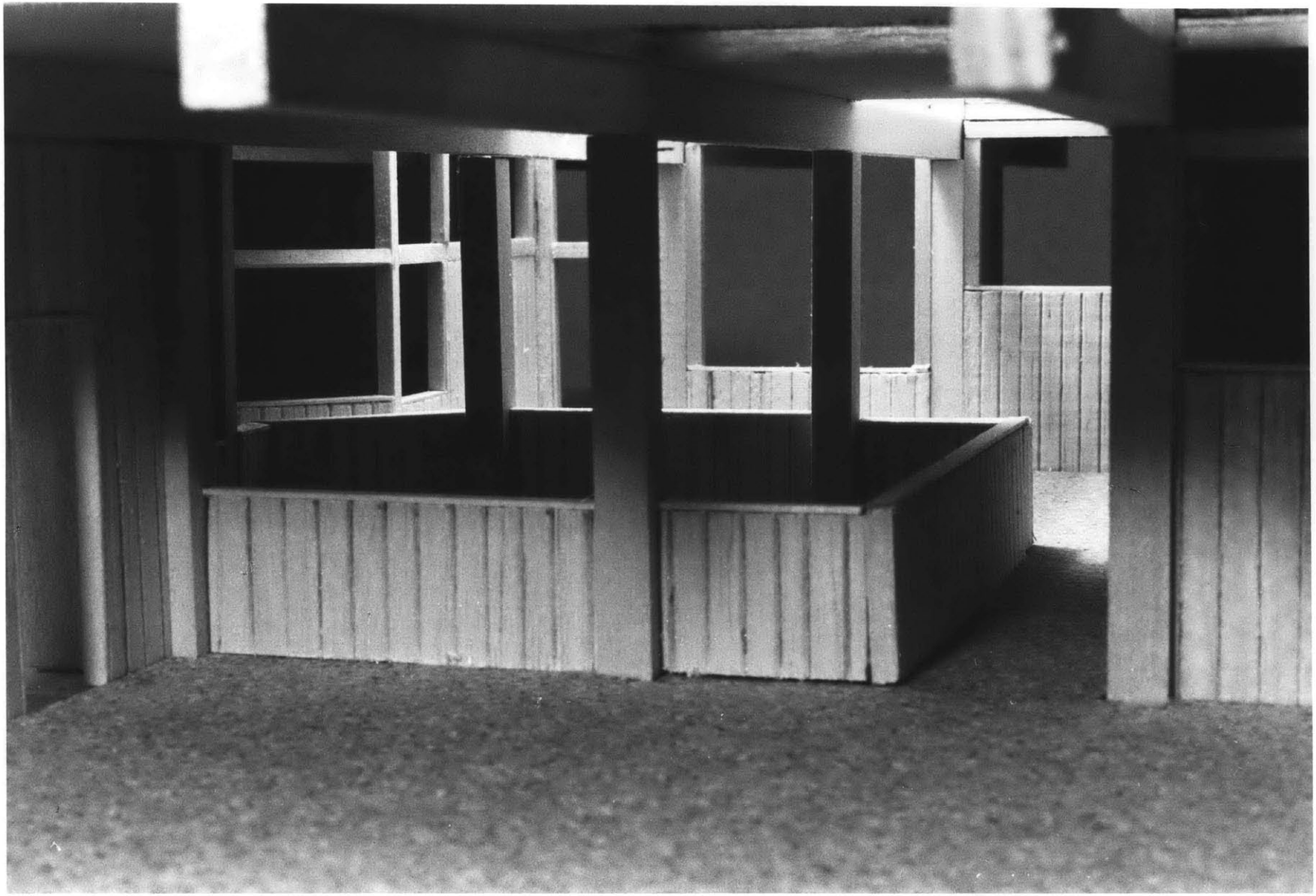

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