

AN ELDERLY CENTER FOR
HILLSBORO, TEXAS

by

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A THESIS

IN

ARCHITECTURE

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ACCEPTED

Dean, College of ~~Architecture~~

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Dedicated
to my parents:
Nora Edna and Richard Edgar Blanton
and to my three sisters
Kay, Sue and Alice--
as well as to
my Grandpa J.D. Kissinger
and to Mingus

Their confidence in me has served as a great inspiration

Also dedicated to the memory
of my Grandma:
Edna Bell (Tiny) Kissinger

"Jimmy Norris--you tear everything up to see what it's made of!"

----- Grandma Kissinger

.....And a very special thanks to Dr. Roberto Bravo and Miss Claudia Bravo for their help in making this program a reality.

Claudia- you are one in a million!

...."You look at me through eyes so bold, you make my poetry unfold"....

Te quiero

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INTRODUCTION

THESIS STATEMENT: To use Regionalism to achieve a more appropriate resultant in a facility that is commonly seen as undesirable due to its institutional nature.

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To put my thesis into action the use of an existing building is to be utilized. The Hillsboro Cotton Mills Building (HCNB), built in 1901, is a strong gibraltar of regionalist architecture in Hillsboro, Texas. This regionalist character optimizes the opportunity to restore the character of the building and integrate the new function of elderly housing and thus serve as the vehicle for my thesis.

The HCNB is a popular and well known building in the Hillsboro area. Hillsboro is presently engaged in the government subsidized Main Street Program, which is a very successful program in this town. This interest of preserving historical structures in Hillsboro is widespread and this interest in turn would ensure a better chance for a successful project.

The type of elderly housing that I want to pursue is that for the active elderly that are single and semi-independent, though they may need support in achieving this independence. Facilities of this kind are rare in Hill County where as nursing homes for the frail elderly are more commonplace. Therefore, I feel this market exists and could be approached.

BACKGROUND

HISTORY--HOUSING FOR THE ELDERLY

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In the United States the construction of new housing for the elderly had been associated with the needs of the lower income groups. The funding was allocated throughout the government in the form of low interest loans or appropriated through charitable organizations.

One of the earliest examples of housing for the elderly can be traced to Philadelphia, where the church provided refuge for the elderly by giving shelter, food and clothing.¹

More charitable sponsors developed in the nineteenth century providing accomodation and support.

In the 1950's the first federal state conference on ageing was formed, but it was not until the early sixties that a small number of housing units designed for the elderly began to appear, funded by the Department of Health, Education and Welfare (HEW). The 203 Housing Program, a government funded housing program, encouraged non-profit-making organizations such as churches and other society benefit groups to develop elderly housing. The typology of accomodation was basically for the active elderly and contained a bare minimum of communal and support facilities.

The private sector began to develop large-scale housing facilities in the sixties and the seventies. These communities were primarily in the sun belt and were targeted at the active elderly. Sun city in Arizona is perhaps the most well known example.²

In 1963, President John F. Kennedy recommended the need for additional care facilities in the form of congregate housing to congress but it was not until 1978 that legislation was passed to allow for sufficient funding to allow a few congregate developments to begin. The number of public-sponsored health careprograms are likely to decline in the U.S. due to limited funding. The private sector, however, has expanded and recognized the need for a wide range of accomodation and facilities to cater for both active and frail elderly.

Despite the recent appearance of extra care and congretate housing, the majority

of new developments built in the last thirty years have been designed almost exclusively for the active elderly.³ The future generations will inherit a building stock which may well become redundant in terms of its functional suitability, because of the inevitability of the process of ageing. The next generation of housing for the elderly must aim at buildings that can more easily adapt and change to meet the increasing constraints of the ageing process over time.

BUILDINGS TYPES DEFINED

1. INDEPENDENT RETIREMENT HOUSING UNITS:

These are self-contained apartments designed for active or young elderly people. Apart from laundry rooms these will not always have communal services. In urban and metropolitan areas they are usually mid-rise buildings: approximately eight stories. Minimum size would be one-hundred residential units. More economically two-hundred units would be the size, and the maximum would be three-hundred. Today there is about one out of every ten projects being publically funded. Recently, there has been a trend towards an integration between the development community and the sponsoring community, in order to accomplish further projects. In rural communities a similar type of housing has been sponsored, largely through the Farmer's Home Administration, and is usually single-family dispersed cottage type housing. The scale of the units, because of the smaller communities ranges from twenty-five to one-hundred units.

2. CONGREGATE HOUSING:

These developments provide some communal services in addition to the basic independent housing units. Included are communal areas, help with cleaning, shopping and communal dining facilities. It includes most types of assistance with independent living, short of direct

personal care. Congregate housing demands a high level of servicing and staffing, so management costs are higher. Such developments are sponsored by church and charitable organizations.

3. PERSONAL CARE HOUSING:

This type of housing has existed since the early sixties and has only recently emerged into a different form, in that it is now almost entirely handled by the private sector. It is recognized that there is a need for personal care housing in which frailer or older elderly people can receive personal care and assistance with dressing, washing, etc. At one time such facilities were characterized by residents having to share bedrooms or bathrooms. However, as new government regulations have gradually come into force a new generation of this type of housing is now emerging with a minimum provision of single bedrooms with en-suite private bathroom, designed to mobility standards.

4. SKILLED NURSING HOME:

This is the building type that cares for the elderly person in need of both personal and medical care and support. In the U.S. because of reimbursement procedures which are governed by law, there are two types of facilities: skilled nursing care and intermediate nursing care. In terms of the facility provision they are indistinguishable: the definition relates to the degree of medical supervision. Skilled nursing care involves supervision by a physician and intermediate nursing care involves supervision by a licensed nurse. The skilled nursing home is now emerging as a major industry, moving from development in the 1950's which were small in scale and operated almost entirely as a cottage industry, to large organizations which may own fifty to one-hundred nursing homes. Apart from a few charitable organizations, nursing homes are almost entirely funded within the private sector. Their size usually ranges from 120 beds, which is usually considered the minimum economic operating level, and increases in 60 unit increments, with 240 bed units

probably being the most economic to operate.

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5. LIFE CARE COMMUNITIES:

This is the most recent and certainly the most sophisticated development in housing for elderly people and first started in the early 1960's. In 1984 it was estimated that there were over 600 life care communities in the United States. During their first decade life care facilities were predominantly church sponsored. However in recent years the model has been taken up by the private sector. The normal population runs from 300 to 400 residential units. The facilities provided are usually divided into four types of units:

1. Independent living: These tend to be bungalows or apartments for the active elderly.
2. Self-contained Apartments: These are combined with communal facilities to provide meals plus some social activities.
3. Personal care accomodation: This usually takes the form of single bedrooms with en suite bathrooms and is intended for frailer, older elderly.
4. Nursing Home Facilities: The accomodation here would be similar to that of personal care, with the exception that medical supervision and care would also be available.

A common feature of life care communities is also to include a continuing care contract which covers the remainder of a residents life. At best, life care should be viewed as a concept rather than a defined building type. The concept is to enable one housing type to accommodate and service personal needs from active retirement, where support services would be mainly social and domestic, through to coping with both physical and mental frailty. This would then bring into play additional support including medical and personal care, all of which could be provided on site for the rest of a person's life.

The United States is now witnessing independent housing developments expanding their facilities to include nursing care accommodation, while at the same time nursing home operators are expanding their facilities to include independent living units.⁴

Help the Aged, an international charity dedicated to improving the quality of life for elderly people, in 1986 formulated seven categories which define the degree of support care throughout the aging process.

DEGREE OF SUPPORT CARE

1. No specialized or adapted housing for active retired or pre-retired elderly who are completely able to live independently (i.e. require no assistance with eating, hygiene, dressing etc.) and may therefore live in their homes.
2. Housing for active elderly who may need some supervision but certainly can still look after themselves with a minimum of support. This may still include elderly who can remain in their homes after special adaptations have been made.

3. Purpose-built self-contained grouped accommodation for fit and active elderly, with the facilities for them to live substantially independently, but with 24 hour warden attendance. There would be a minimum of support or communal facilities.
4. Purpose-Built Self-Contained grouped accommodation for physically frail but mentally alert elderly who do not need nursing care but may require occasional personal care but may require occasional personal care supervision. Support facilities would include 24-hour warden attendance and provision of a cooked meal, but only as an options and when required.
5. Physically alert but mentally frail who may require some personal care supervision. Communal facilities would be as for (4), but with additional support staff as required.
6. Residential care homes: Purpose built for elderly who may be mentally and physically frail and need personal care supervision. Many residents will be unable to support themselves independently. The accommodation therefore may not be self-contained. All meals will be prepared for residents and care staff may need to assist residents in bathing, eating, hygiene and dressing.
7. Nursing Homes: as (6), except that residents may well be suffering from a sickness, injury or illness, either temporary or permanent. This would

require licensed nursing care. Accommodation would almost certainly be in single-bed units.

" To try and define the needs of elderly people is like defining the needs of the human race, it's so vast."⁵

ELDERLY PEOPLE DEFINED

No one particular age can serve as a universal water shed and represent the passing from middle to old age, it is commonly accepted that men over 65 years and women over 60 years, i.e. those who have become pensioners, may be defined as elderly. Many authorities further subdivide elderly people into younger old (up to 75-80 years) who are active and independent, and old (over 75-80 years), who are heavy consumers of care resources⁶.

The age group of the elderly can span more than 30 years, and thus include people with radically different life experiences, i.e. from those born in the 1890's to those in the 1920's, each representing an entirely dissimilar generation. Out of such diversity come both myths and gross generalizations about becoming older, this is largely because planners, agencies and legislators have attempted to define the need of the elderly within a single framework. It must be understood that the housing needs of the elderly are as diverse and complex as the elderly themselves. It is therefore important in any attempt to be sensitive to user needs to appreciate that such myths and generalizations are divorced from fact.

Dr. Anne Roberts a geriatrician, has explained that the process of ageing is often confused with ill-health. Normal ageing causes very little in the way of disability. People do become ill, but this is viewed as normal rather than treatable or preventable, simply because they were common, just as one time high infant mortality rates were viewed as normal because they were common, similarly our current attitudes will in the future be considered primitive because of our assumption that the connection between ageing and disability is normal.⁷ The

inevitability of the ageing process does bring into play the following factors which can potentially restrict ones life:

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-Inability to reach: resulting from the lack of dexterity in joints and nervous control of body movements.

-Loss of reserve capacity of organs and systems: elderly people become ill slowly, so their symptoms are difficult to detect; and once they do become ill they may need more help in recovering.

-Increased tendency to fall: falls can be caused from hazards outside the person (i.e. falling over a step); this can be prevented by sensitive design, which eliminates trip hazards and uses good lighting and contrasts in color and texture.

-Decline in sensory input: with advancing age. There is commonly some decline in one's ability to see or hear.

-Maintaining body temperature: any heating system must therefore compensate for this additional loss of body heat and provide a comfortable, reliable and draught free environment.

-Incontinence: Incontinence is not normal and may well be a symptom of another condition, such as dementia or depression.

-Immobility: though many elderly people remain independent, mobility problems are very common as the result of stiffening joints or a fall.

-Mental frailty: mental function in elderly people is most commonly impaired by:

- dementia
- confusion
- depression^s

The elderly population is refuted to be one of the nation's most distressed minorities. Loss of income is an ever-present problem for the elderly. Social security, private and public retirement plans, and personal saving have not been

sufficient to decrease poverty among the elderly population. Approximately two-thirds of the elderly people in this country have annual incomes of \$5,000 or less. Currently, approximately 14.1 per cent of the nations population is composed of people aged 60 and over, and this segment of the population is increasing.⁹

CASE STUDIES

#1

TITLE: Old People's Home at Almere, Netherlands

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BUILDING TYPE: Four level structure

PRINCIPLE CLIENT: Nederlandse Centrale voor Huisvesting van
Bejaarden

MAJOR USERS: Elderly, staff

ARCHITECT: Herman Hertzberger

LOCATION: Almere, Netherlands

DATE: N/A

SITE CONTEXT: The building is located near the center of Almere-Haven, a new town by a lake east of Amsterdam. Other specific information is not available.

WRITTEN ANALYSIS:

Design developed to house old people as a community: The accommodation provides for different degrees of independence, with bed-sit flats close to the center of the main block and two-person, separate bedroom flats in a wing folding away from the core. Courtyard apartments for the more independent elderly are located to the south of the main building as an independent block. Active and elderly are all sheltered in the one complex. The community nature of the complex is developed by the provision of ample common space for dining and sitting, and a kitchen providing a restaurant service, with meals delivered to the flats if required or taken in the dining room. Recessed entrance doors adjacent to access hatches for delivery of meals or general household deliveries, wide window shelves, and the widening of corridors at strategic positions, provide spaces for tenants to furnish with plants and pictures. This opportunity to decorate has been taken up enthusiastically by the tenants.

Three types of dwellings are provided in the scheme:

1. One-person flats with a floor area of 251 sq.ft.
2. Two-person flats with a floor area of 513 sq.ft.
3. Two-person apartments with a floor area of 705 sq.ft.

The one-person flats comprise a bedsitting room en suite with a small kitchen and a shower/lavatory off the

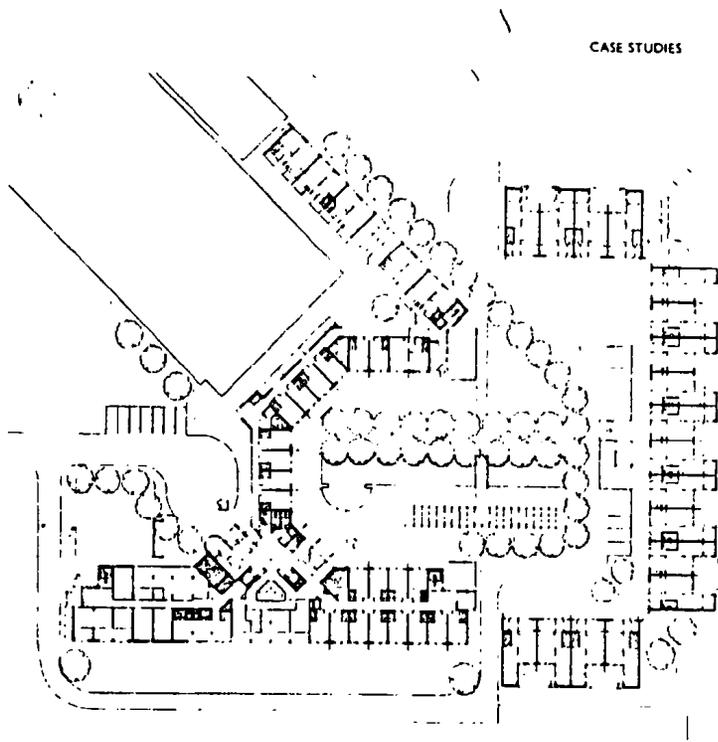
kitchen area. These small units are bright and airy and within a limited floor space remarkably spacious and easy to furnish. For the frail elderly many advantages are offered. First, there are only two doors to negotiate, the entrance door and the shower room door. Secondly, within their own domain the residents may ignore the rest of the community by shutting the front door and curtaining the kitchen window onto the corridor, or by opening the top half of the front door, designed like a stable door, passers-by can remain in touch. All flats above ground level are provided with an external balcony for sitting out.

The two-person flats are also planned with the kitchen en suite with the living/dining room. Here again the kitchen has a window onto the corridor enabling the resident to remain in touch with passers-by. The bedroom has a sliding screen separating the sleeping space from the living area. For the reasons set out, this can be very beneficial. For ease of access to the shower/lavatory, there are doorways from the bedroom and the lobby. As with the one-person flats balconies are provided on upper floors.

The two-person apartments for the active elderly, have a kitchen/dining room separate from the living space and a study/dressing room off the bedroom.

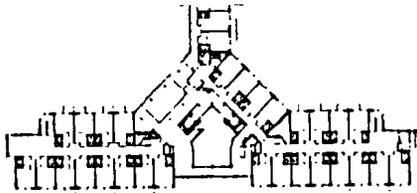
PROJECT ANALYSIS:

The building is probably the most community-conscious development for the elderly in Europe to date. It is rich in services not found in other schemes. However the very success of the complex as a community calls into question the relationship of the residents with the neighborhood. Practically all of the residents needs are catered for within the building and there is little motivation to participate in local affairs.¹⁰

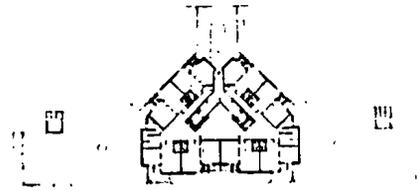


Plan 23 Ground floor plan

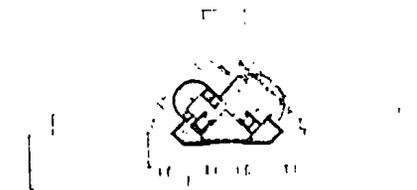
GROUND PLAN



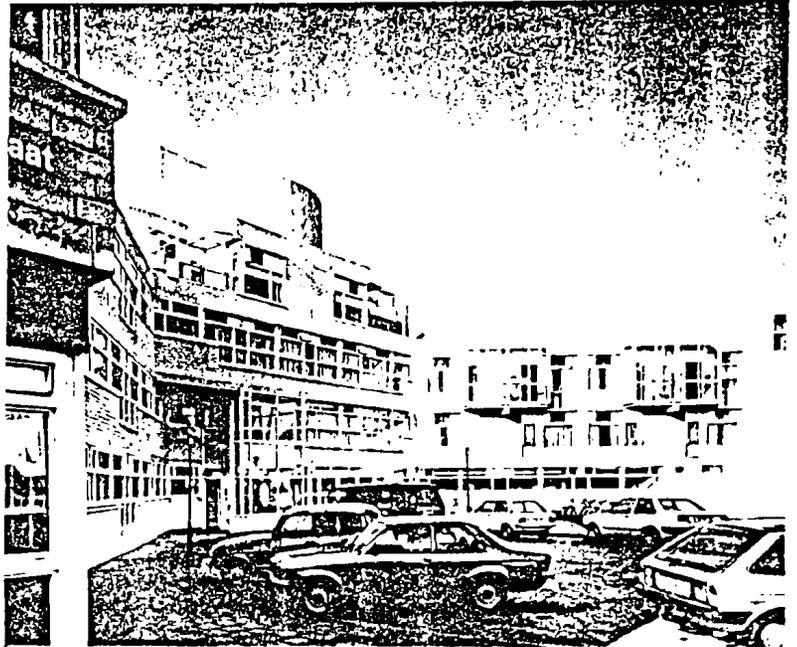
Plan 25 Second floor plan



Plan 26 Third floor plan



Plan 27 Fourth floor plan



MAIN ENTRANCE
AND CARPORT

FOURTH FLOOR PLAN

#2

TITLE: Wilson Park

17

BUILDING TYPE: 12 levels--high riseblocks_

PRINCIPLE CLIENT: Philadelphia Housing Authority

MAJOR USERS: Elderly residents and staff

ARCHITECTS: Jordan Mitchell Inc. with Wallace ,Roberts and Todd

LOCATION: Philadelphia, Pennsylvania

DATE: 1984

SITE CONTEXT:

Wilson Park lies to the south of Philadelphia City Center. The area suffers from poor housing conditions. The high rise blocks were originally designed and used for public housing family units in 1952. However these fell into disrepair and became vacant in 1977. The architects commissioned were to convert the high rise blocks and to provide communal facilities for use by local elderly residents. The project is surrounded by 260 public housing units. There is level access to the site. General stores within walking distance, offstreet parking for 17 plus cars, parking also available adjacent to the site.

BUDGET/FUNDING:

Federal office of housing and urban development (HUD). Flats are rented to residents on a subsidized system, under which the rent is determined by each residents ability to pay.

WRITTEN ANALYSIS:

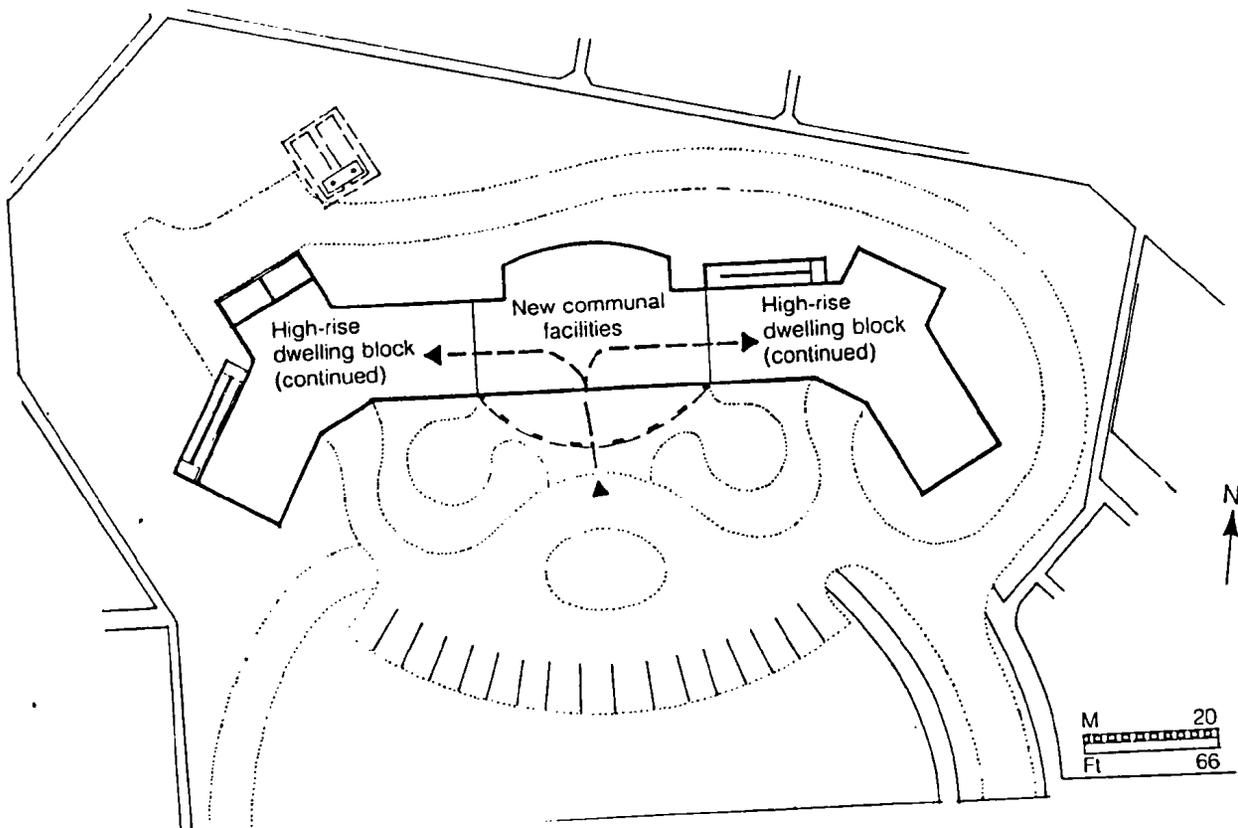
Residents appear to prefer being "off the ground" for security reasons and enjoy the views over Philadelphia. The nature of high-rise implies vertical as opposed to horizontal circulation. While this does reduce the length of corridors, it can also reduce those opportunities for social contact associated with corridors, which can function as a street. Therefore, the design requires residents to pass through the lounge area to reach the elevators to the apartments. This is done with an eye to the potential problems of isolation that have been associated with highrise in general housing.

Lounge and dining area is also used by elderly non-residents in the area. The dining hall supports multiple use, as a meeting room and for general entertainments including the showing of films. A medical room is used by visiting practitioners

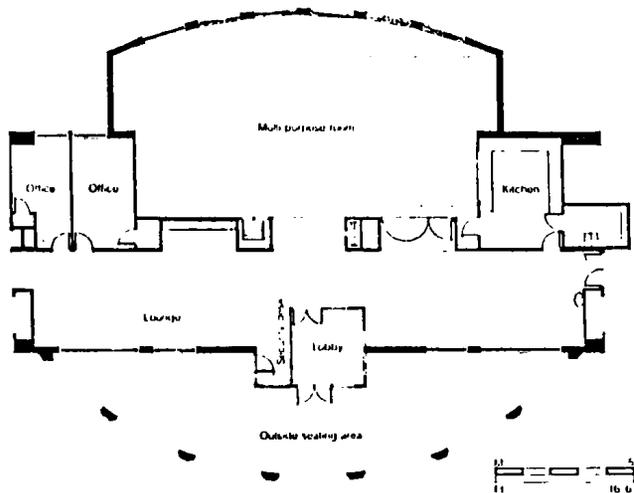
(mainly chiropodists). The entrance with its semi-circular canopy is a popular vantage point used by residents for observing the comings and goings of the building. Many residents pass the time of day simply sitting in the lounge area and this being adjacent to the dining room brings with it the opportunity of becoming a major social center within the development.

There are 140 one-bedroom two person flats (including 14 for wheelchair users). The area of a typical dwelling is 630 sq.ft.¹¹

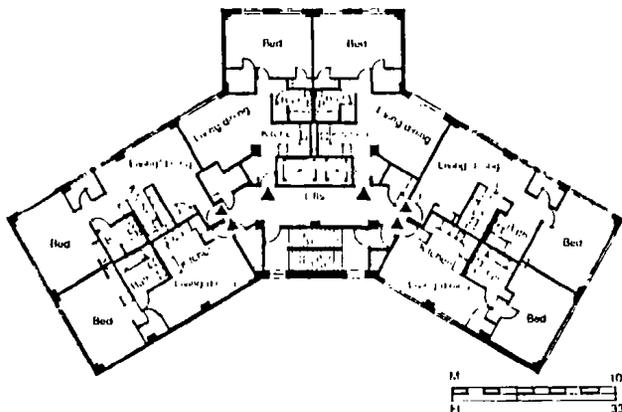
Site plan. Part of the conversion programme included new elevators and wider doorsets to accommodate wheelchair users. The fabric of the blocks was also upgraded to improve sound and thermal insulation and to minimize maintenance.



Plan of the communal area



Plan of typical dwellings. This layout of units around a central core in high rise developments does not have double daylight aspect but the corner or street rooms do offer an opportunity for social contact.



GENERAL VIEW

#3

TITLE: Golda Meir House

20

BUILDING TYPE: Five level/brick

PRINCIPLE CLIENT: Jewish Community Housing for the Elderly, Boston.

MAJOR USERS: Elderly residents and staff

ARCHITECTS: Larkin, Glassman and Prager; Project architect: Mayo Larkin

LOCATION: Newton, Massachusetts (suburb of Boston)

DATE: Completed 1979

SITE CONTEXT:

Newton is a suburb of Boston: an area of mainly middle to upper income low-rise family houses. The development itself is an almost rural setting, adjacent to open countryside and a local golf course. Golda Meir house is not located directly adjacent to local facilities. To compensate for this there is a small shop within the development and for those residents who do not drive there are pick-up facilities run by the management agency who are also able to take residents to the city center and to shopping facilities. There is also an adjacent metro trolley system to Boston City Center, which offers reduced fares to senior citizens

BUDGET/FUNDING:

The Federal Office of Housing and Urban Development (HUD) under section B housing units are offered to rent and rents are subsidized in relation to the amount each resident can pay.

WRITTEN ANALYSIS:

With consultant input from Dr. S. Howell of MIT, a major planning aim was to avoid the problem of disorientation within the building. The design team included in the scheme an atrium space over the reception area: this reinforces the reception area as a focal point to the building, with the atrium providing an easily distinguishable landmark on each floor to assist in a person's orientation inside the building. The communal facilities are arranged on a "street" off the reception area on the ground floor. This is a deliberate attempt to introduce normal life patterns into the sheltered environment. For example, the beauty parlour instead of being located at the end of a corridor on a second or third floor, is given a shop front and functions very much as a shop.

PROJECT ANALYSIS:

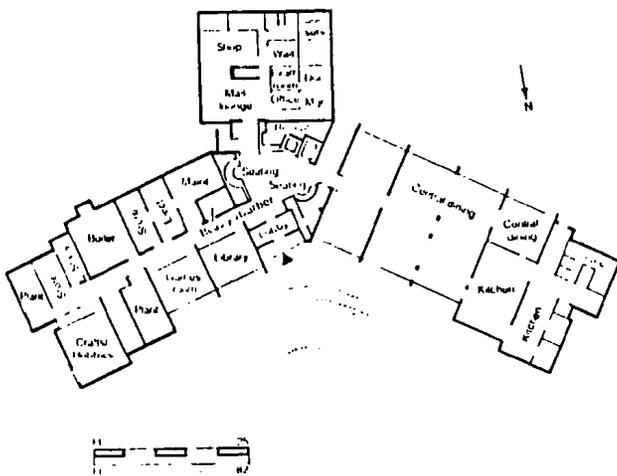
Communal Facilities:

- crafts/hobby room
- games room
- library
- beauty and barber shop
- dining room
- small general store
- mail room/lounge
- laundry

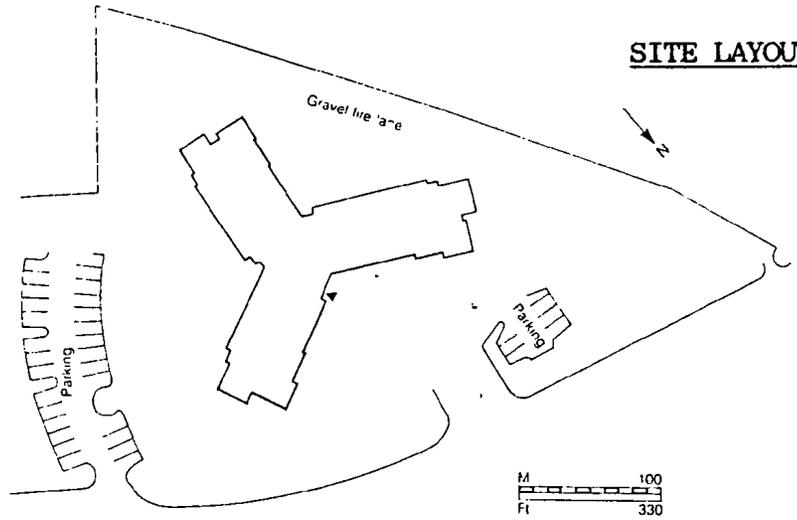
In addition to the communal areas, Golda Meir house also has a small medical facility which includes a doctors' office and examination room, with associated waiting area. There is also a social service office within this suite, to deal with any resident's benefit problems. The reception counter by the main manager's office serves a similar function to a hotel reception, acting as a social center where residents will stop to talk informally with the manager. The sitting area nearby is a favorite vantage point for observing the activities of the reception desk.¹²

Area of typical dwelling
 528 sq.ft. for one-bedroom flats
 708 sq.ft. for two-bedroom flats

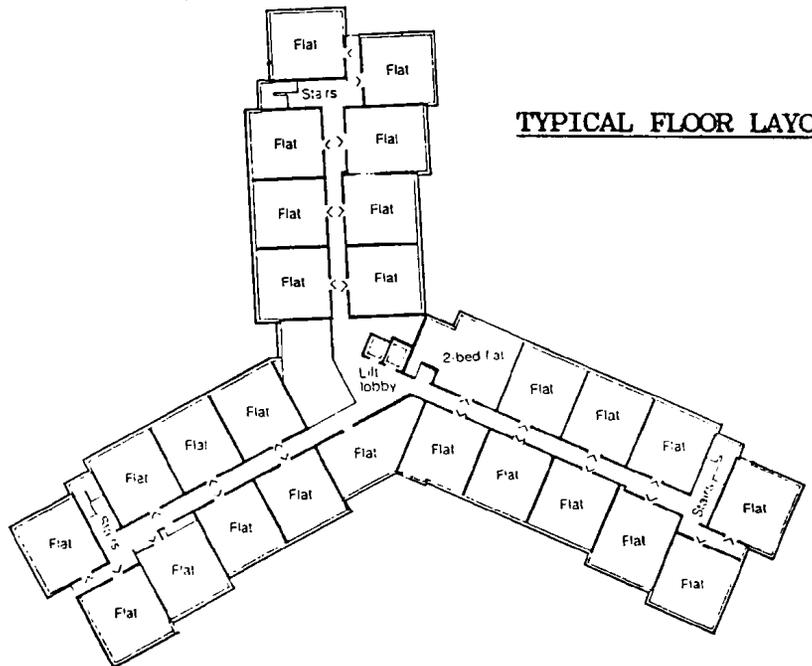
LAYOUT: GROUND FLOOR



SITE LAYOUT



TYPICAL FLOOR LAYOUT



#4

TITLE: The Quadrangle

23

BUILDING TYPE: Ground plus two

PRINCIPLE CLIENT: Life Care Communities Marriott Corporation

MAJOR USERS: Elderly residents and staff

ARCHITECTS: Wallace Roberts and Todd

LOCATION: Haverford, Pennsylvania

DATE: 1988

SITE CONTEXT: The site is near Haverford College in a middle to upper-income residential area.

BUDGET/FUNDING: Privately funded via the Marriot corporation.

WRITTEN ANALYSIS:

The Quadrangle very much reflects the trend in life care provision: that is, to increase the service input and communal facilities. Rather than dispense the communal areas around the campus, the concept has been to centralize them so as to help reinforce the sense of community and to encourage residents to share the activities of their daily lives. The facilities are therefore housed in the building which is also designed to act as a central focus to the whole community.

PROJECT ANALYSIS:

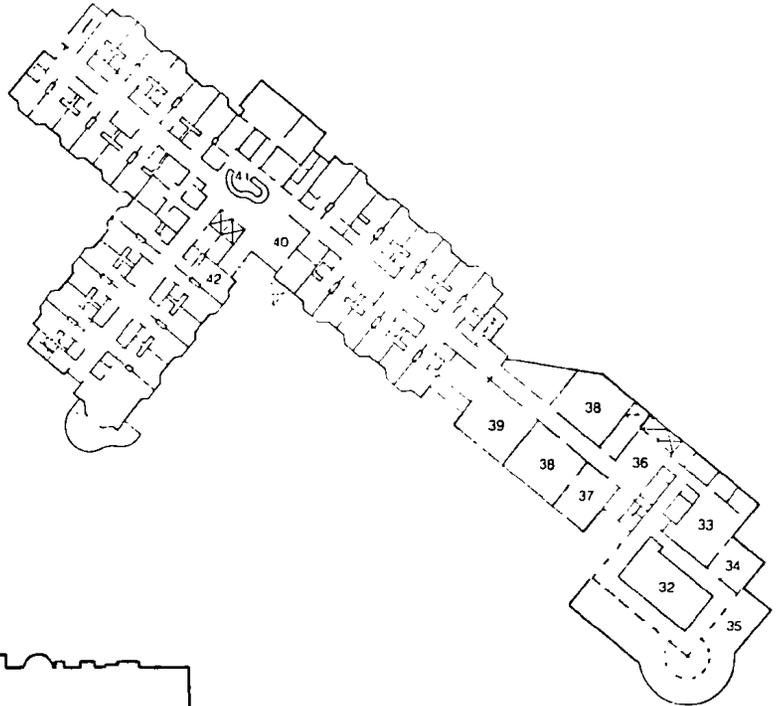
All of the living units at the Quadrangle are linked to the communal facilities by enclosed walkways to enable easy access during inclement weather or where a resident may feel unable to venture outside. Architect Gil Rosenthal and his team at WRT Architects designed this scheme as an opportunity for residents to maintain an independent lifestyle, but within an essentially supportive community. The planning concept was to provide three levels of care:

1. Fully independent living-This would be in a self-contained one-or two-bedroom apartments.
2. Personal care-Where residents need some support to maintain a level of independence, single bedrooms are provided, each with their own bath, wc and shower, but without a kitchen the resident will take meals in the personal care communal dining room, or may elect to dine in the skilled care dining room.

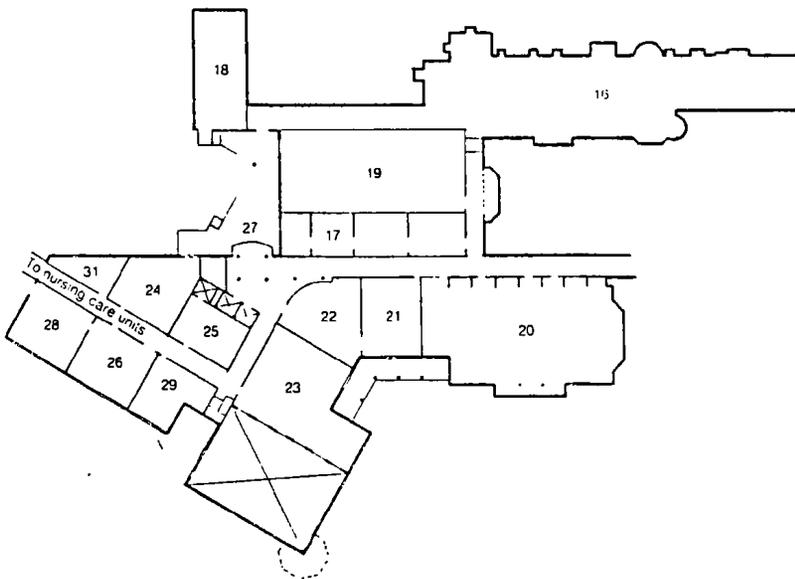
3. Skilled care-This would service the needs of the very frail elderly resident, whose state of health necessitates 24-hour nursing care. The facilities are similar to those of personal care, except that only an en suite wc is provided and no shower.¹³

Layout of the skilled nursing facility

- 32 Swimming pool
- 33 Physical therapy
- 34 Jacuzzi
- 35 Sun terrace
- 36 Residents' entrance
- 37 Clinic waiting
- 38 Clinic offices
- 39 Skilled care dining
- 40 Skilled care
- 41 Nurses' station
- 42 Bedroom (typical)



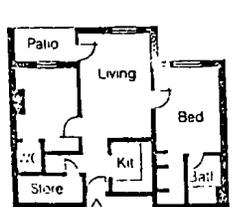
- 15 Basement services
- 17 Shops
- 18 Repair shop
- 19 Mechanical
- 20 Craft studio
- 21 Day care
- 22 Beauty shop
- 23 Recreation
- 24 Shipping/receiving
- 25 Service storage
- 26 Offices
- 27 Loading docks
- 28 Skilled care dining
- 29 Staff lounge



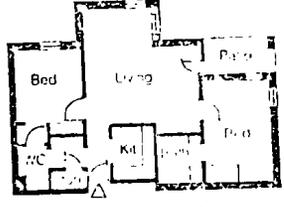
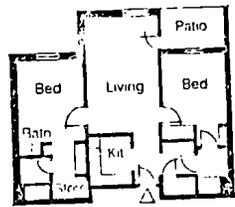
Plan of one-bedroom unit



Plan of two-bedroom unit



Plan of large two-bedroom unit



2-bedroom unit (with study)

2-bedroom unit

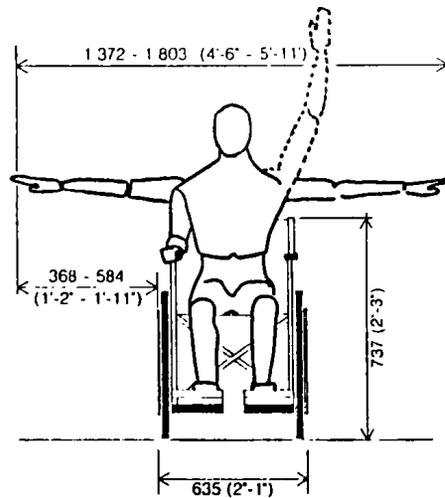
Large 2-bedroom unit type A

ACTIVITY ANALYSIS

Activity-based Design Criteria

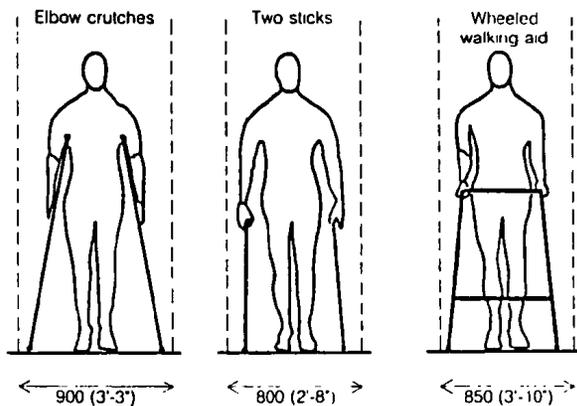
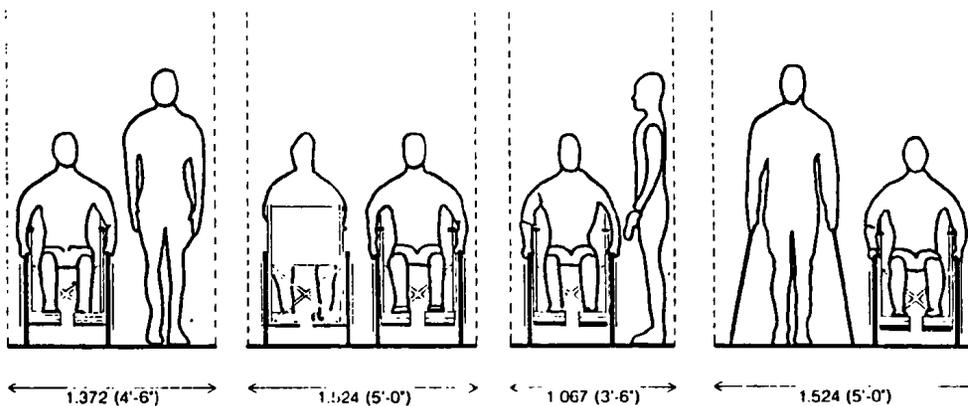
Key dimensions for wheelchair user.

This chapter describes the main activities of elderly people, and the associated design criteria relevant for housing elderly people. The aim is to present the activities from a user's point of view, so that the designer will understand the rationale behind certain design criteria. It is assumed that the designer or developer will already be familiar with the widely-available data on access standards for disabled or wheelchair users, though this information is summarised on pages 67-69, and references are given to the various source publications listed in the bibliography.

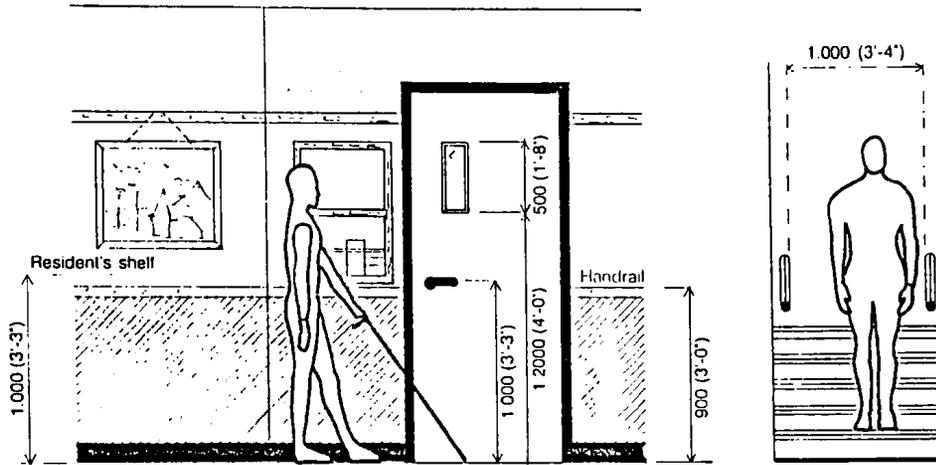


Key dimensions to minimum clearance for two persons in circulation areas.

Key dimensions to minimum clearance for one person in circulation areas.