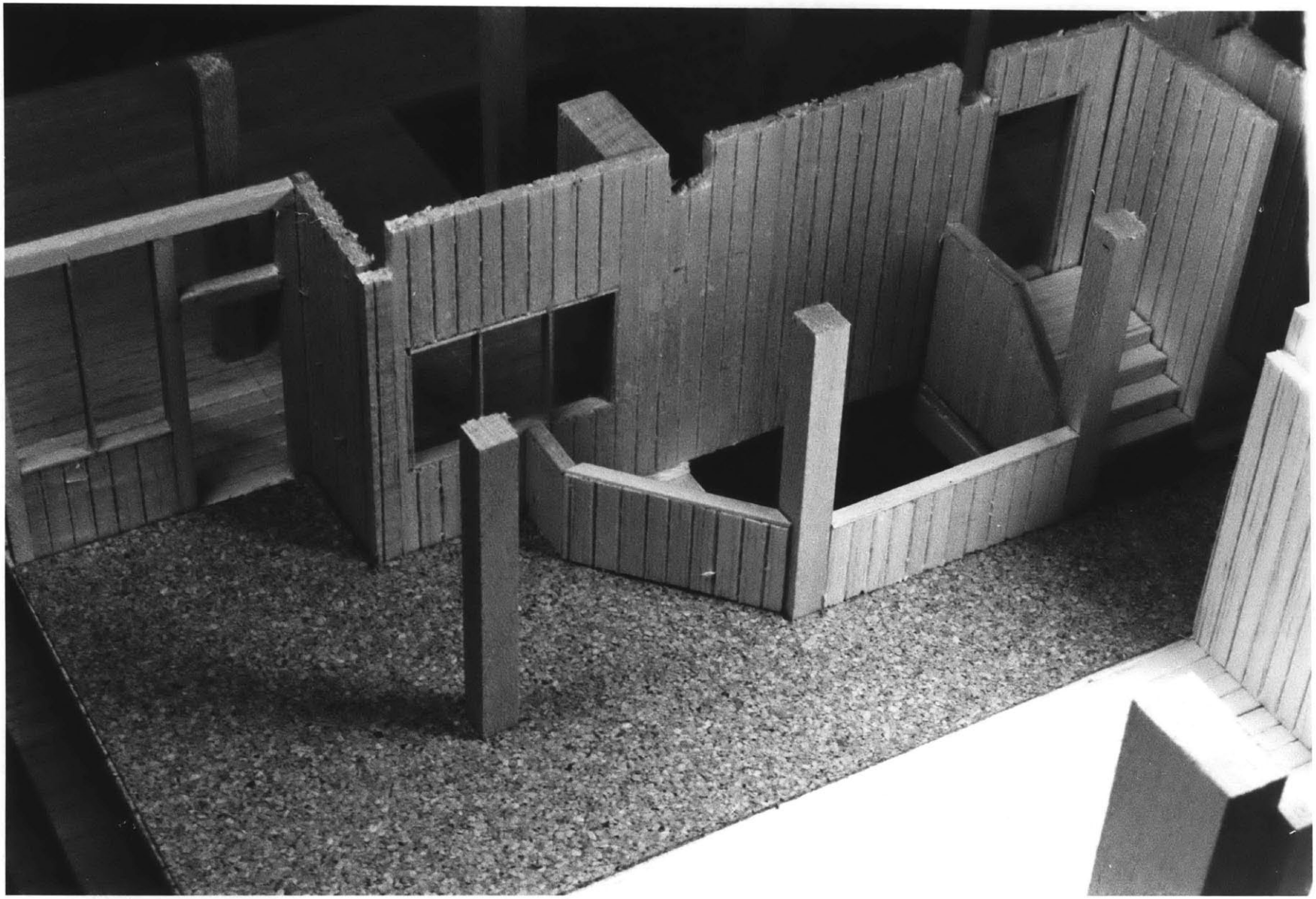

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