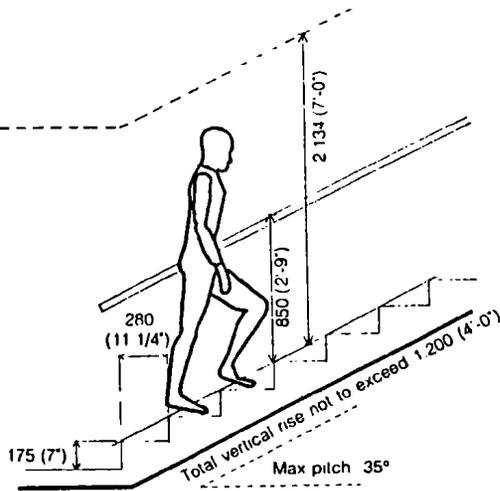


Key dimensions to main corridor elevation.

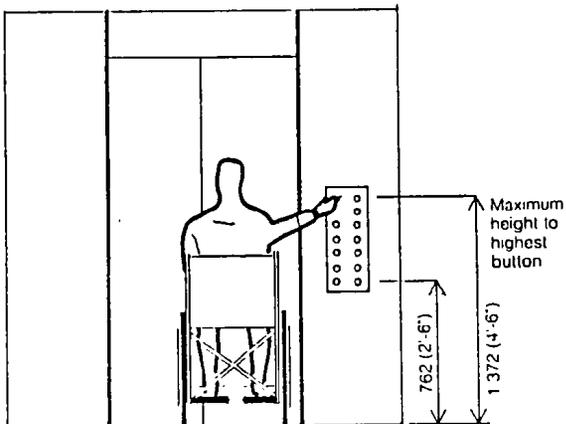


Key dimensions to staircases. Local building codes should be checked for compliance with fire and safety regulations.

See lower illustration on p. 81 for lighting.

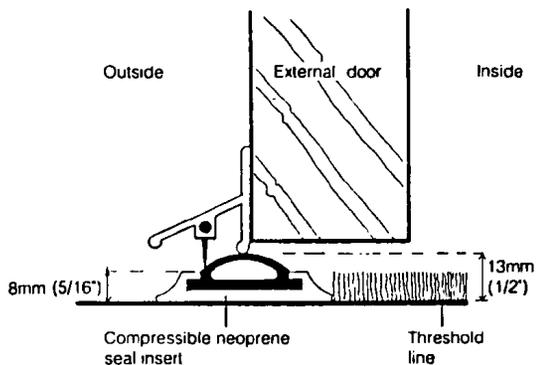
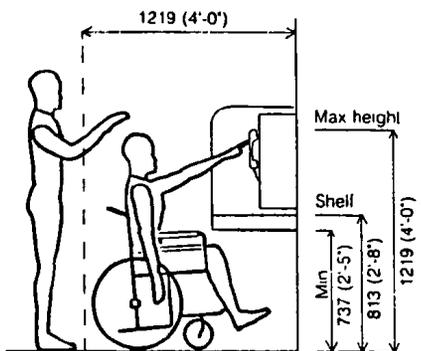


Key dimensions at lift controls for wheelchair user.



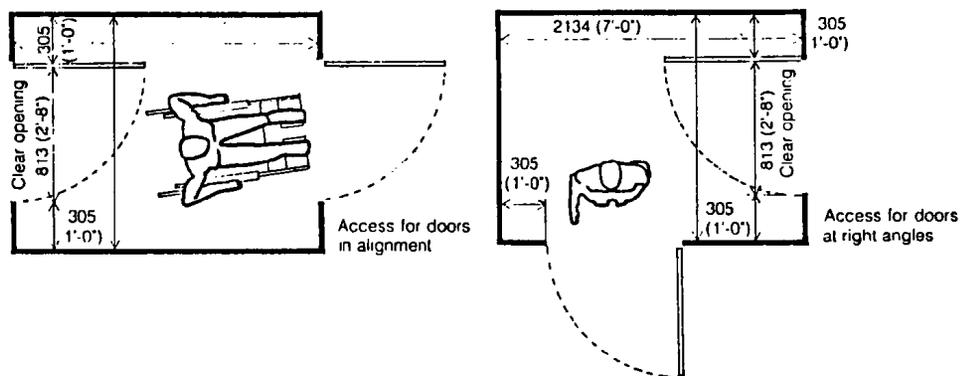
Key dimensions to public telephone booth.

Raised thresholds should be avoided. Instead, thresholds with compressible Neoprene inserts are recommended.

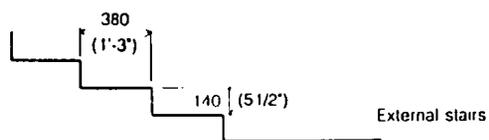
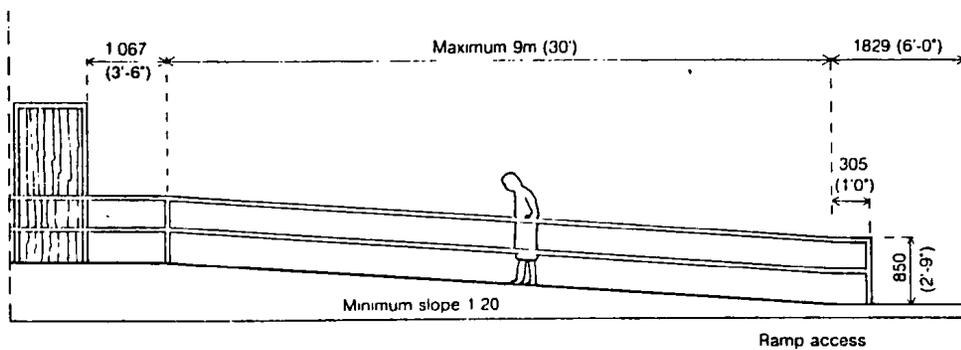


Key dimensions for minimum lobby widths taking into account wheelchair access.

Note: internal doors within dwellings are sometimes better reduced to a minimum of 775mm (2 ft 6 1/2 in) to maximise usable floor space.



Key dimensions to ramp access and external stairs.



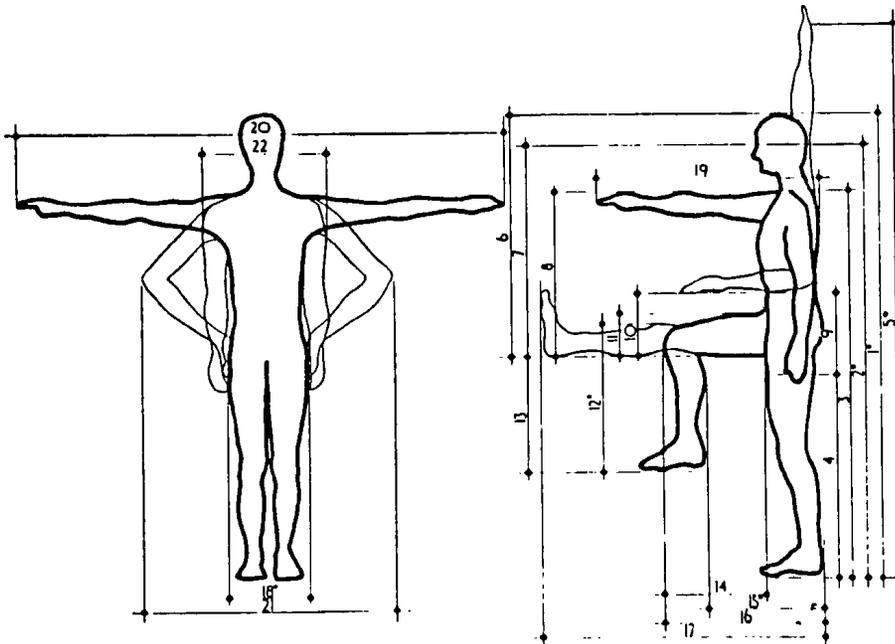
Key dimension	Elderly women aged 60 to 90 Percentiles			Examples of applications to design problems	
		5th	50th		95th
18 Seat width	mm in	321 12½	388 15	455 18	95th: Width of seats, minimum distance between armrests.
Sitting and standing					
19 Forward reach	mm in	665 26	736 29	807 34	5th: Maximum comfortable forward reach at shoulder level.
20 Sideways		—	—	—	5th: Limits of lateral finger tip reach; subtract 130mm to allow for full grasp.
21 Width over elbows		—	—	—	95th: Lateral clearance in work space.
22 Shoulder width	mm in	381 15	431 17	481 19	95th: Minimum lateral clearance in work space above waist.

For other key dimensions diagrams see also the following pages:

- 77 Threshold detail.
- 77 Ramp and external stairs.
- 77 Telephone booths.
- 83 Staircases, corridor elevations.
- 84 Lift/elevator controls.
- 84 Lift/elevator layout for stretchers etc.
- 89 Seating in communal areas.
- 90 Dining room planning.

- 96 Assisted bathroom.
- 100 Access around beds.
- 102 Sill heights for views out.
- 115 Kitchen unit working heights.
- 117 Linen storage.
- 122 Car parking spaces.

The various sections of this chapter also contain generic plans, block plans, and comparative plan types.



ESTIMATED DIMENSIONS OF BODY REACH AND CHARACTERISTICS OF THE BRITISH POPULATION FOR ELDERLY WOMEN AGED 60 TO 90 YEARS.

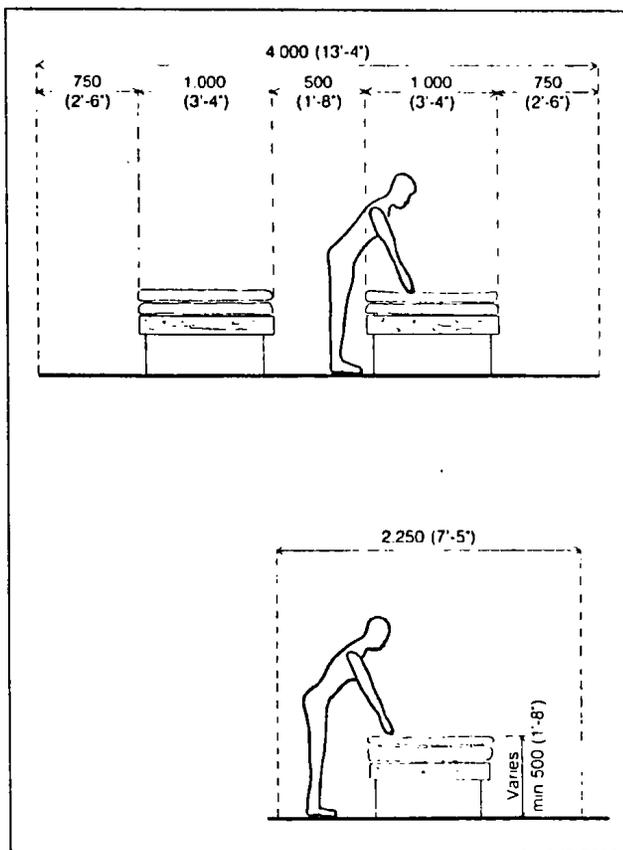
Because in nearly all situations to which the architect applies anthropometric data, users will be clothed, the data in this table includes allowances for clothing and shoes. The allowances for foot-

wear are 31mm (1 1/4in) for elderly women. The allowances for clothing affecting most of the dimensions from item 6 on, range according to circumstances from 3mm (1/8 in) to 20mm (3/4 in). For areas in which clothes are not worn, as in bathrooms and shower rooms, appropriate deductions should be made. Anthropometric data in this table is from Tutt, P. and Adler, D. *New Metric Handbook*, Architectural Press, 1981.

Key dimension		Elderly women aged 60 to 90 Percentiles			Examples of applications to design problems
		5th	50th	95th	
Standing					
1 Stature	mm in	1454 57	1558 62½	1662 65½	
2 Eye height	mm in	1338 52½	1441 57	1544 61	50th: Height of visual devices, view panels, notices, etc.
3 Shoulder height	mm in	1195 47	1288 48½	1375 54	5th: Height for maximum forward reach.
4 Hand (knuckle) height	mm in	653 25½	732 29	800 31	95th Maximum height of grasp points for lifting.
5 Reach upwards	mm in	1710 67½	1852 73	1994 78¼	5th: Maximum height of controls – subtract 40mm to allow for full grasp.
Sitting					
6 Height above seat level	mm in	739 29	798 31	857 34	95th Maximum seat to roof clearance; allow for headgear (men 75mm, women 100mm) in appropriate situations.
7 Eye height above seat level	mm in	621 24½	684 27	740 29	50th Height of visual devices above seat level.
8 Shoulder height above seat level	mm in	479 19	529 21	579 23	5th: Height above seat level for maximum forward reach.
9 Lumbar height		—	—	—	50th: Height of table above seat.
10 Elbow above seat level	mm in	143 5½	193 7½	243 9½	50th: Height above seat or armrests or desk tops.
11 Thigh clearance	mm in	93 3½	131 5	169 6½	95th: Space under tables.
12 Top of knee, height above floor	mm in	460 18	510 20	545 21	95th: Clearance under table above floor or footrest.
13 Underside thigh, height above floor	mm in	366 14½	404 16	442 17½	50th: Height of seat above floor or footrest.
14 Front of abdomen to front of knees, distance		—	—	—	95th: Maximum forward clearance at thigh level from front of body or from obstruction, e.g. desk top.
15 Rear of buttocks to back of calf, distance	mm in	424 16½	470 18½	516 20	5th: Length of seat surface from backrest to front edge.
16 Rear of buttocks of front of knees, distance	mm in	520 20½	579 23	638 25	95th Minimum forward clearance from seat back at height for highest seating posture
17 Extended leg	mm in	890 35	967 38	1025 40	5th (less than): Maximum distance of foot controls, footrest etc. from seat back.

Checklist of Key Dimensional Data

Activity	Planning allowance	Text reference (page)																		
Site location	200m (650 ft) to regular bus service. 600m (2000 ft) to post office, chemist/drug store.																			
Entering the building	Ramp access 1:20 preferred. Maximum gradient 1:12. Distance from main entrance door to elevators to be kept between 9m (30 ft) and 24m. (80 ft) Entrance door <i>minimum</i> clear opening width 813mm (2 ft 8 in).																			
Circulation areas	Corridors: Minimum (preferred) length of any corridor used by residents 30m (100 ft). A variation in corridor width between 1200mm (4 ft) and 1800mm (6ft) with increased width occurring at node points. Rough cast fairfaced brick work to be avoided up to 1524mm (5 ft). Handrails to be fixed to both sides of corridor at a height of 900mm (3 ft). Doors in circulation areas minimum clear opening width 813mm (2 ft 8 in). Lifts: Minimum two lifts to be considered in the event of one lift failing. Lift size preferred at 1100mm x 1500mm (3 ft 7 in x 4 ft) plus extension to total length of 2200mm (7ft 3in) Stairs Preferred width 1m (3 ft 4 in). Maximum pitch 35°. Preferred tread 280mm (11¼ in). Preferred riser 175mm (7 in).																			
Communal facilities	Lounge areas: 3.6m ² (39 sq ft) per resident (aggregate). Secondary sitting spaces to be clustered around main lounge areas or in association with family groups for 4-10 people. Allow 2.2m ² (24 sq ft) per anticipated resident to use space. Dining areas 2.6m ² (28 sq ft) per resident (to be increased if dining areas include for non-resident attendants).																			
		Post room Minimum 0.28m ² (3 sq ft) per resident. Laundry If used by residents, two 3.5kg (8 lb) washing machines and two 4.5kg (9 lb) tumble dryers per 30 dwellings. If centralised on-site staff operated facility 0.8m ² (8 sq ft) per dwelling. Hairdressing/beauty parlour: 14m ² (150 sq ft) should be sufficient for up to 100 residents. To be located as shop-front facility on main circulation route at ground floor.																		
		Shared kitchen 10m ² (107 sq ft) per family group of 10 bed sitting rooms.																		
		Shared use facility Assisted bathroom One assisted bath per 25 residents including a minimum of one per floor. Typical area 11m ² (120 sq ft) Short stay accommodation One room at 12m ² (40 sq ft) per 30 residents.																		
		Dwellings																		
		<table border="1"> <thead> <tr> <th>Dwelling type</th> <th>Metres square</th> <th>Feet square</th> </tr> </thead> <tbody> <tr> <td>Single bed unit</td> <td>14-24</td> <td>150-260</td> </tr> <tr> <td>Bed-sit (efficiency)</td> <td>33-42</td> <td>350-450</td> </tr> <tr> <td>One-bedroom apartment</td> <td>33-60</td> <td>350-650</td> </tr> <tr> <td>Two-bedroom apartment</td> <td>60-93</td> <td>650-1000</td> </tr> <tr> <td>Three-bedroom apartment</td> <td>67-260</td> <td>720-2800</td> </tr> </tbody> </table>	Dwelling type	Metres square	Feet square	Single bed unit	14-24	150-260	Bed-sit (efficiency)	33-42	350-450	One-bedroom apartment	33-60	350-650	Two-bedroom apartment	60-93	650-1000	Three-bedroom apartment	67-260	720-2800
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Three-bedroom apartment	67-260	720-2800																		
		Note: the actual size of dwelling units will vary according to the anticipated lifestyle and market range of potential residents. Trends in both the United States and in the United Kingdom indicate a high demand for improved space standards, particularly in the private sector. Internal doors to dwellings: minimum clear opening width 775mm (2 ft 6½ in)																		
		Areas used by staff Warden's flat (if on-site accommodation is required). 70m ² 753 sq ft Consulting room/Doctor's office 11m ² 120 sq ft Nurse base/office 11m ² 120 sq ft Clean utility 6m ² 65 sq ft Dirty utility (At least one per floor) 6m ² 65 sq ft																		



APPROACHING BEDS

1. Entering the building
2. Circulation areas
3. Communal and shared use facilities
4. Private living spaces
5. Areas for use by staff

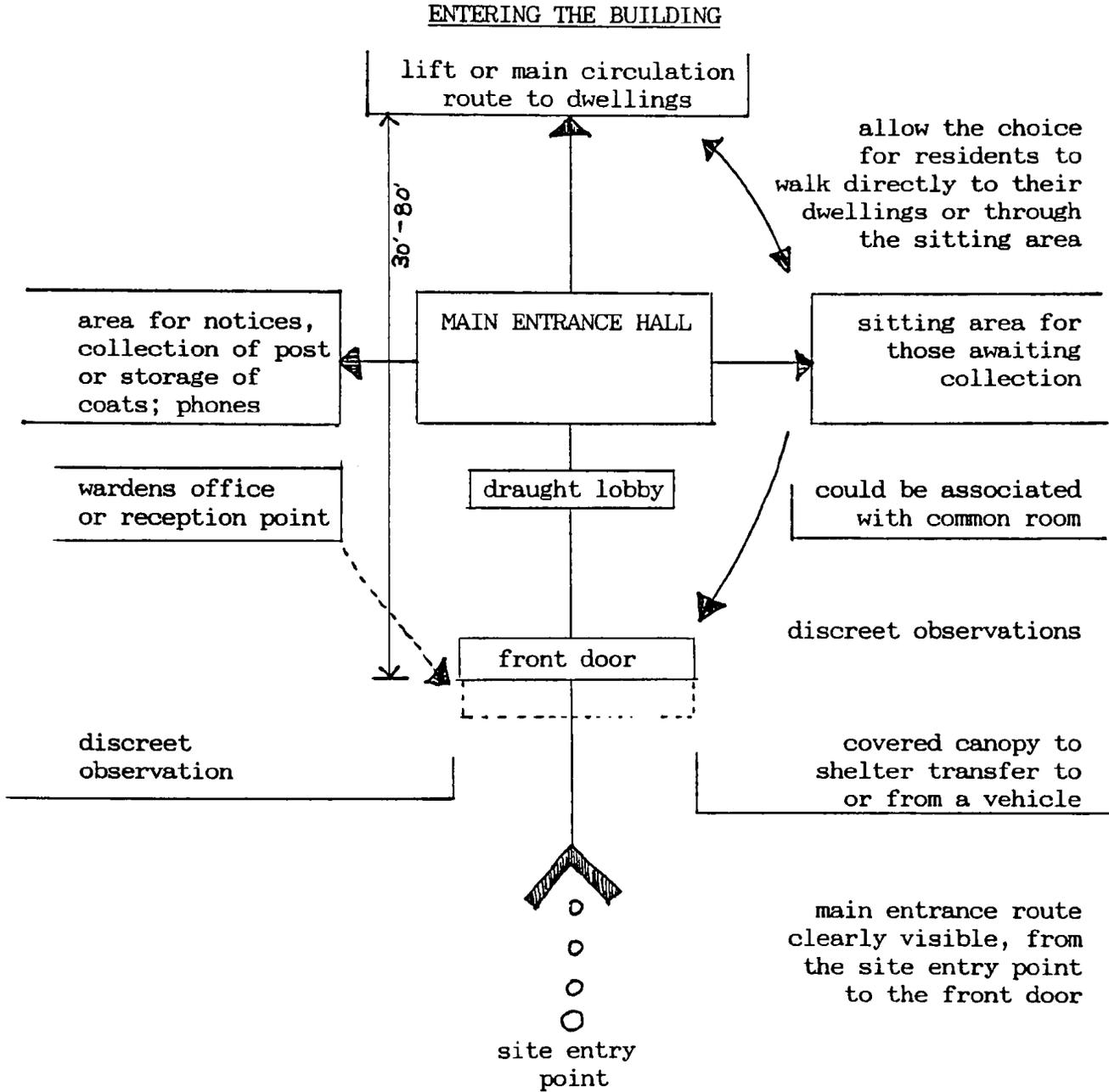
MAJOR ACTIVITIES

DESCRIPTION:

1. Entering the building.

The first experience one has of a building as a visitor or as a prospective resident, will be of the main entrance. The quality of this design and the ease that one finds within their journey into the building will certainly influence their first impression.

The access in and out of the building, marking the boundary between the sheltered environment and the outside world, should ideally allow that boundary to be easily crossed. Most schemes will have one main entry point from which the main circulation route will run. Everyone entering or leaving the building will therefore pass through the main entrance. This underlines the importance of this area as a main focus of activity. Residents waiting for a taxi or relatives will also need to congregate around this area.¹⁴



ACTIVITY ANALYSIS: PRIMARY ACTIVITY AREA LIST

35

1. Entering the building
2. Circulation areas
3. Communal and shared use facilities
4. Private living spaces
5. Areas for use by staff

MAJOR ACTIVITIES

DESCRIPTION:

1. Entering the building.

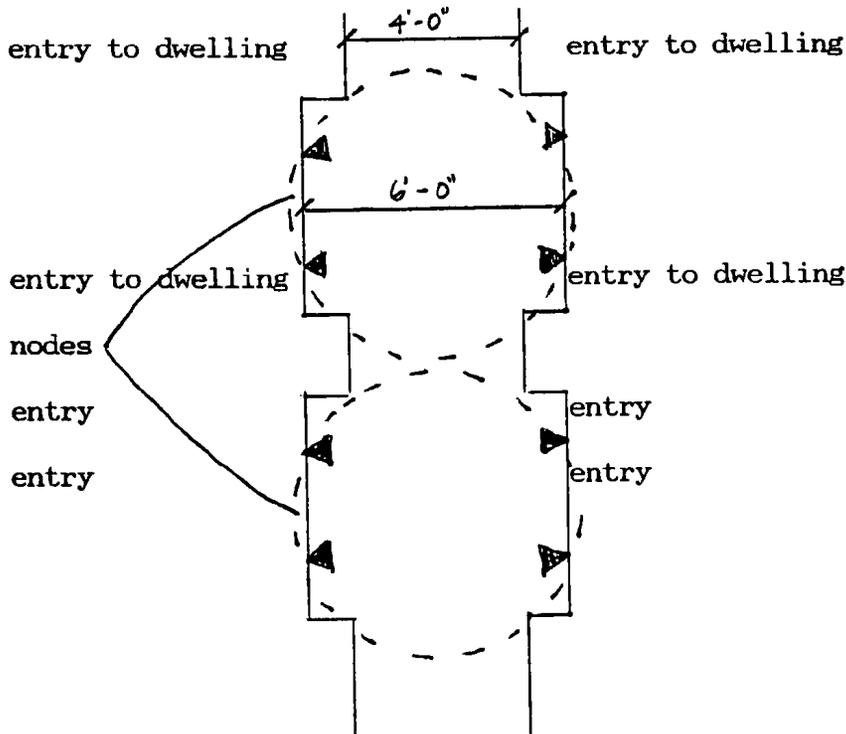
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DESCRIPTION:

2. Circulation areas

The circulation areas perhaps more than any other space in the building will bring into focus the need for the designer to be aware of the implications of the mental and physical disabilities that occur over time to residents. A major design objective should therefore be to ensure that the environment does not contribute to confusion or disorientation, but instead allows residents to move around the building without the anxiety of getting lost or confused. For those residents from self-contained houses, the corridor will represent a new experience. Some residents have described their corridors as "like a cell block, cold and uninviting." Perception of the corridor can also change over time, as a result of the ageing process. Reduced visual activity may cause a long corridor of 100-200 ft. to appear as a tunnel with approaching figures appearing distorted. If circulation distances are too far, at best this will cause an unnecessary nuisance to residents and at worst it will contribute to restricting their ability and desire to leave their dwelling.¹⁵



Lighting in corridors is a critical issue.

secondary activities

1. walking
2. strolling
3. talking
4. watching
5. standing

DESCRIPTION:

3. Communal and shared use facilities

Perhaps the main distinguishing feature of housing designed specifically for elderly people, as opposed to general housing, is its inclusion of communal and shared use facilities. These include designated rooms or spaces within the development which residents may share or use together for a whole range of activities. Earlier projects did not always possess such facilities. Communal facilities have expanded and have become an increasingly important component in housing for elderly people. The communal facilities should provide the opportunity to socialize, but should do so in a very unobtrusive way. At best good design can encourage social interaction: it cannot enforce it.

Primary activities:

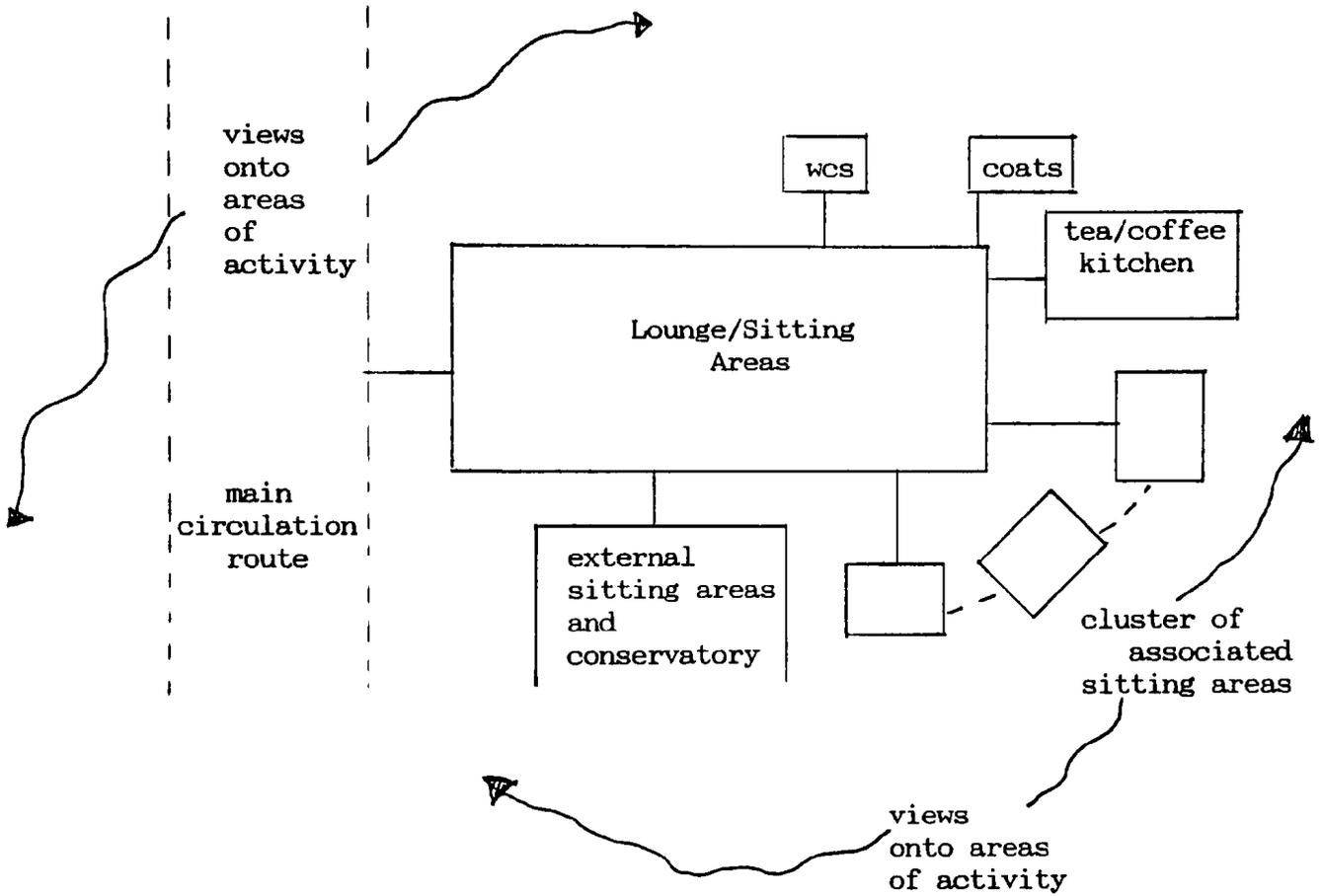
1. seating
2. dining
3. service

DESCRIPTION:

1. Seating

Unlike the other spaces in the building (the dwellings, and the circulation areas, the sitting areas will be used largely out of choice. Earlier schemes tended to provide one large room on the ground floor where residents were expected to sit and talk and to socialize. However, such spaces, without adequate subdivision, can be uncomfortable to be in, especially for small groups of people or even for an individual. Continuing the theme of providing as rich and as varied an environment as possible, especially for those residents who may become building bound, a variety of sitting areas in terms of size and character should therefore be considered, rather than just one large room.

LOUNGE/SITTING AREAS
DIAGRAM:



2. Dining Area:

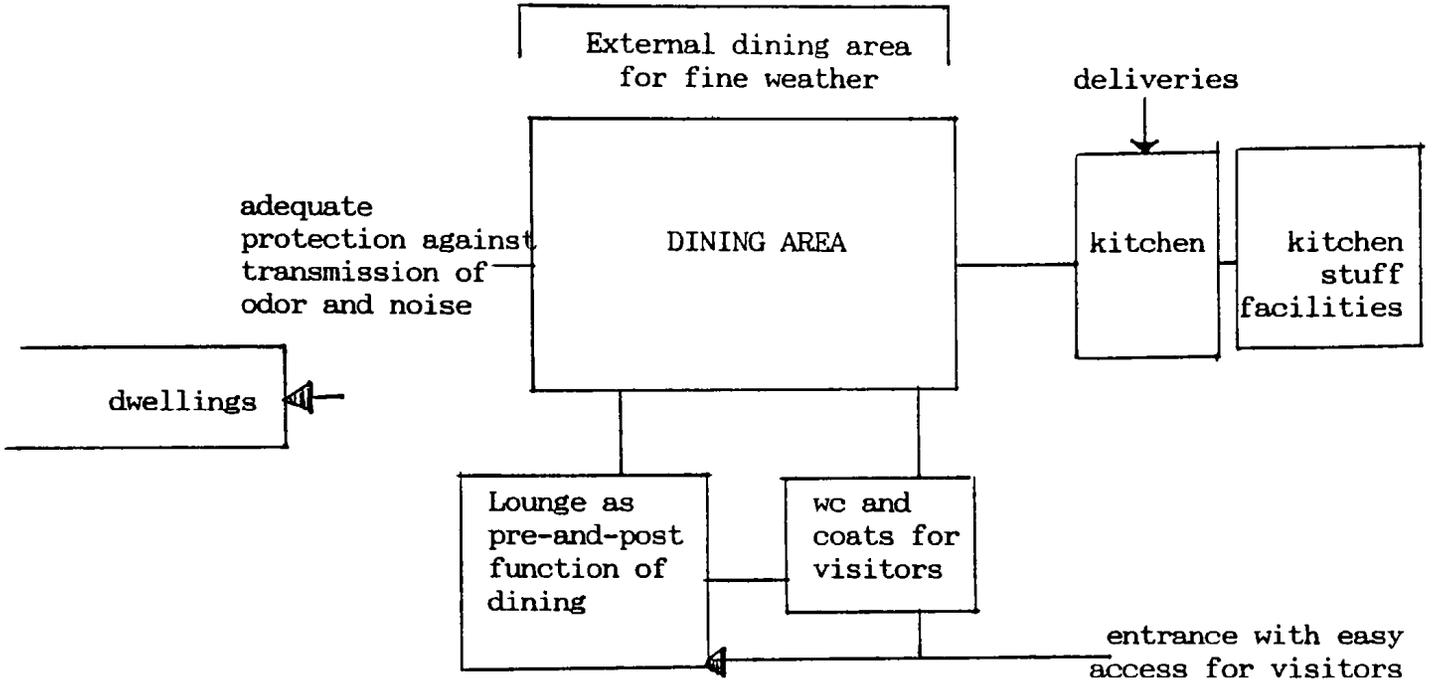
40

In schemes in which at least one hot meal is to be centrally prepared and eaten regularly by all or even a large group of residents, a separate dining area will be required. For the active elderly, facilities for preparing their own meals are an important part of their retaining their independence. Even in those schemes where it is assumed that residents can cook for themselves, this capacity will inevitably deteriorate over time. Meals can of course be centrally prepared, on or off site, and delivered to individual dwellings. Dining is not just the activity of eating a meal, It is instead a setting for social interaction which can become the main focal point to a residents day. Residents will tend to congregate around the dining area up to one or even two hours before meals are served. This will be to meet friends and converse. Even after the meal they may wish to linger, either in the dining room itself or in a nearby lounge. In the United States many life care communities open their restaurants to non-residents, to allow for a greater social interaction with a wider community and to extend the opportunity for potential residents to experience at first hand the benefits and facilities of moving to that development.

Secondary Activities

1. eating
2. watching
3. talking/listening
4. playing games

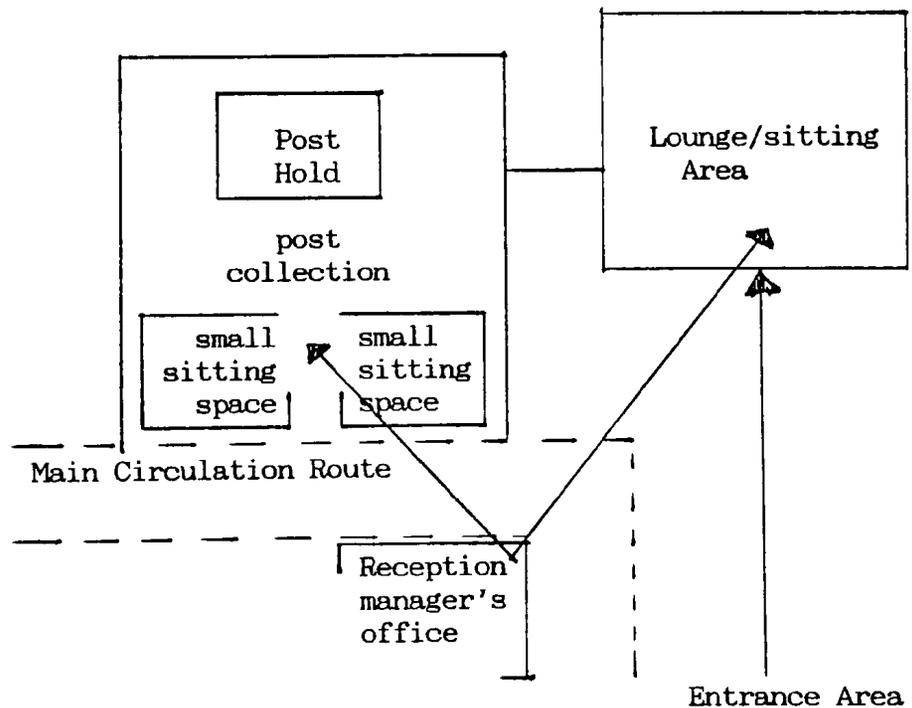
DINING
LAYOUT
DIAGRAM



3. Service Facilities
The Post Room

As the ability to visit friend and family may diminish, or as those friends and family themselves age, the personal letter assumes a greater significance as a means of communicating with those outside the building. The telephone is of course a vital link, but with time to spare, letters can become treasured items. In many American schemes this has been interpreted into making the delivery of the post a communal activity. Once or twice a day residents will gather around the mail boxes waiting for the post to arrive. Then they will sit and read their letters and tell each other about their family's news, or proudly display photographs. Assistance is also offered in a similar way in reading out and explaining the contents of a letter to those unable to read because of failing eyesight.

POST
LAYOUT
DIAGRAM



LAUNDRY

The activity of the residents washing their clothes can be an important part of the weekly routine. Many residents now moving to developments, especially in the private sector, may therefore have been accustomed to having their own washing machine and tumble dryer in their kitchen. They will no doubt expect to see a similar facility in their new dwelling. For the frail elderly it will be their own physical disability rather than the advent of new technology that will render the communal laundry obsolete. It cannot be assumed that even active elderly will always be able to walk to the communal laundry, or carry their washing. Schemes designed specifically for older elderly therefore tend not to include a communal laundry and instead laundry is either dealt with by staff on site or handled by a commercial laundry service off site.

HAIRDRESSING/BEAUTY PARLOUR

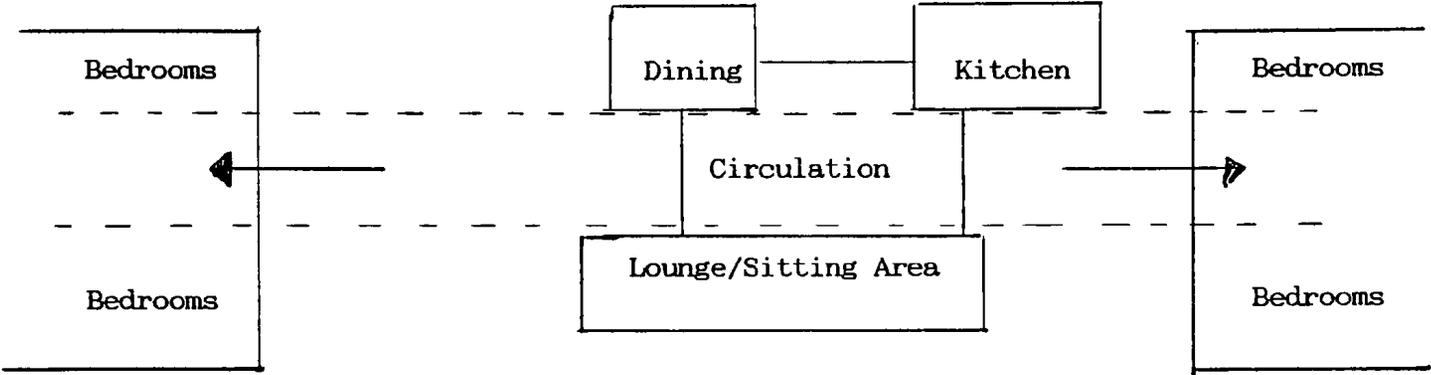
Many developments have included a room in which residents may have their hair washed and cut. A common error is to allocate this space as a hobbies room when it is not in use for hair dressing. This can in practice lead to the rooms' being under-utilized, as it is unable successfully to fulfill both functions. Instead, the hairdressing facility should not be necessarily viewed as a room but more as a shop. This then takes on the familiar and established image of the beauty parlour. It's location should be on the ground floor directly off the main circulation route.

SECONDARY KITCHEN AND DINING FACILITIES

These facilities allow residents to support each other, with staff assisting as necessary. Residents can prepare light meals and beverages as they please and still maintain that essential degree of control. There is a concept of residential unity grouped together in numbers such as 10. That is called a family group. Each family group has it's own lounge, dining room, kitchen and assisted bathroom. The policy is to allow each resident with as much independence as possible. The appeal of this concept is that it allows the scale

of development to be broken down and smaller neighborhoods to be identified.

FAMILY
GROUPS
LAYOUT



SHARED USE FACILITIES:

45

ASSISTED PERSONAL WASHING SPACES:

Physical or mental frailty, or even a temporary disability, can also cause a person to require assistance with washing and toilet functions. Because of the importance of being able to maintain and support an individual's dignity and privacy, even assisted washing should ideally be undertaken inside their dwelling. However, if they are unable to get in or out of a bath, this will necessitate a degree of mechanical assistance to ensure this can be done safely and without undue stress on both bather and helper. The expense and the space needed for such special mechanical equipment will dictate that the facilities have to be shared. This will entail the resident's having to leave their dwelling to be bathed. Many residents may, of course require assistance in using the toilet.

SHORT-STAY ACCOMMODATION

In developments which consist mainly of single bedroom or bed-sit dwellings there will be a need to provide additional short-stay accommodation. This set-up is advantageous for prospective residents who may wish to assess the facilities before moving in. Temporary residents may stay due to a short period of convalescence, or while their family is on vacation. Guests who are visiting relatives may also wish to use the short-stay accommodation.

DWELLING UNITS: THE PRIVATE LIVING SPACES

SINGLE-BED UNIT

This is usually a room of approximately 150 sq.ft. This type of accommodation is usually provided specifically for single, frail elderly people who require a high level of nursing or care assistance. Residents of single-bed units may, by definition, not be capable of preparing their own food, may well need assistance to walk to the wc and may not be able to use it without help. In short, they would require assistance with all the activities

of daily living. The serving of main meals in a central dining area will provide an important incentive for a journey to the dining room, for those able to manage it. The majority of a resident's time might, however, be spent in their own room: either in a chair or in bed watching television or listening to the radio/reading or just sitting.

BED-SIT OR EFFICIENCY UNIT

Normally, a self-contained combined living/eating/sleeping arrangement, with an approximate minimum gross floor area of 350 sq.ft. The unit would be self-contained with its own kitchen area and bath/wc and would be mostly for single people. The activities of the residents of efficiency apartments would be similar to that of a resident in a single-bed unit except efficiencies or targeted more to the active elderly, who are more independent. The bed-sit or efficiency has the advantage of being adaptable to frail single elderly, but can have the disadvantage of not representing a conventional living pattern for the active elderly. This is particularly seen in the use of the same space of living and sleeping. Sleeping necessitates a high degree of privacy and security.

APARTMENTS WITH SEPARATE BEDROOMS

The same basic patterns of activity would apply as for the bed-sitting units, except that the sleeping area is now in a separate room. It is therefore closer to conventional living patterns and also allows for two persons to be accommodated. The two-bedroom layout may offer the greatest flexibility for its users. Research confirms that two-bedroom units tend to sell more quickly than one-bedroom units, even though their price is higher. The increase in the amount of space for storage and keeping a resident's existing furniture is another advantage of the two-bed unit.

KITCHEN DESIGN

The principles of good domestic kitchen design apply equally to kitchens for elderly people. However, certain criteria

should be reconsidered and the convenience, safety and efficiency of the layout be addressed. A particular problem noted in many existing schemes is that storage is often inadequate and inaccessible. Because of budget constraints, kitchens have always been planned to a minimum. However, as the population of residents begins increasingly to include those who have been used to larger, well-equipped kitchens, user expectations of more space will grow. It is important to remember that the kitchen may well still be seen by residents as the center of their home, so this important base from which to enact the role of the mother/wife should, as far as possible, be allowed to remain a part of the new environment.

BATHROOM DESIGN

Being able to use one's own bathroom and toilet without assistance or having to surrender to outside help are the areas of activity which, more than any other, represent that subtle threshold of change from independent living to institutional care. As with many of the other features of housing for elderly people, therefore, the quality and design of the hardware can help save that threshold from being crossed prematurely. One of the design issues regarding bathrooms has been whether or not to provide a shower. There is no evidence to support claims that showers are more convenient or safer to use than baths. The fear of slipping in the bath or of being unable to get out of it is understandable. To help in maneuverability, grab-rails are often fitted.