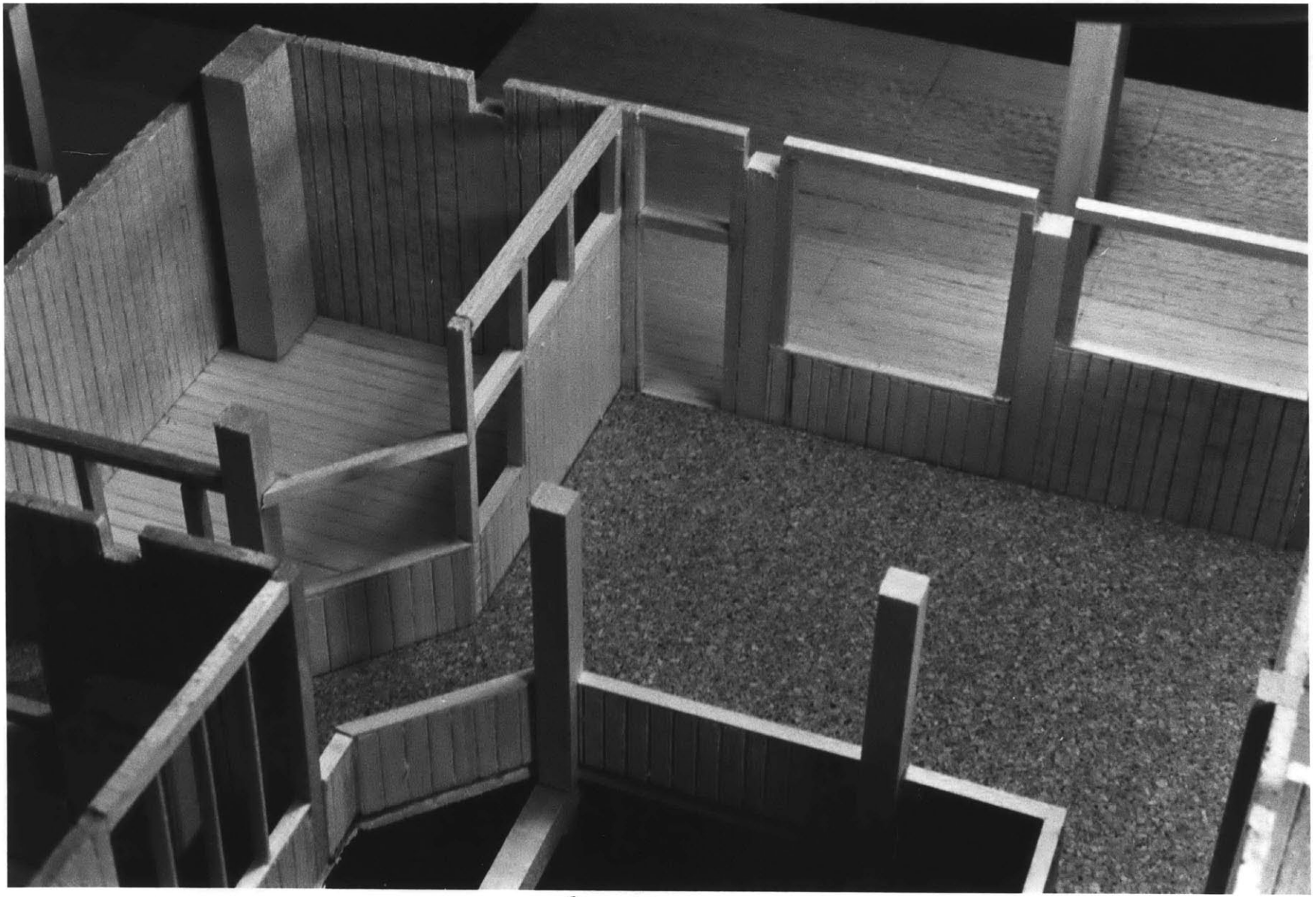

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