STORAGE

The ability to store personal items is a test of how well the design of the unit allows for residents to identify with their new surroundings by bringing with them furniture, appliances or simply mementos from their past. The problems of storage can be aggravated by an increasing disability to reach up or down to retrieve stored items from a cupboard.

Four categories of storage may be identified:

1. clothes storage
2. linen storage
3. broom cupboard
4. general storage¹⁶

AREAS FOR USE BY STAFF

ADMINISTRATION-WARDEN OR HOUSE MANAGER

In many respects the warden or house manager can become a focal point for the residents, fulfilling a multitude of roles which will vary according to the management policy of a particular development and, to some degree, the personality of those involved.

NURSING AND MEDICAL FACILITIES

It is always advisable that the designer should listen to the medical staff who will use the facility and develop a brief in close association with the medical planning advisor of the funding or client body.

CONSULTING ROOM/DOCTOR'S OFFICE

Because residents will not always be able to visit their family doctor, in schemes containing over 60 units consideration should be given to providing rooms with the same type of basic facilities as a doctor's office, in which visiting medical staff may consult, examine or treat residents.

NURSE'S BASE OFFICE

Associated with any medical rooms there should also be an office of at least 120 sq. ft. for any nursing or care staff who may have to carry out administrative duties and store records in a confidential and secure place.

UTILITY ROOMS

Utility rooms serving both the medical facility and resident's dwellings will be required, to accommodate the following functions.

CLEAN UTILITY

For storage of equipment, drugs and for the testing and storing of samples, e.g. blood and urine.

DIRTY UTILITY/SLUICE ROOM

For the cleaning of soiled bed linen, emptying of bed pans etc.

STAFF FACILITIES

Depending upon the number of staff employed, there should be adequate provision for staff rest rooms, in which coffee breaks and light meals may be taken. Staff showers and wcs should also be taken.

GENERAL STORAGE

A cleaning store room to include a cleaner's sink and cupboards for storing cleaning equipment should be located on each floor.¹⁷

SYSTEMS PERFORMANCE CRITERIA

FLOORS

Non-skid flooring is definitely the most frequently repeated slogan in elderly housing. This is due to the fact that elderly people are liable to falls. It is also important to note that visual slipperiness just as important in this connection as actual slipperiness. Highly glossy floor surfaces can be psychologically dangerous to the elderly even though the floor in question may actually be non-skid.¹⁸

The respect to the flooring materials themselves, a number of different materials are commonly suggested. These include unglazed tile, cork, vinyl asbestos tile, unfinished wood and, ideally, wall to wall carpeting. The use of improper floor waxes will tend to nullify the non-skid qualities of the original flooring materials.

Adhesive tiles may not be everyone's favorite, but they are easily cleanable and do not rule out other coverings. New hard, permanently shined finishes should be considered if financially feasible, and if they represent no slipping hazard.

DOORS AND HARDWARE

All doors should be wide enough to accommodate a wheelchair. A width of three feet is appropriate for a person walking with crutches or for access with a stretcher. Doors should be easily opened and closed. Heavily sprung doors should be avoided. A contrasting color on the door frame is usually desirable to emphasize the position of the door. Double-acting and particularly revolving doors tend to be especially hazardous for the aged.

Large, easy to grasp door knobs should be chosen preferably octagonal or hexagonal, rather than round. A number of authorities have come to recommend lever-type handles as being the most desirable.

Closets should always be fitted with doors, contrary to some current practices, particularly in the case of combined living-sleeping arrangements.

WINDOWS

All windows should be designed so that they are easy to clean and large enough to

allow views out where appropriate and to satisfy the daylight requirements of the various room functions. Windows should be easily opened and with good control of the amount of opening required.¹⁹

Windows serve the triple functions of providing ventilation, light and view. Particular care should be taken to insure the most satisfactory performance of each of these functions, since the elderly tend to spend more of their time indoors than do younger people.

Generally a pleasant view is especially important. Generally this is interpreted as a quiet pastoral scene; however, there are a number of the elderly who prefer a view of an active bustling street where they can watch cars go by.

LIGHTING

The need to be able to see clearly, and to distinguish objects, services, signs, clocks, notice boards and changes of level is important. This is particularly important because of the increased danger of falls. In the daytime windows and interior surface treatments should aim to minimize glare and silhouetting. For artificial lighting overall lighting will tend to flatten surfaces. Some investigators have indicated that an aged person may require as much as three times the amount of light necessary for a younger person. There should be a relatively uniform distribution of light and careful selection of properly shielded light sources due to the aged's difficulty in adapting to changes in brightness.

In order to avoid unnecessary stooping and bending which are apt to bring on dizziness, all convenience outlets should be located at waist height. Two feet or three feet from the floor are generally recommended heights.

HEATING

Various physiological changes which occur with advancing age result in different requirements for comfort. Generally, the aged require a higher temperature of approximately 80F. Careful attention must be paid to the location of heat sources and the location of the thermostat so as to maintain as

uniform a temperature distribution as possible. it should also be noted that the aged suffer more readily from cold feet than younger people so that both warm floors and relatively high floor temperatures are desirable.

If steam or hot water systems are used, care should also be taken to avoid exposed sources, i.e., radiators and risers which could cause serious burns if an elderly person stumbled against one or reached for support as so happens. For circulation areas a minimum background heating of 65F should be maintained.

SOUND

Dwelling units should, insofar as is practicable, be insulated from sources of excessive noise both within and without the building. These sources commonly include neighbors, public corridors, garbage chutes, elevators, heavily trafficked streets and playgrounds. Distant and impersonal noises are not as annoying and may actually be desirable in that they tend to be reassuring.

As their hearing deteriorates, residents may have to talk louder to be heard or may increase the volume of a television or radio. The overall result can be that sound levels are quite high, in both communal areas and dwellings. All this implies careful attention to the acoustic design of the fabric of the building.

ALARM AND COMMUNICATIONS SYSTEMS

- An emergency alarm system should enable residents to summon assistance from staff on a 24-hour basis.
- The system should link all dwellings plus any communal areas, WCs, bathrooms etc to a central control.
- The system should be simple to operate and must also be fully maintained and serviced under a management contract.

Methods of activating an alarm:

- Pulling a cord, which should be located in each room of a dwelling including the bathroom.
- Pressing a pendant that will be worn by the resident, usually around the neck.

-Failing to step on a pressure pad
outside the bathroom, i.e.
activation of alarm by passive
default.

SPATIAL QUALITIES

DWELLING UNITS

The dwelling units will be extensively used by the elderly. It is here that most of the daily activities will take place. This is due to the periods of ill health and convalescence that will ultimately occur. The living space should be as pleasant as possible and with a positive presence to ease the tenants anxieties. If possible a living room with a sleeping alcove and a separate bedroom should be available. This ensures a separation of non-sleeping activities which may be appropriate for the user. The alcove space should be sufficient in size to accommodate a bed, night table, storage chest, closet and chair; the essential items of any sleeping area. Provision should also be made for closing the alcove off from the rest of the unit by a curtain or, preferably, a flexible partition. With the divider open, the alcove becomes a part of the living space and enlarges it. The colors and art design of the room should not be so "busy" so as to alleviate confusion, and contrast should be used where appropriate to ensure clarity.²⁰

SITE ENTRY/EXIT

The entrance/exit must be of adequate spatial proportion to the neighborhood setting to be recognizable and yet not overpowering. The entrance exit should be designated by a sign stating the name of the development. Lighting should be designed to provide an even level of illumination to prevent glare at the entrance/exit.

ARRIVAL COURT

The turn-around circle should have radii which will permit easy maneuverability for both cars and buses. Where first floor dwelling units exist, there should be a buffering or screening device used between the entrance drive and the face of the building.

PARKING

Where dwelling units exist at the same elevation as the parking area, the edge of the parking area should be located approximately half the height of the building away from the building to preserve

a sense of visual foreground for the residents. This is not a hard and fast rule but rather a suggested goal.

RECREATION

The activities which can occur within a recreation area are divided into two categories, active and passive activities. It is important that a visual stimulus of attraction be a part of the passive activity area. One possibility is to organize passive and active areas so that the passive areas become a place to watch the active areas. There must be enough separation, however, so that active areas do not overpower the passive areas. A range of passive areas going from a quiet nook to a sideling seat at a volleyball court might be a solution to this problem. The outdoor recreation area should have human scale.

FOYER/LOBBY

The foyer and the lobby should be bright, welcoming, and easy to maintain. They should project an image of spaciousness and residential activity and engender pride in residents. The spatial volume of the lobby, principally its height should be greater than normal residential ceiling height. It should have sufficient floor area to accommodate both circulation and people standing still in chance meeting or decision making.

The lounge should be a more intimate space having a more nearly residential ceiling height. It should not be a room with doors, but rather should be a contained space with free opening to the lobby and surrounding circulation elements. Individual or small groups of people should feel comfortable in the lounge. Its spatial composition and furniture arrangement should provide both very private areas and less private transition areas to the very public lobby areas.

The overall spatial character and organization of all areas of the entry/exit activity should offer the resident the opportunity to choose between privacy or public contact in the conduct of the activity. The lobby and lounge should be capable of being adapted for a variety of short-term social activities. The latter

requirement means more space will be required than that necessitated by circulation and furniture placement.

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MANAGEMENT

The management office should accommodate its intended functions without becoming officious or overbearing in character. It should probably have normal residential ceiling height; and it should be enclosed with glass as much as possible, both to enhance surveillance and achieve an open, welcoming quality.

Secondary spaces:

- visitor reception
- rental activities
- development administration

LAUNDRY

Laundry rooms should be designed with adequate clearance around the equipment for use and maintenance. Work space for using the laundry folding table should be provided such that circulation is not impaired.

The social functions of a laundry room can best be accommodated by room design which provides a natural lounge area.

MAIL AND PACKAGE DELIVERY

In large developments, care should be taken to avoid the institutional appearance which results from a single large bank of mailboxes. Perhaps an island with mailboxes on several sides of a u-shaped configuration offers the opportunity to present small groups of mailboxes to which an individual resident can relate. It should be possible to reach this room without being forced into extensive public contact or unwanted interpersonal confrontations.

TRASH DISPOSAL, BUILDING MAINTENANCE, AND SERVICE

These facilities should be grouped whenever possible, forming a compact and efficient complex. This guideline can of course be waived where specific functional requirements so dictate. All floors of multi-story buildings will be provided with janitor's closets equipped with slop sinks; the closets should be sufficiently large to store the

maintenance supplies and equipment normally required for the amount of floor area served.

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CENTRAL FOOD SERVICE

The dining room should be bright and warm in image. Its physical size should never be allowed to destroy the normal levels or personal privacy required for pleasurable dining. Care should be taken to avoid the environmental feeling projected by institutional cafeterias. The desired image is closer to that of a restaurant. Depending on its size, the ceiling height should be somewhat greater than normal residential dimension. A large simple rectangle is not necessarily acceptable. A series of interlocking smaller dining areas is more desirable. At the very least, large simple spaces should be modulated with movable screens and planting boxes. Windows and lights should be placed to modulate the total space into smaller seating groups.

The dining room may be usable as a large group meeting and multi-purpose activities room where the room is so designed to allow convenient and rapid conversion to other uses. Where this capacity is achieved, the dining room may function as an effective substitute for the community room.

HEALTH CARE

Examination rooms should be at least 8 by 10 feet in dimension. This facility should be so located that it can be effectively converted to other uses if the clinic activity is no longer needed.

HOUSEKEEPING ASSISTANCE

In some developments where a high number of dependent elderly residents are anticipated housekeeping assistance services may be provided. The facilities required for this activity are simple. They include a small supply room on each floor, a central laundry, pick-up and delivery point, a central supply and equipment room, and an employee locker room.

RECREATION AND SOCIAL

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Spatial character will of course be determined by function; however, general character should be informal, bright, and warm. Spatial structure in terms of volume, sequence, and texture should enhance those qualities. The user should be able to immediately sense the organization of the recreation and social complex. Large group spaces should have proportionately higher ceilings.

Opportunities should be provided for residents to control the appearance of the complex through the use of wall decorations or other flexible design options.

It is essential that use flexibility be achieved in the design of the complex both in terms of short and long time frames. To this end consideration should be given in the design to the use of both movable and demountable partitions. Ceiling systems should accommodate the moving of walls.

DWELLING UNIT SPACES

ENTRY/EXIT

The space should have sufficient wall area to accommodate a mirror; there should also be a clear dimension area of at least 3'-6" to 4'-0" square for putting on coats as well as greeting guests.

GENERAL LIVING

The living area is likely to become the focus of the dwelling unit for many residents. The size of the space, however, is often not as important as good planning which effectively accommodates the living activity, while also accounting for circulation, doors, windows, and furniture. This does not mean, however, that a small space is desirable; in fact the living area should be of sufficient size as to allow some excess infloor area for such temporary activities as exercising, ironing in front of the television set, etc. Provision of floor area beyond the minimum space required by the

furnishability test will also insure the accommodation of a wider range of lifestyles and activity patterns.

The living activities area may be greatly enhanced in spatial character by a higher than normal ceiling if the building type permits.

As a general rule, it has been found that a width of less than 12 feet is difficult to utilize effectively. It has also been found that rectangular rather than square space is easier to furnish and to zone for different activities. Consideration should be given in dwelling units of larger than standard size to subdividing the living activities area into two separate areas such as a living room and den/sewing room combination. This can also be accommodated by room configurations (such as L-shaped) which are easily subdivided by furniture arrangement. This approach is particularly effective where there are two residents in a unit who wish to carry on different activities simultaneously.

SLEEPING/DRESSING

As a guide to space formation, it is noted that bedrooms with the smallest dimension of less than 9'-6" tend to be difficult to furnish, and circulation in the bedroom may also become difficult.

PERSONAL HYGIENE

All personal hygiene spaces, both bathrooms and lavatories should have privacy locks which can be easily unlocked from the outside in case of emergency, the key type of emergency. The key type of emergency release is not desirable because there may not be sufficient time to locate the key in an emergency. Outward opening doors should be used so that people can get in easily to help someone who is lying on the bathroom floor, perhaps unconscious or helpless.

Non-slip, easily maintained floor surfaces which are free from changes in level should be provided. The vertical surfaces of bathrooms should be free from sharp corners and edges, unnecessary projections, and breakable materials. This requirement has particular bearing

on room layout and the location of bathroom accessories, such as towel bars, paper holders, ect.

Many bathroom layouts are possible but two are the most common, offering solutions to a wide range of concerns.

STORAGE UTILITY

Tenant general storage, whether it is within the dwelling unit or centrally located, should be at least 12 sq. ft. in floor area and 100 cubic feet in volume for each dwelling unit. If located within the dwelling unit, it may take the form of a closet.

If located in a central room, each tenant storage area should be individually secure and enclosed as a closet or cubicle by walls or heavy duty, small mesh screening. The access door should be at least 30 inches wide and be capable of being locked securely. Storage cubicles should not be stacked one upon the other because this arrangement would require stopping and/or reaching for use and this may be beyond the physical capabilities of the elderly. Each storage cubicle should be well lighted. Interior surfaces should be painted or otherwise treated to allow for easy cleaning. Floors should be covered with a durable and washable material-exposed, untreated concrete is undesirable because of dust.²¹

SPACE LIST

<u>SENIOR CITIZENS GROUP HOME</u>	<u>SQ.FT</u>	<u>% OF GROSS AREA</u>
Occupied area (60 residents)		
Residents bedrooms		
Managers apartment		
GROSS AREA	12,090	36
Common area		
Recreation		
Dining-kitchen		
Office		
Corridors		
GROSS AREA	15,560	48
Utility Area		
Storage		
Mechanical		
Garage		
GROSS AREA	5,430	16
TOTAL GROSS AREA	33,080	100

COST ANALYSIS

I. COST PER UNIT

per square foot for building type, 1988	\$45.84
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II. COST OF STRUCTURE

Total gross sq. footage of structure	\$33,080.00
Multiplied by calculated cost estimate	<u>\$45.84</u>

TOTAL BUILDING COST ESTIMATE	\$1,516,387.00
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III. COST OF SITE DEVELOPMENT

Site development (1.5% of building cost)	\$22,745.00
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Parking (.08% of building cost)	\$12,131.00
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Landscaping-including sidewalks (3.5% of building cost)	\$53,073.00
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Utilities (1% of building cost)	\$15,163.00
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Outdoor lighting (1.5% of building cost)	\$22,745.00
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Storm drainage (1% of building cost)	<u>\$15,163.00</u>
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TOTAL SITE DEVELOPMENT COST	\$141,020.00
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IV. EQUIPMENT AND FEES

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Fixed equipment (8% of building cost)	\$121,131.00
Moveable equipment (8% of building cost)	\$121,310.00
Professional fees (8% of building cost)	\$121,310.00
Contingencies (10% of building cost)	\$151,638.00
Administration (1% of building cost)	<u>\$15,163.00</u>
TOTAL EQUIPMENT AND FEES COST	\$530,731.00

V. FINAL CONSTRUCTION COST ESTIMATE \$2,047,110.00

CONTEXTUAL STUDIES
ENVIRONMENTAL/SITE

LOCATION: North/Central Texas

HISTORY: Created from Navarro county, organized, 1853; named for George W. Hill, Republic of Texas official.

PHYSICAL FEATURES: Level to rolling; Blackland soil, some sandy loams; drains to Brazos; Lake Whitney; Navarro Mills Reservoir.

RECREATION: Lake Whitney, Aquilla Lake, Navarro Mills Lake activities; excursion boat on Lake Whitney; Hill College; Confederate museum, historic structures; art festival in June; motorcycle track, varied activities.

MINERALS: Limestone, gas,oil.

1985 POPULATION: 27,400

AREA (sq.mi): 968

ALTITUDE (ft.): 481-864

ANNUAL RAINFALL (in.): 34.47

JANUARY TEMPERATURE MINIMUM: 36

JULY TEMPERATURE MAXIMUM: 96

GROWING SEASON (days): 247

VOTERS REGISTERED: 13,998

BUSINESSES: 596

OIL VALUE: 0

NUMBER EMPLOYED: 5,536

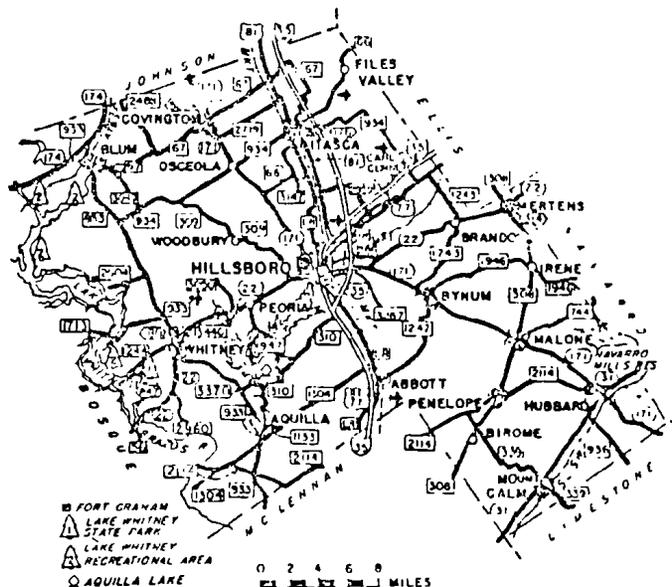
AVERAGE WEEKLY WAGE: \$278.55

ANNUAL WAGES: \$80,187,084.00

BUYING POWER: \$257,491.00

TAX VALUE: \$813,491,846.00

VITAL STATISTICS 1985: Births, 387; deaths,416; marriages,337; divorces,133.



AGRICULTURE: About \$60 million average annual income, 60% from crops including wheat, sorghum, hay, cotton, corn, peanuts; beef and dairy cattle, hogs, horses, poultry.

BUSINESS: Agribusinesses, varied manufacturing, tourism

HILLSBORO: (7,373) county seat; agricultural manufacturing and retail center; Hill college; hospital, old courthouse and depot restoration; Aquilla Lake.

WHITNEY: (1,887) is tourist center; varied manufacturing; hospital, nursing homes.

OTHER TOWNS INCLUDE:

Abbott: (364)	Itasca: (1,637)
Aquilla: (169)	Malone: (348)
Blum: (373)	Mertens: (118)
Bynum: (298)	Mount Calm: (445)
Covington: (273)	Penelope: (222)
Hubbard: (1,782)	Carl's Corner: (230)

PHYSICAL REGIONS:

WEST TEXAS ROLLING PLAINS:

The West Texas rolling plains, approximately the western two-thirds of the north central plains in Texas, rise from east to west in altitude from about 790 ft. at the base of the Caprock escarpment.

GRAND PRAIRIE

Near the eastern edge of the north central plains is the Grand Prairie, extending south from the Red River in an irregular band through Cooke, Montague, Wise, Denton, Tarrant, Parker, Hood, Johnson, Bosque, Coryell and some adjacent counties (Hill included). It is a limestone-based area, usually treeless except along the numerous streams, and adapted primarily to livestock raising and staple crop growing.

EAST AND WEST CROSS TIMBERS

Hanging over the top of the Grand Prairie and dropping down on each side are the east and west Cross Timbers. The two southward-extending bands are connected by a narrow strip along the Red River. The east Cross Timbers extend southward from the Red River through eastern Denton County

and along the Dallas-Tarrant County boundary, then through Johnson county to the Brazos River and into Hill County. The much larger west Cross Timbers extend from the Red River south through Clay, Montague, Jack, Wise, Parker, Palo Pinto, Hood, Erath, Eastland, Commanche, Brown and Mills counties to the Colorado, where they meet the Edwards Plateau. Their soils are adapted to fruit and vegetable crops, which reach considerable commercial productions in some areas in Parker, Erath, Eastland and Commanche counties.

ANNUAL PRECIPITATION BY MONTHS: (inches)

North central Texas

Jan	.014	July	1.31
Feb	3.47	Aug	2.22
Mar	1.00	Sept	4.92
Apr	3.28	Oct	5.06
May	6.64	Nov	3.50
Jun	6.14	Dec	<u>3.42</u>

ANNUAL: 40.92

ANNUAL TEMPERATURE BY MONTHS:

North Central Texas

Jan	48.6	July	85.0
Feb	52.4	Aug	82.6
Mar	59.8	Sept	79.2
Apr	67.6	Oct	65.3
May	71.8	Nov	52.8
Jun	79.5	Dec	<u>45.4</u>

ANNUAL: 65.8

HILL COUNTY TEMPERATURE, FROST, GROWING SEASON AND PRECIPITATION RECORDSTEMPERATURE:

LENGTH OF RECORD: 71 years

JULY MEAN MAXIMUM: 96 F

JAN MEAN MINIMUM: 36 F

RECORD HIGHEST: 113 F

RECORD LOWEST: -1 F

AVERAGE FREEZE DAYS:

LAST IN SPRING: March 19

FIRST IN FALL: November 21

GROWING SEASON: 247 days

NORMAL TOTAL PRECIPITATION:

Jan	2.16	July	1.80
Feb	2.74	Aug	1.79
Mar	2.34	Sep	3.00
Apr	4.36	Oct	3.31
May	4.92	Nov	2.46
Jun	3.31	Dec	<u>2.28</u>

ANNUAL: 34.47

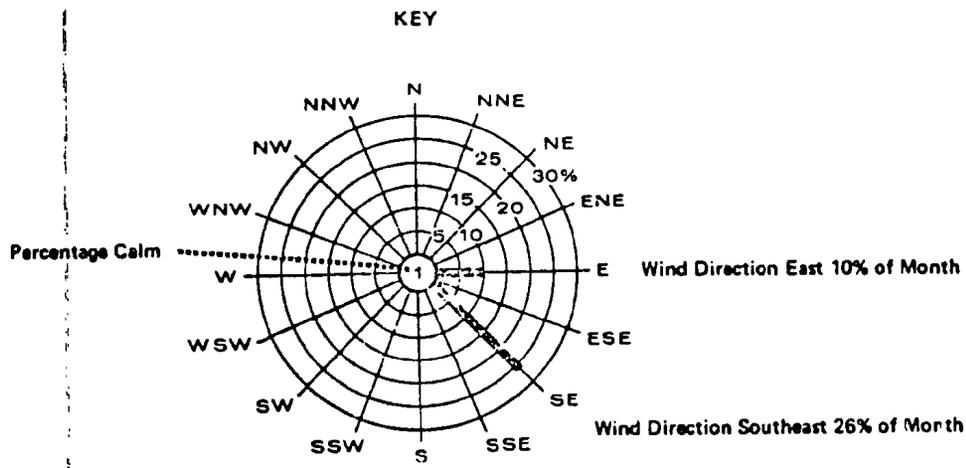
VEGETATION:

The prairie-type grasses and Big Blue Stem, Little Blue Stem, Indian grass, Switch grass, Canada Wildrye, Sideoats Grama, Hairy Grama, Tall Grama, Tall Dropseed, Texas Wintergrass, Blue Grama and Buffalo Grass.

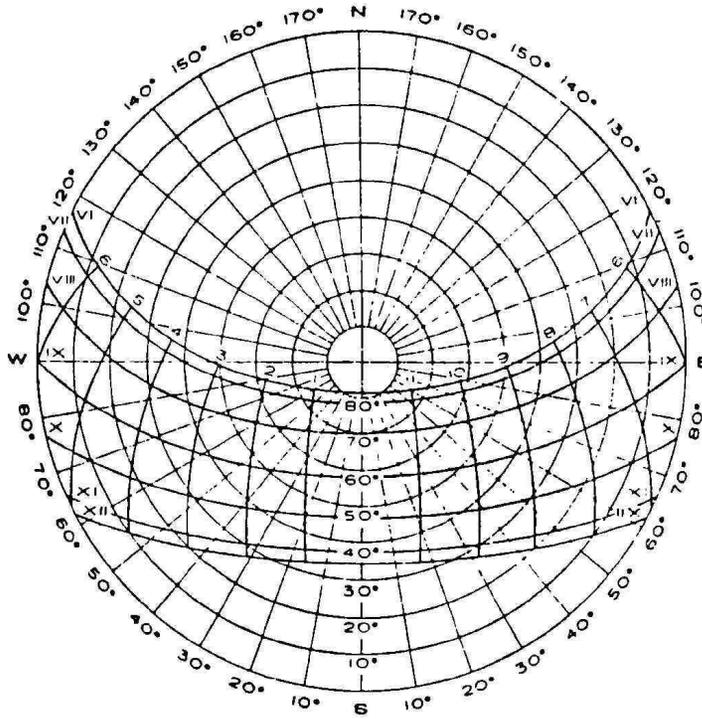
On the Cross Timbers soils, the grasses are composed of Big Bluestem, Little Bluestem, Sand Lovegrass, Indian Grass, Switch grass and many species of legumes. The woody vegetation includes Shinnerey, Blackjack, Post and Live oaks. The entire area has been invaded heavily by woody brush plants of Oaks, Mesquite, Juniper and other unpalatable plants that furnish little forage.

On the Grand Prairie soils, small oak and Juniper trees form a thick cover, and scattered Mesquite trees occur through the area.

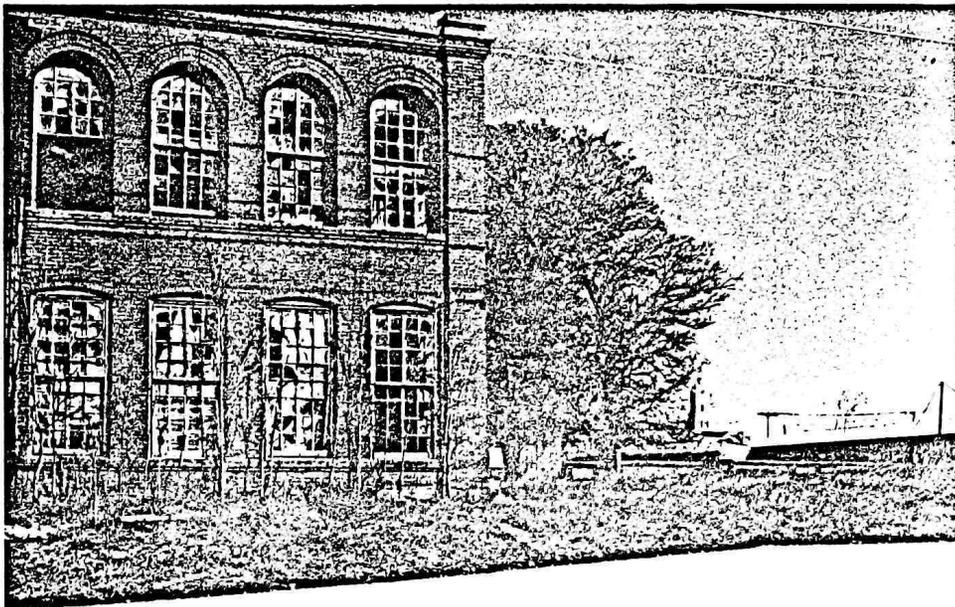
WINDS:



SUN ANGLES :



32°N LATITUDE



SITE ANALYSIS:

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LOCATION:

Hillsboro, Texas: North-west corner of town, bounded by state highway 171 on the west side. The Missouri-Kansas-Texas railroad is the physical boundary on the east side of the site. The north side of the site is on the ridge of a hill with a 25-40 ft. drop. The south side of the site is bounded by a dirt road.

EXISTING/PHYSICAL CONDITIONS:

A historical structure exists on the site and is intended as the vehicle built in four phases ranging from 1901 to 1916. The building was designed and functioned as a cotton mills plan from 1901-1968. From 1968-1980 the building was vacant, and was reopened in 1980 as a ceramics factory up until 1987 and has been unused since.

The structure is made up of four separate parts that originally had diversely separate functions. The building materials are red brick, concrete and wood. The walls are load bearing brick systems while the roof is supported by timber posts. The floors are hardwood floors while the ceilings are wood in some instances and tin in others. The only vegetation on the site is grass and a few trees on the north side. The east side of the site is bordered by large tin storage warehouses that are adjacent to the railroad tracks.

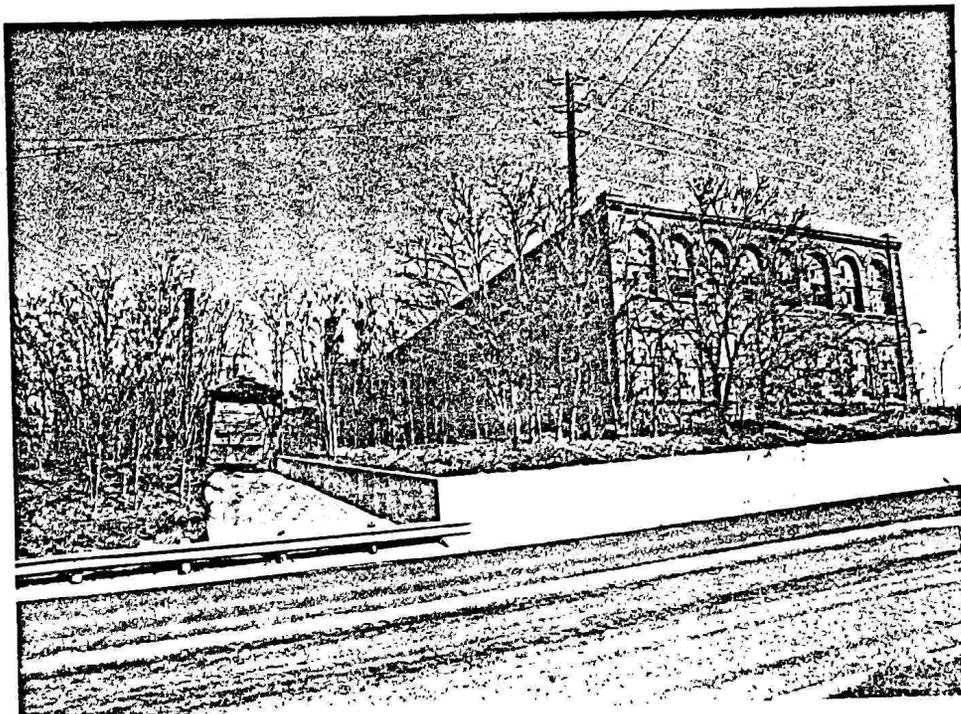


SOILS:24

The entire soil type of the site consists of Houston Black-urban land complex, 0 to 3%.

These deep, nearly level to gently sloping soils are on uplands. Areas are rounded and make up from 20 to 60 percent of this unit; urban land, from 25 to 80 percent; and other soil, from 10 to 13 percent. The soils are in areas too intricately intermingled to be mapped separately at the sale use.

Typically, the Houston Black soils have a surface layer of dark gray, moderately alkaline clay about 6 inches thick. The next layer is very dark gray, moderately alkaline clay that extends to a depth of 36 inches. The next layer is dark gray, moderately alkaline clay grading to gray in the lower part; it extends to a depth of about 56 inches. Below this is coarsely mottled brown, dark gray, brownish yellow, and olive yellow, moderately alkaline clay.



ISSUES, GOALS AND OBJECTIVES

ISSUE:

A Prothetic approach to design: challenge and support.

OBJECTIVE:

The overriding design concept must be to provide a "prothetic environment" that offers appropriate levels of challenge and support when needed.

GOALS:

Challenge and support for a prosthetic environment may be offered by providing variety in:

- the topography of walking routes (e.g., routes with an incline as well as flat routes).
- length of walking routes
- exposure to weather (e.g., covered outdoor areas, shady and sunny areas).
- prosthetic devices or elements to encourage participation by less able residents.
- recreational options, from watching activity to walking, shuffleboard, and so on.
- access to facilities and services both on and off site.
- walking surfaces that are easy to negotiate (e.g. non-slip, non-glare, without ridges or abrupt edges) and those that present more challenge, such as rough garden paths.

NOTE:

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A prosthetic environment is one that permits the optional functioning of the individual by offering support when needed, but allows for independence, challenge, and learning.

ISSUE:

Personalize, change, and control the environment.

OBJECTIVE:

Residents must be able to personalize, change, and control the environment to suit their own needs, abilities, and personalities.

GOALS:

Personalization and control of the environment may be facilitated by a design and management policy that provides:

- movable (versus fixed) site furniture, for residents' control over placement.
- space for residents' own garden amenities, such as birdfeeders.
- display and garden areas for residents' own use.
- individual/unit patios or balconies.
- unit entry vestibules with space for personalization (flowers, etc.).

ISSUE:

Access to community services, facilities, and information.

OBJECTIVE:

Easy access to neighborhood resources, transportation, and information about services and events should be available.

GOALS:

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-a system by which residents can voice their concerns and opinions about the design and provision of on-site facilities may increase the responsiveness of facilities to resident's needs.

-programmed events, of special interest to residents may increase use of facilities and interest in developing other activities that utilize the facility.

-on going reviews of management and programming, both by those outside of the project and by residents, can provide many insights into the appropriateness of policies on use.

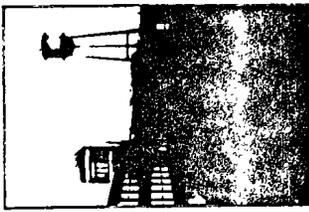
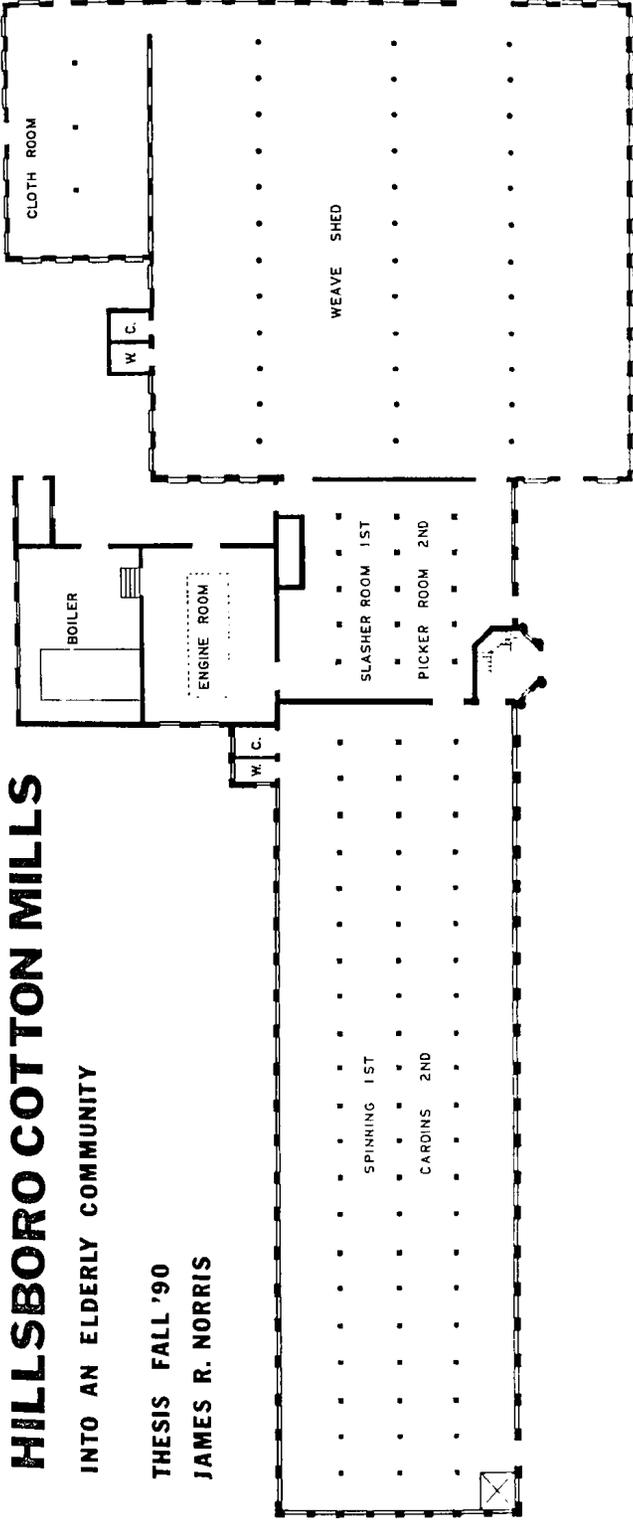
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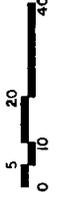
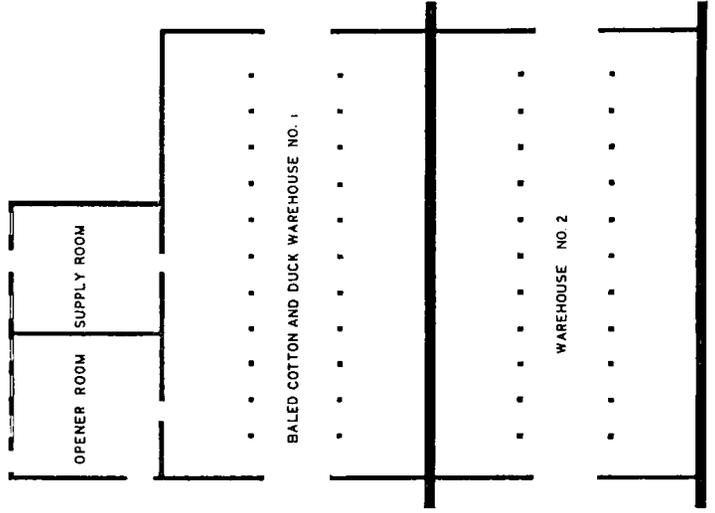
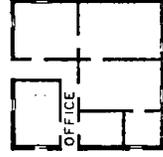
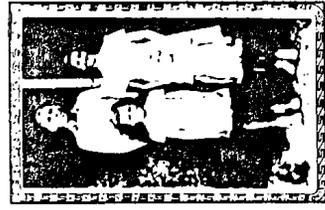
THE TRANSFORMATION OF
HILLSBORO COTTON MILLS
 INTO AN ELDERLY COMMUNITY

THESES FALL '90
 JAMES R. NORRIS

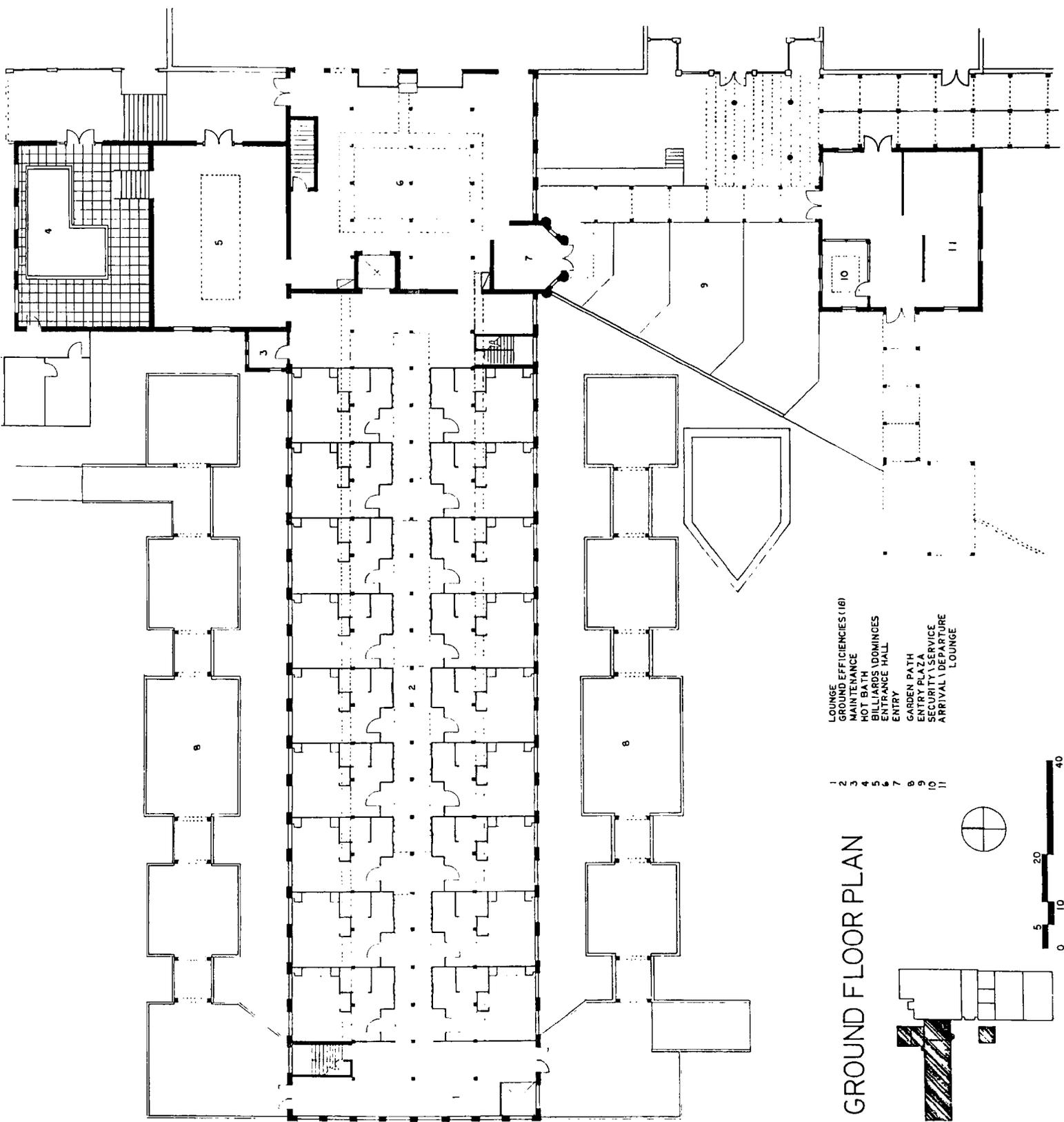


The many years a figure in the town. Many the be preserved and not brought down. Filled with nostalgia and memories of past. Celebrate the place and all at time.