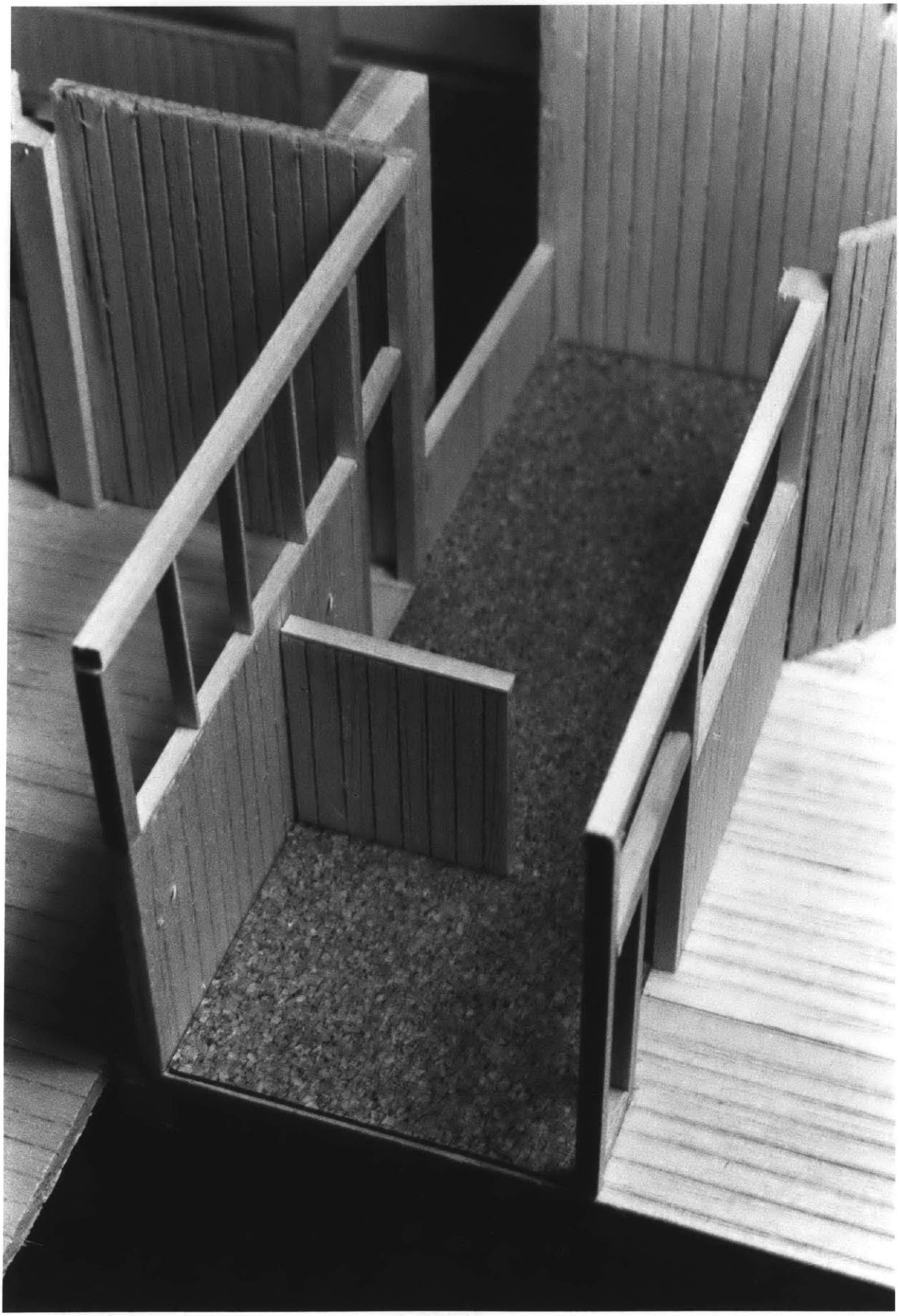
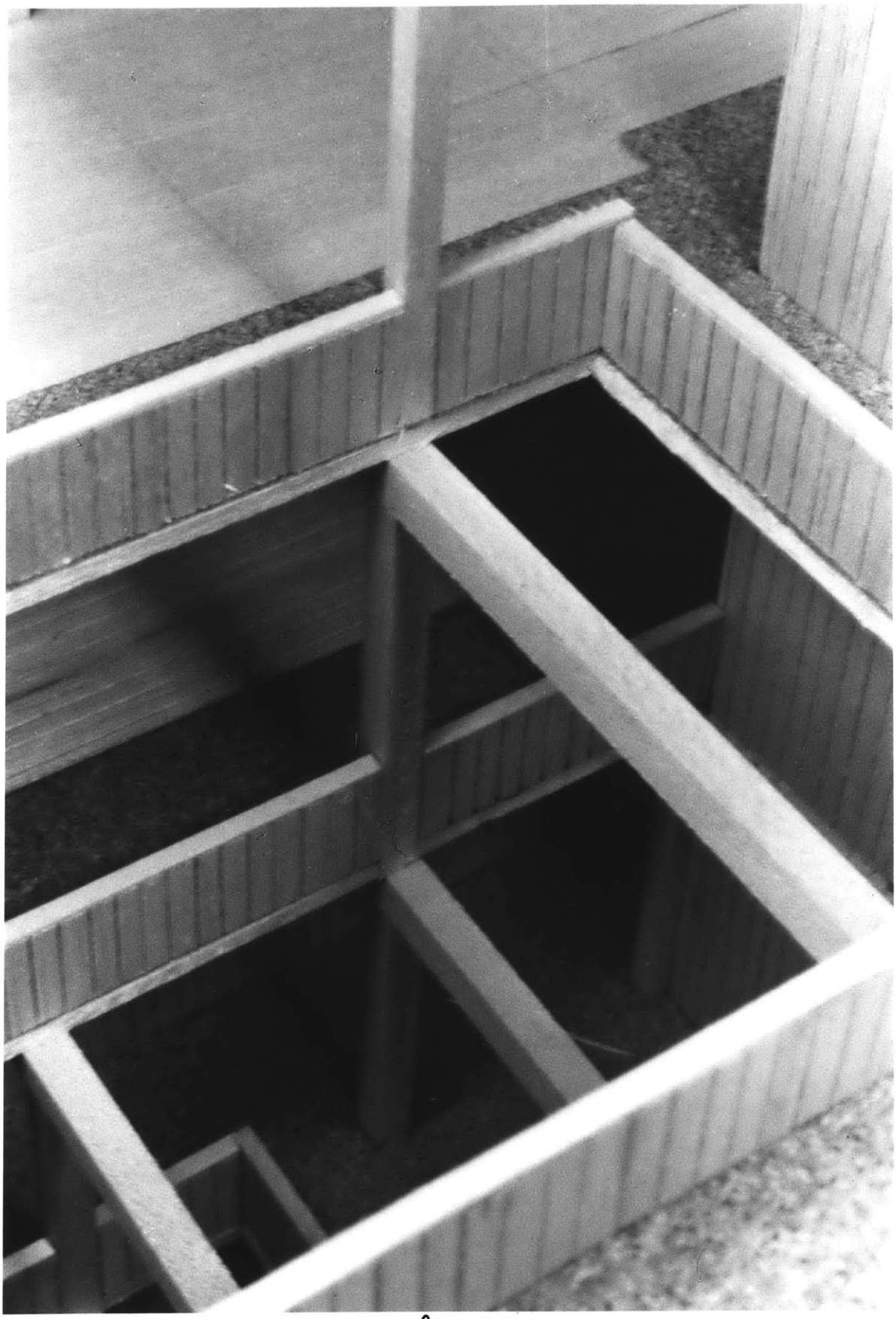