The many years a landmark in the town. Many the be preserved and not brought down. Filled with nostalgia and memories of past. Celebrate the place and all at time.



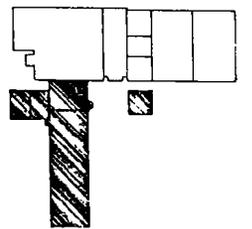
EXISTING FLOOR PLAN

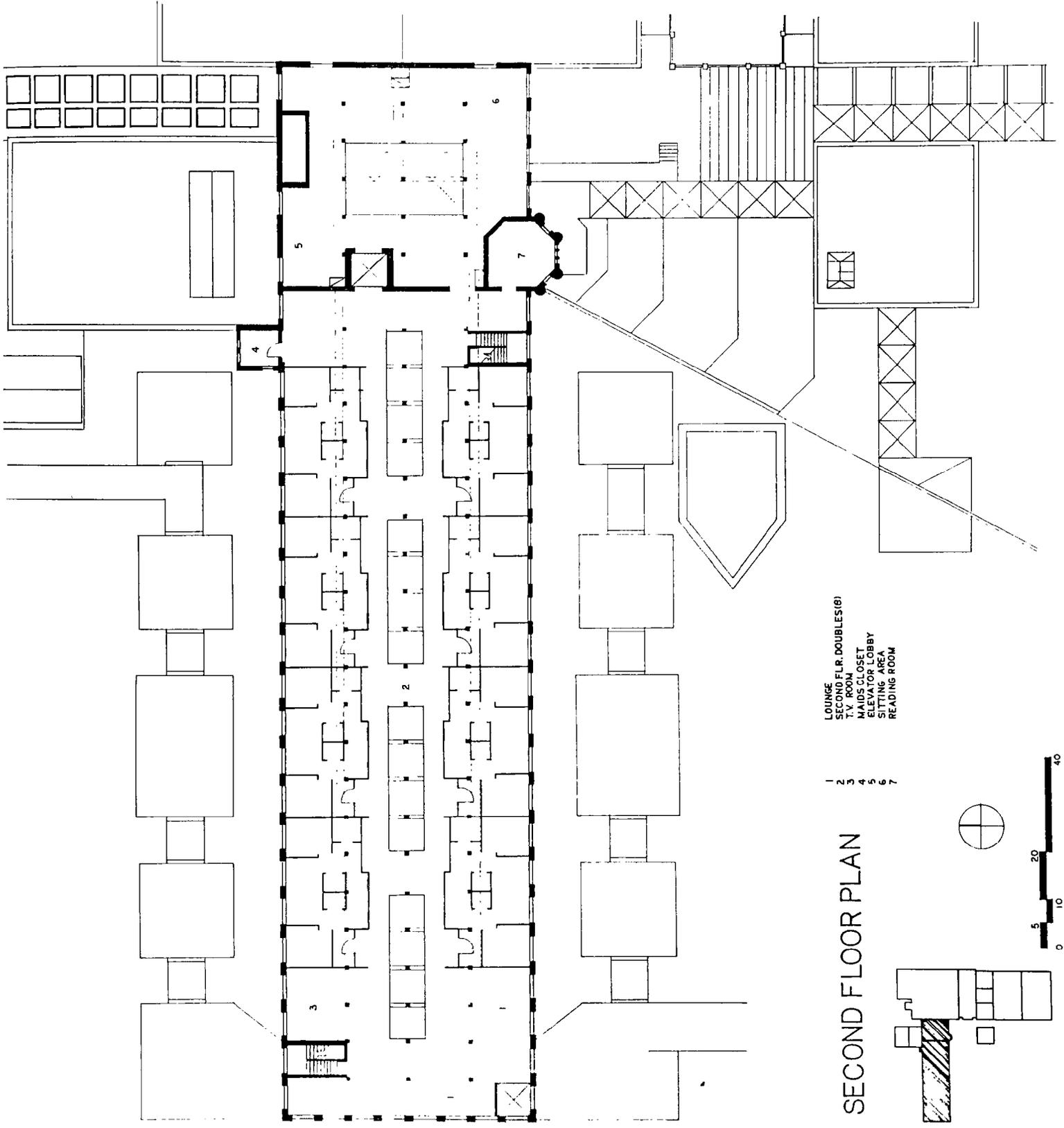


- 1 LOUNGE
- 2 GROUND EFFICIENCIES (118)
- 3 MAINTENANCE
- 4 HOT BATH
- 5 BILLIARDS/DOMINOS
- 6 ENTRANCE HALL
- 7 ENTRY
- 8 GARDEN PATH
- 9 ENTRY PLAZA
- 10 SECURITY SERVICE
- 11 ARRIVAL DEPARTURE LOUNGE

GROUND FLOOR PLAN

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

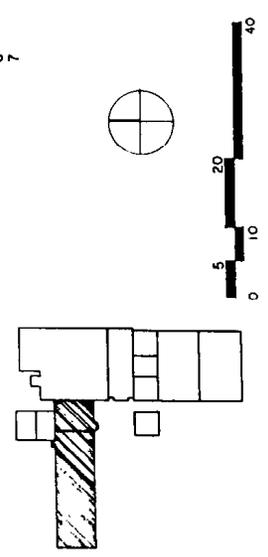


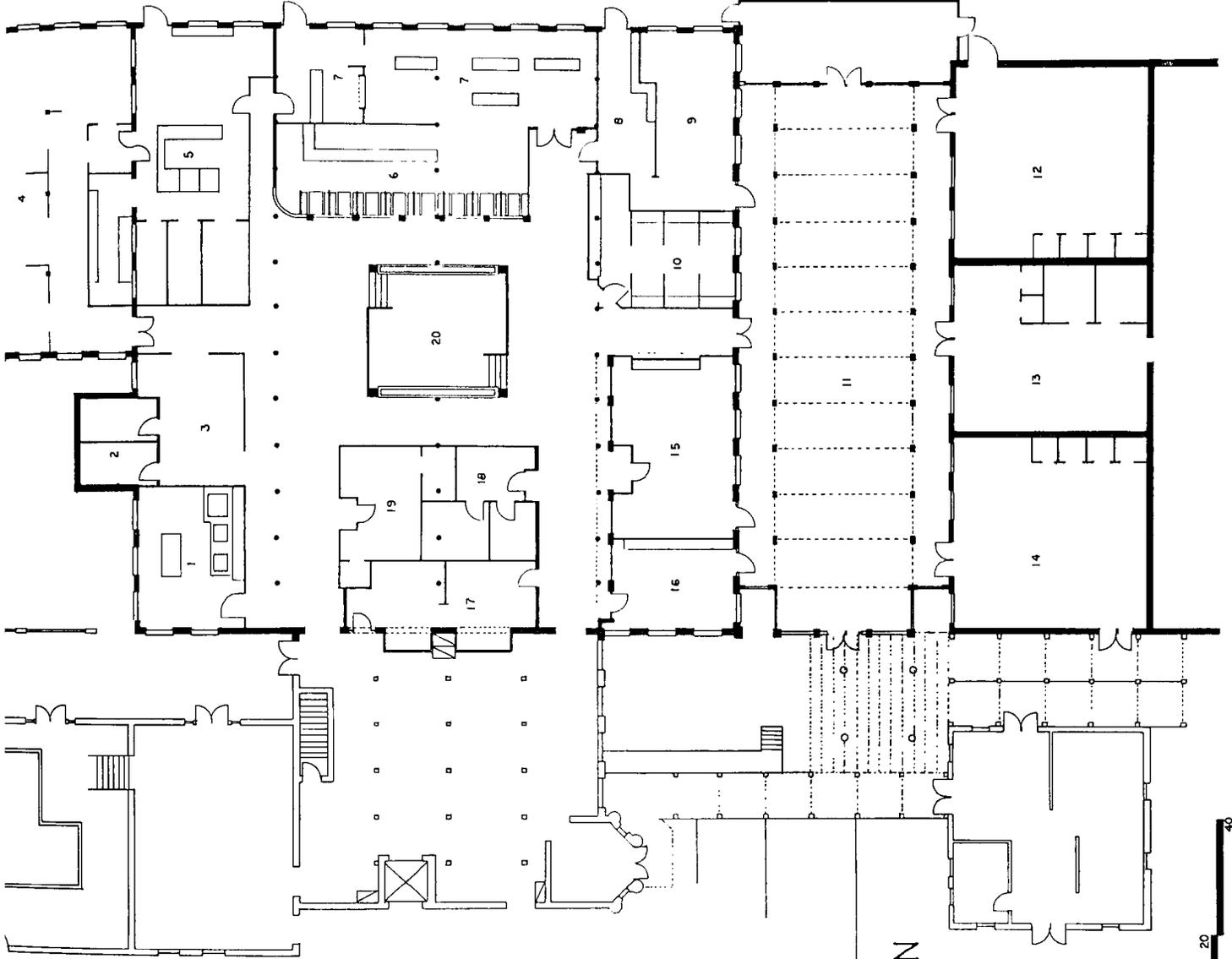


- LOUNGE
- SECOND FLR. DOUBLES (6)
- T.V. ROOM
- MAIDS CLOSET
- ELEVATOR LOBBY
- SITTING AREA
- READING ROOM

- 1
- 2
- 3
- 4
- 5
- 6
- 7

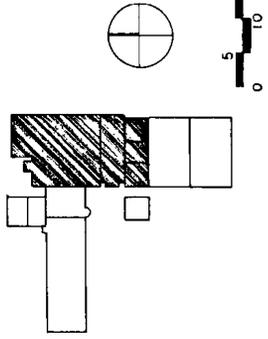
SECOND FLOOR PLAN

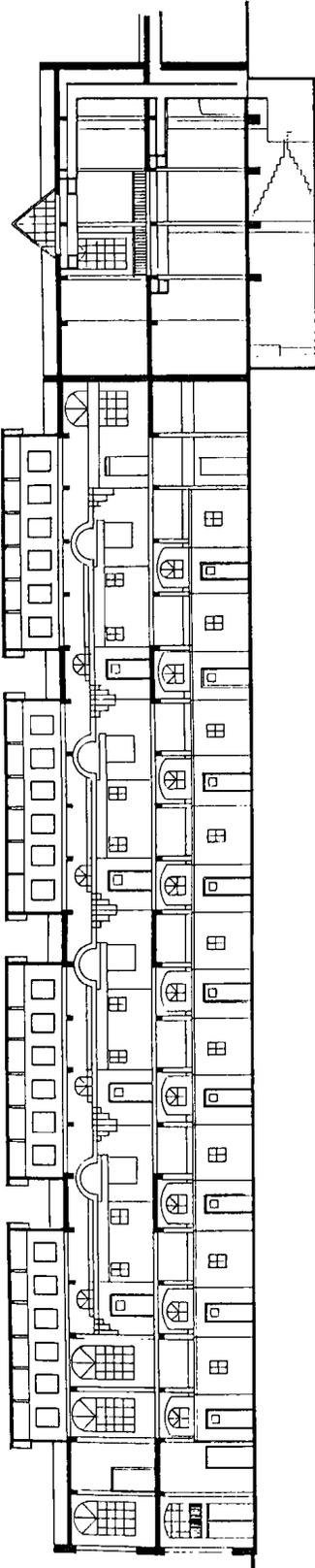




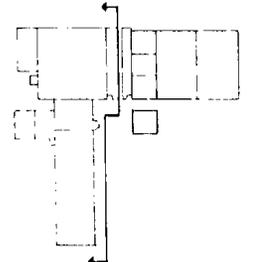
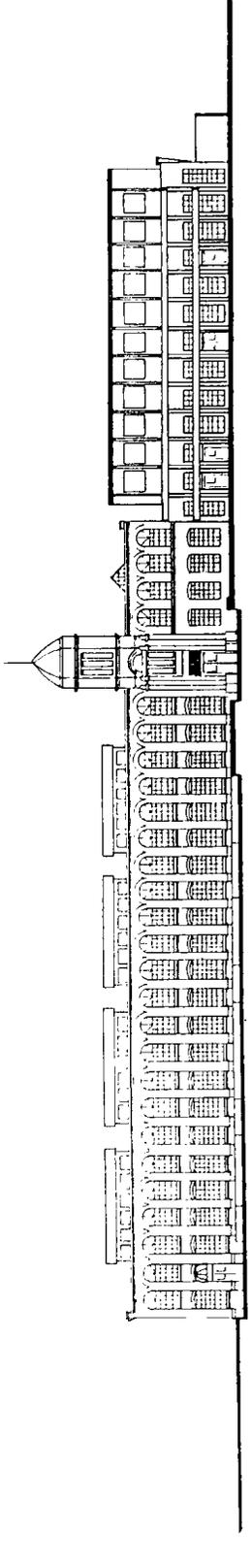
- 1 LAUNDRY
- 2 RESTROOMS
- 3 VESTIBULE
- 4 DINING
- 5 KITCHEN
- 6 FOUNTAIN
- 7 DRUGSTORE
- 8 POSTROOM
- 9 MOVIE ROOM
- 10 BEAUTY SHOP
- 11 THE SUN PLACE
- 12 WOOD CRAFTS
- 13 MISC. CRAFT \ STORAGE
- 14 QUILTING \ SEWING
- 15 GIFT SHOP
- 16 BARBER SHOP
- 17 ADMINISTRATION \ STAFF
- 18 EXAMINATION ROOMS
- 19 MAID SUPPLY ROOM
- 20 SUNLOUNGE

GROUND FLOOR PLAN

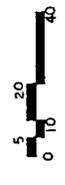


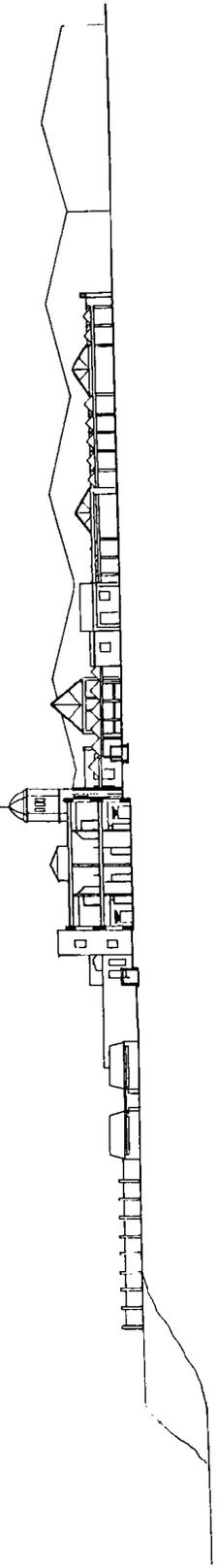


SECTION

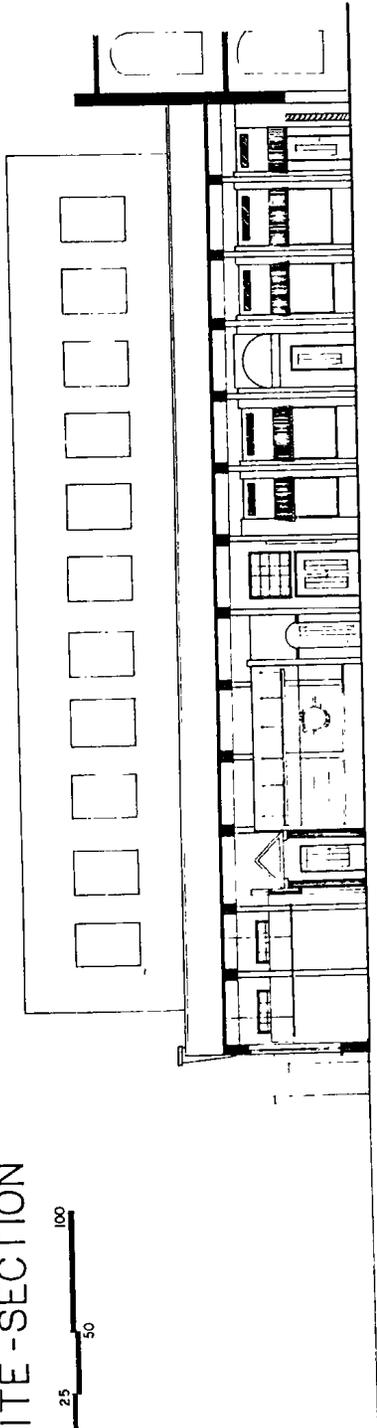


SECTION - ELEVATION

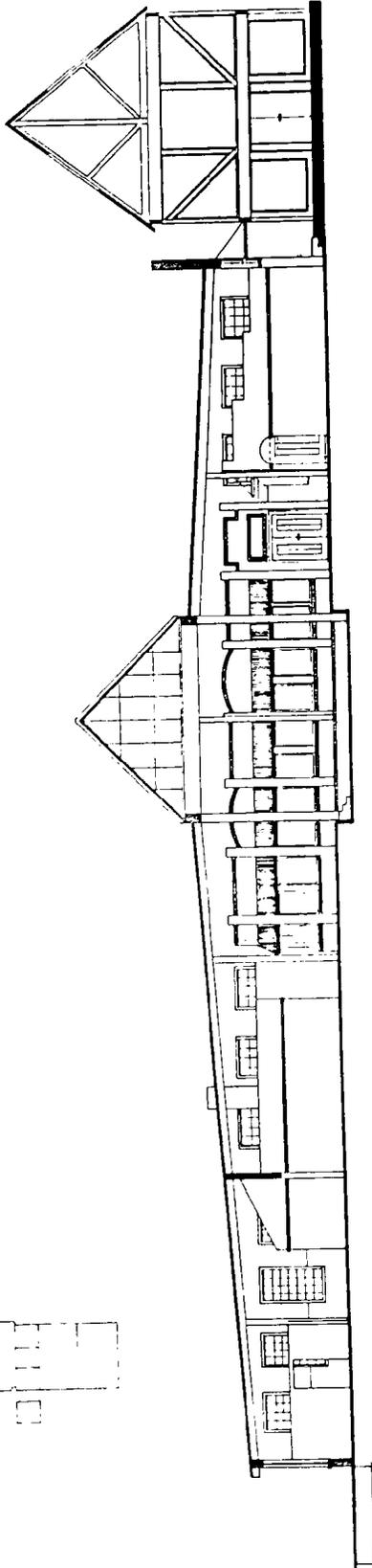
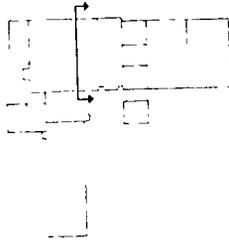




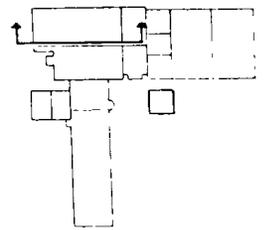
SITE - SECTION

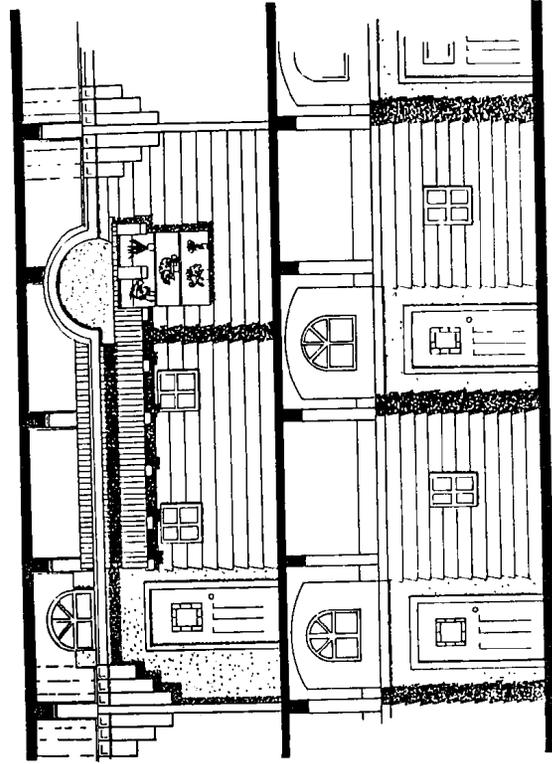


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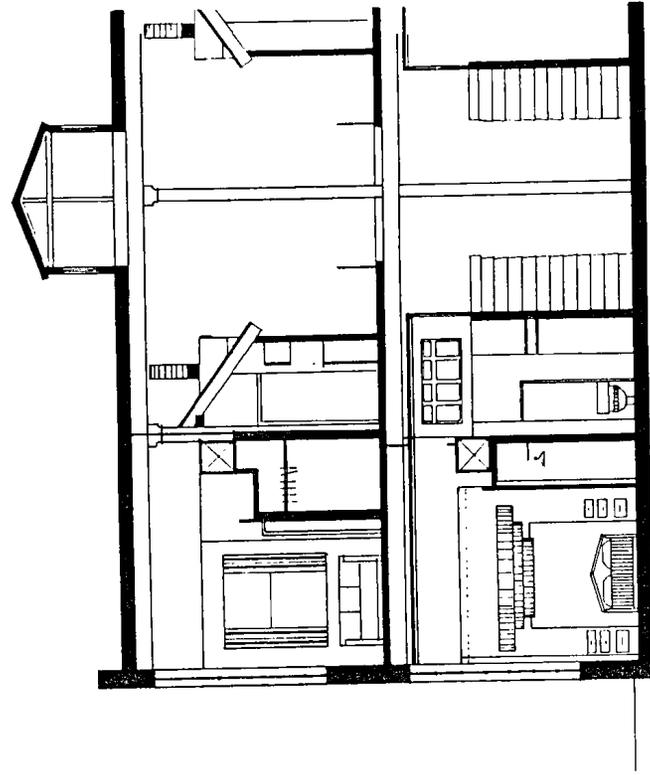