fig. 54

fig. 55



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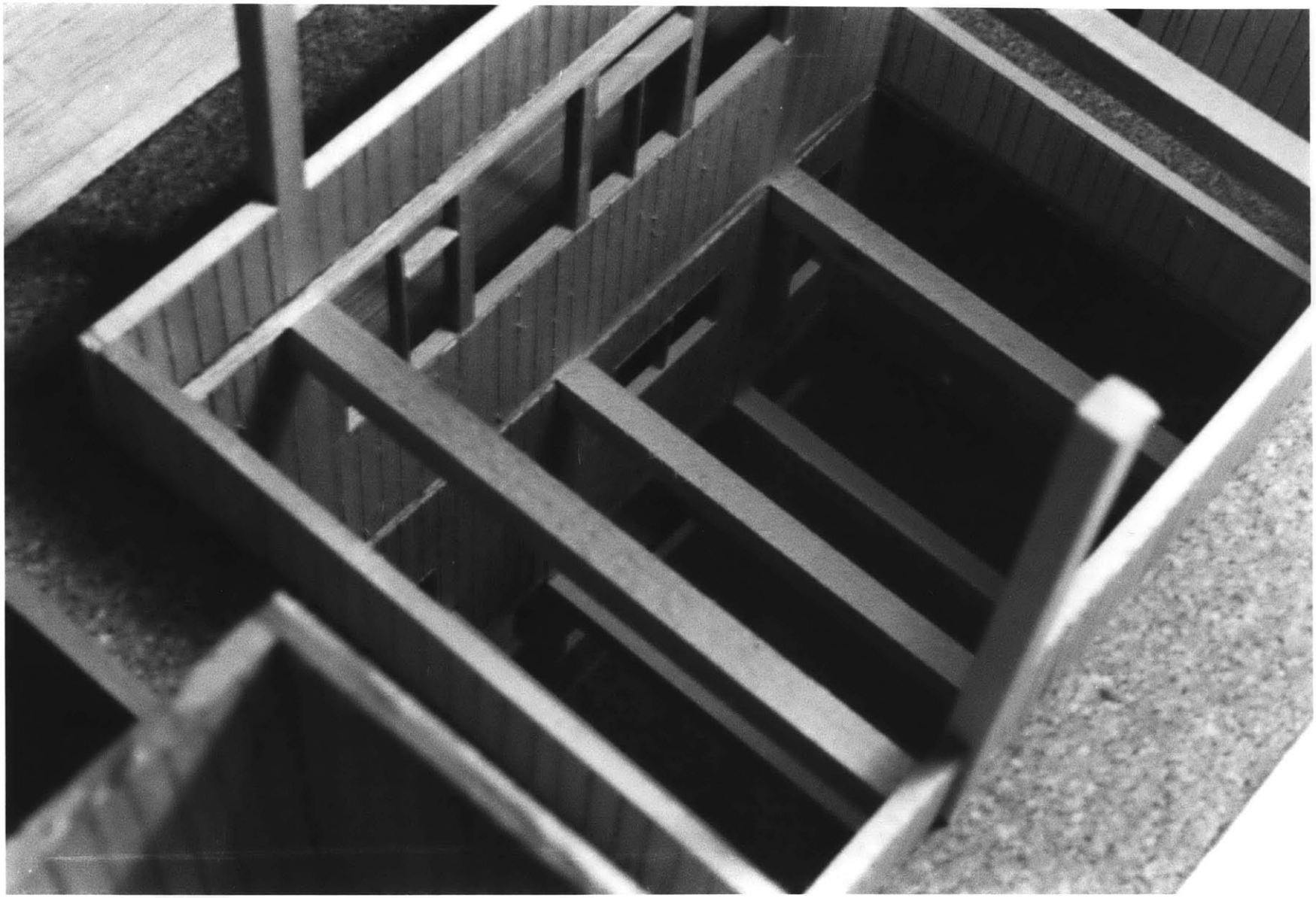

fig. 57

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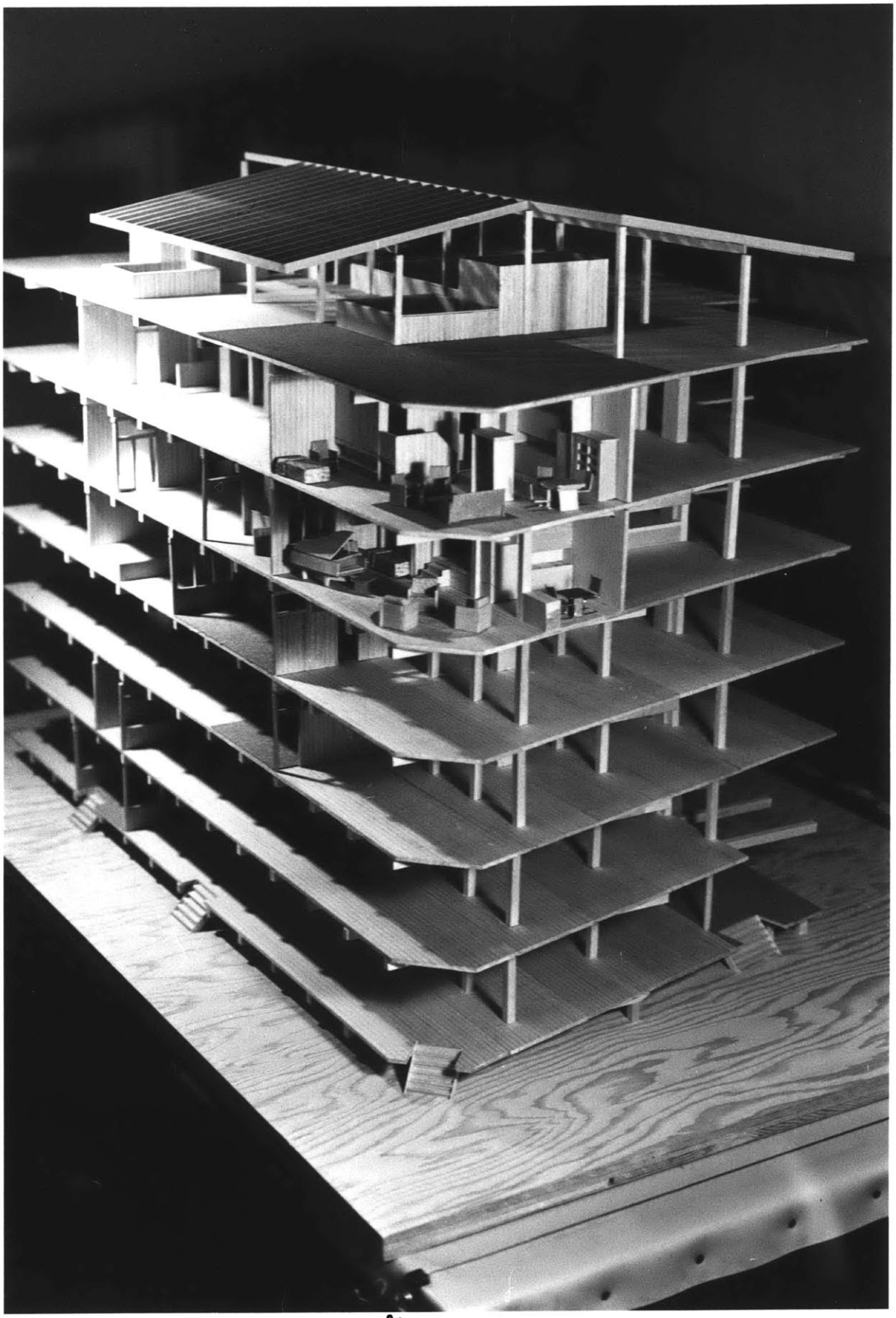

fig. 60

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