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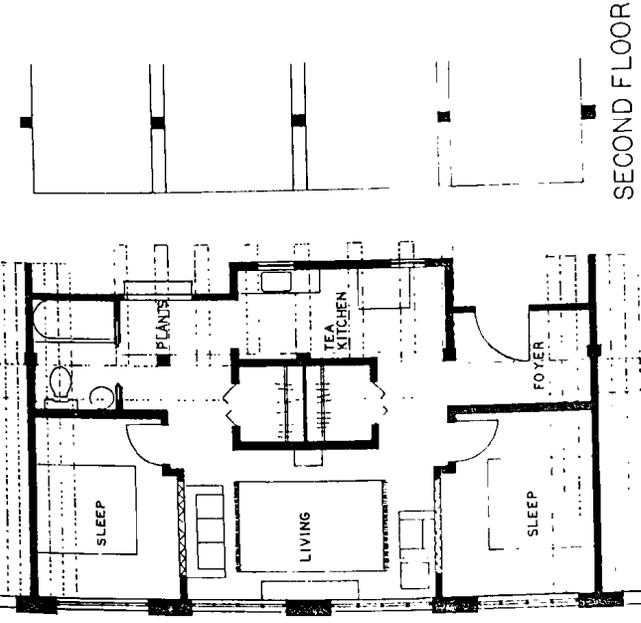




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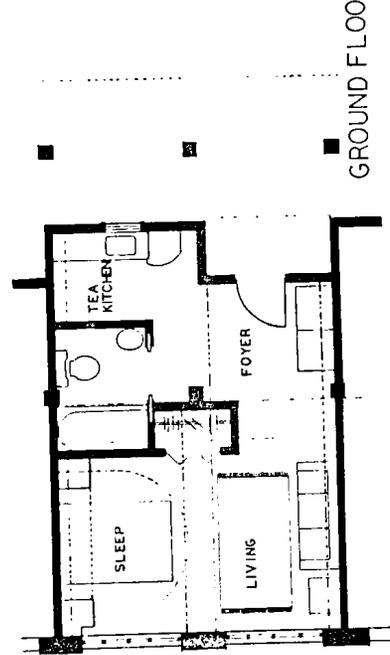


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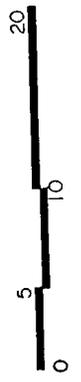
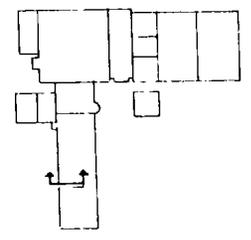


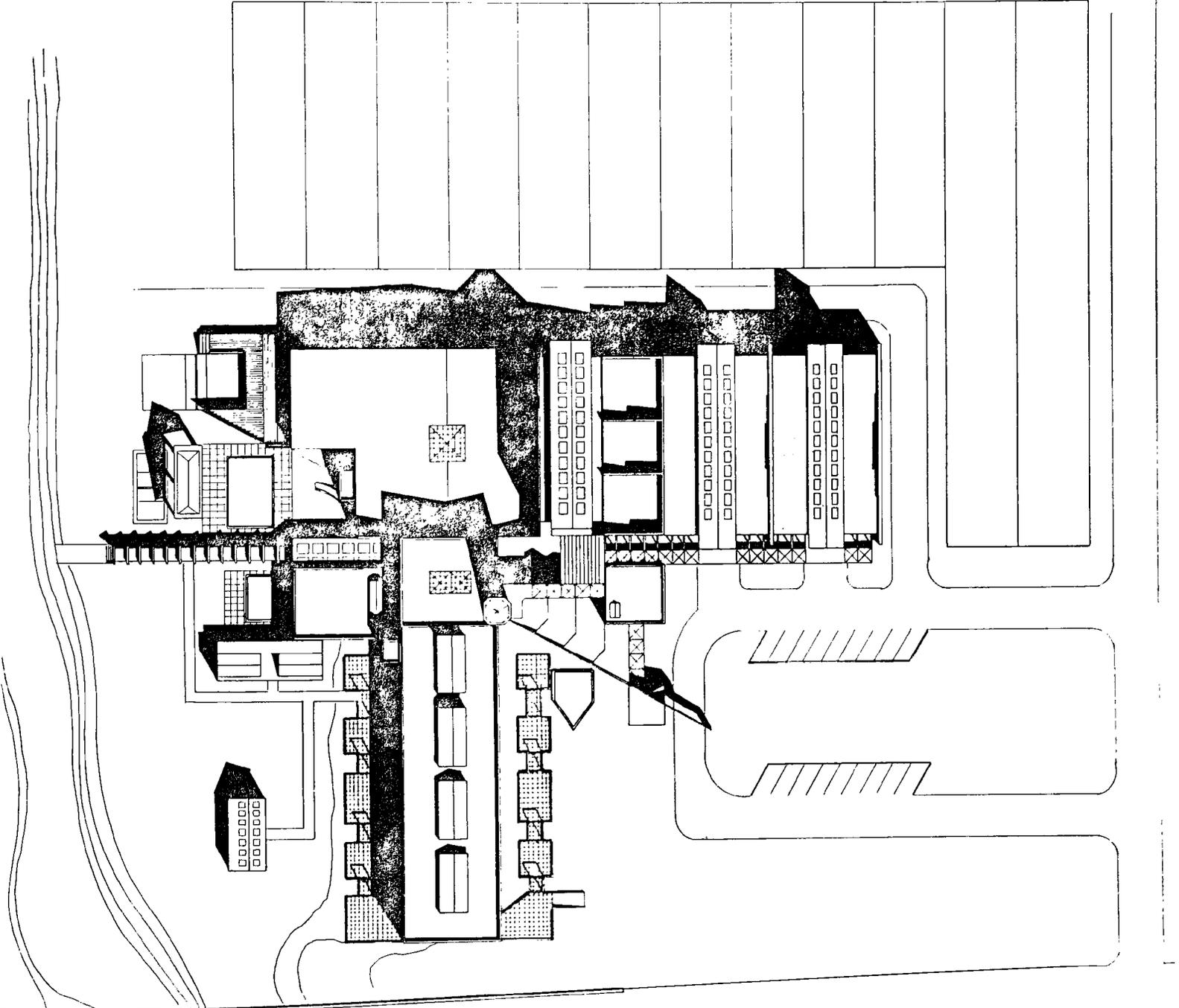
SECOND FLOOR

TYPICAL ROOM PLANS



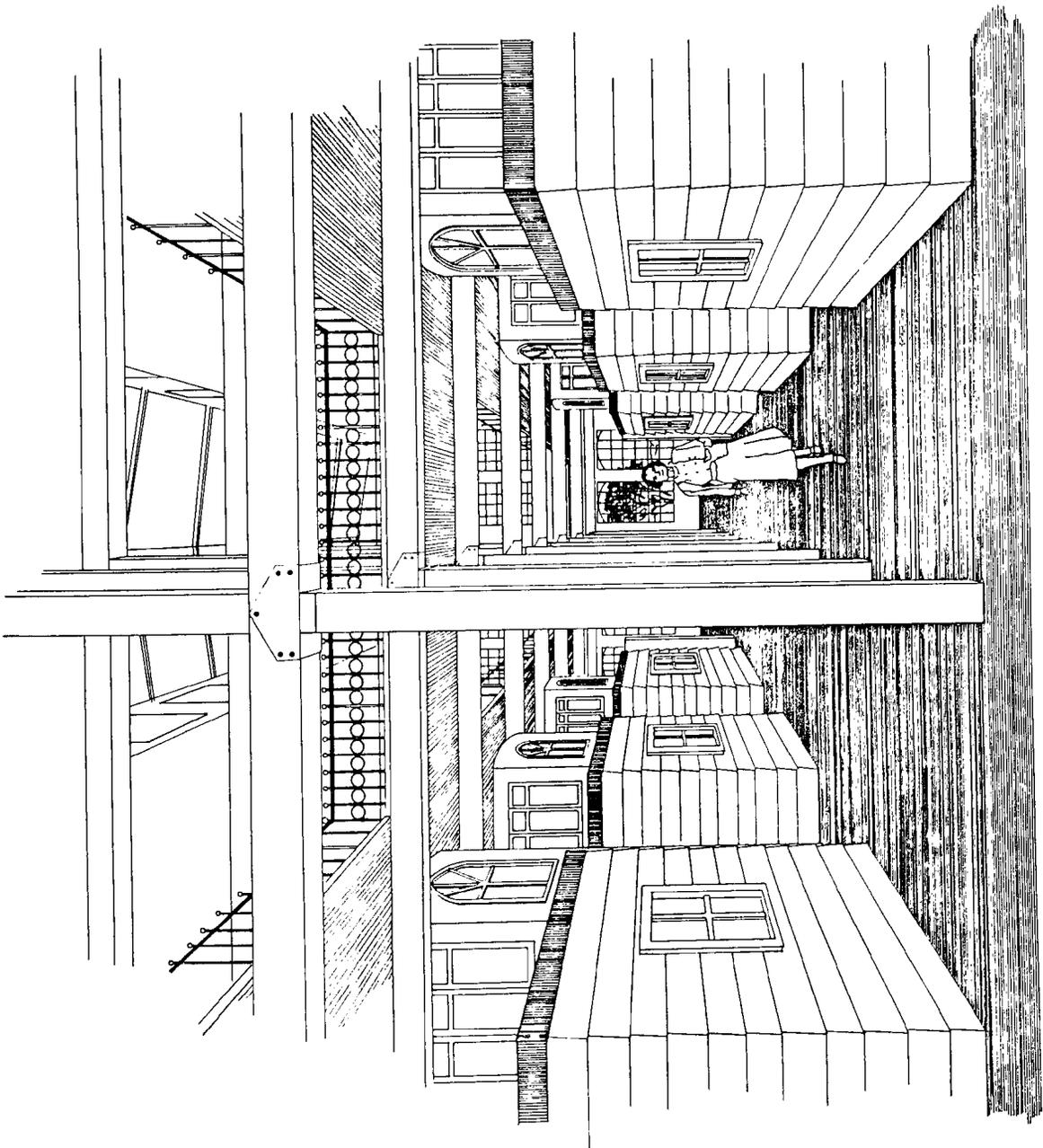
GROUND FLOOR



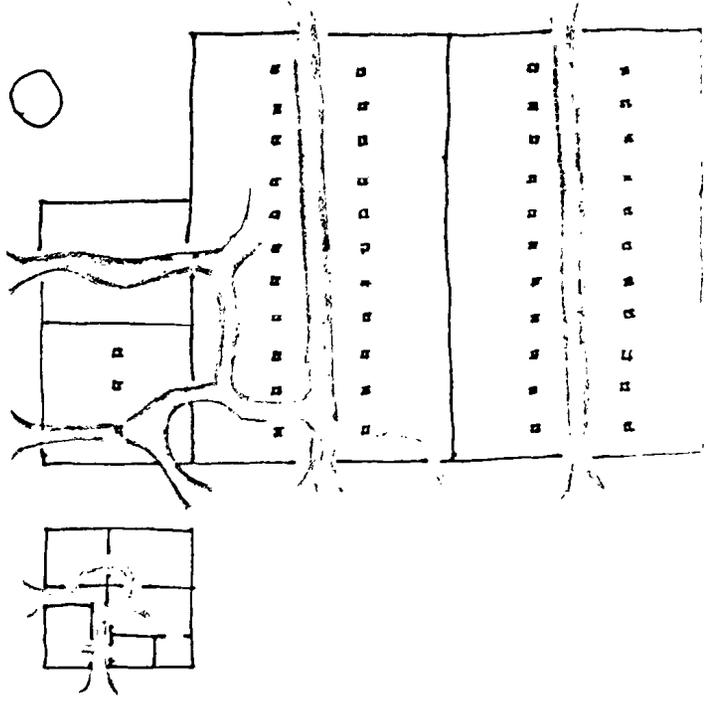
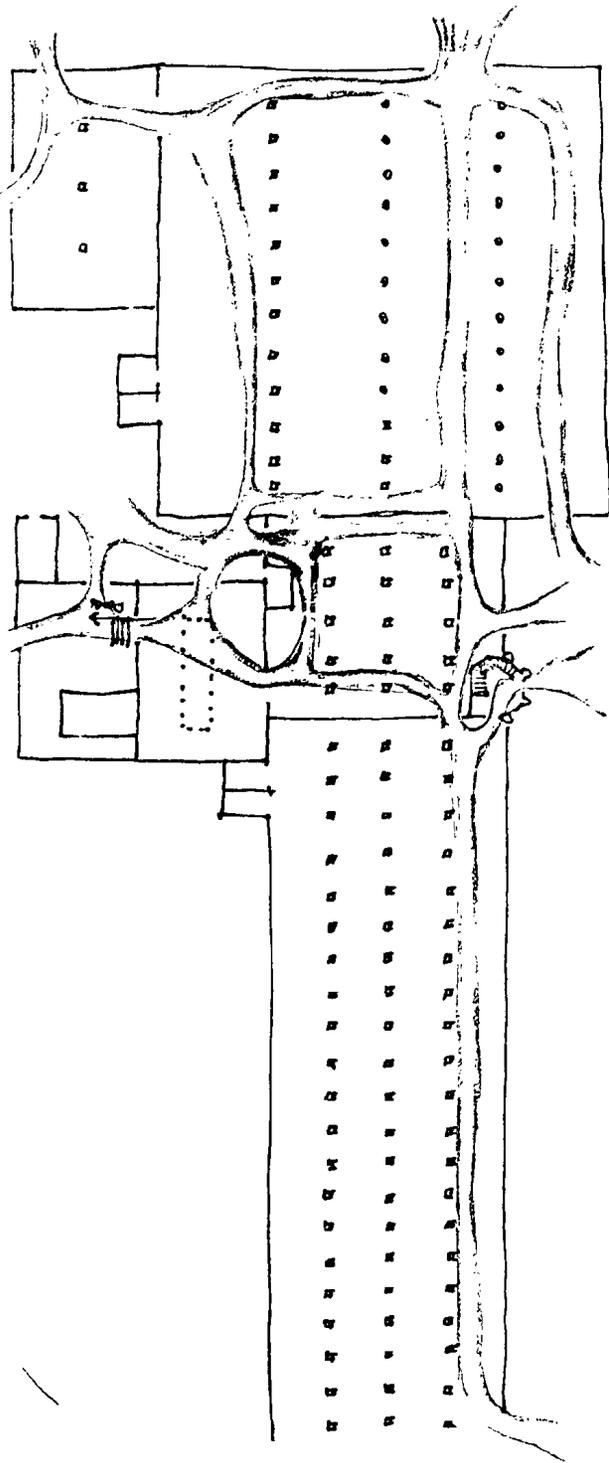


SITE PLAN





INTERIOR CORRIDOR



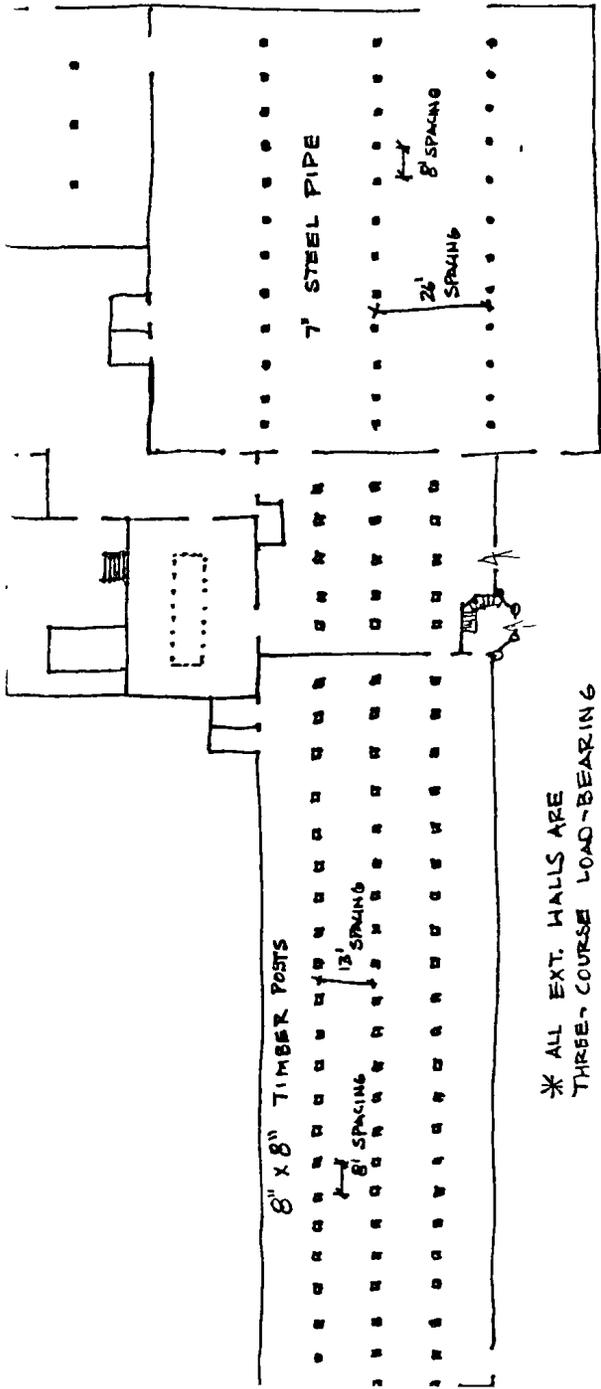
HILLSBORO COTTON MILLS

CIRCULATION

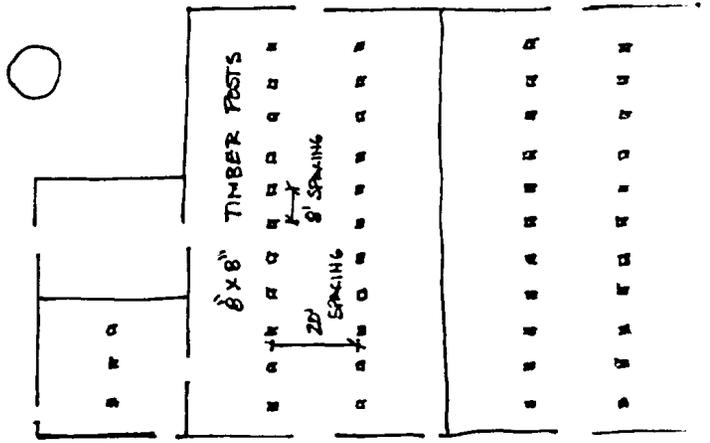
VERTICAL

HORIZONTAL



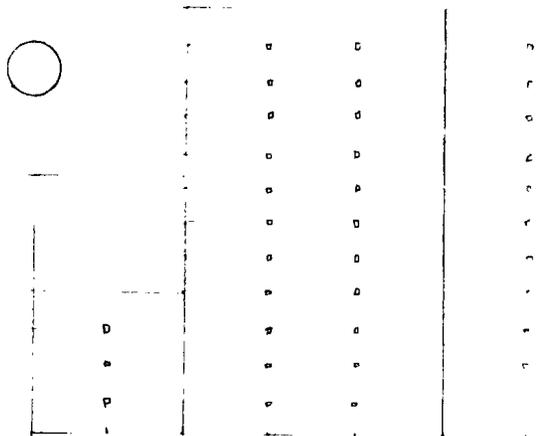
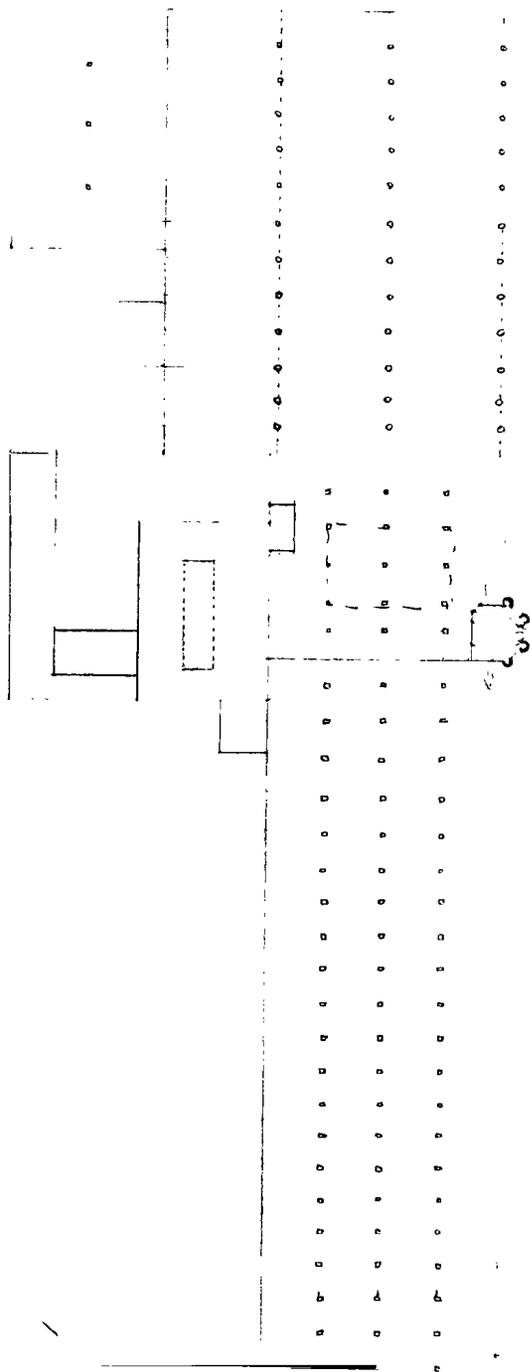


* ALL EXT. WALLS ARE
THREE-COURSE LOAD-BEARING



HILLSBORO COTTON MILLS
STRUCTURE



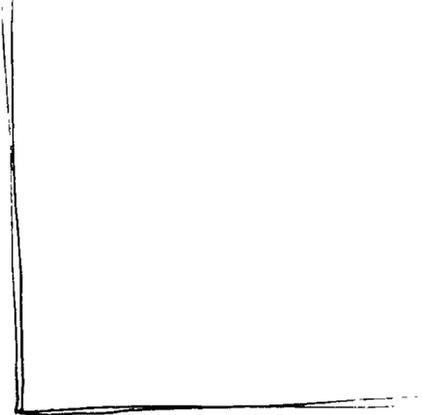
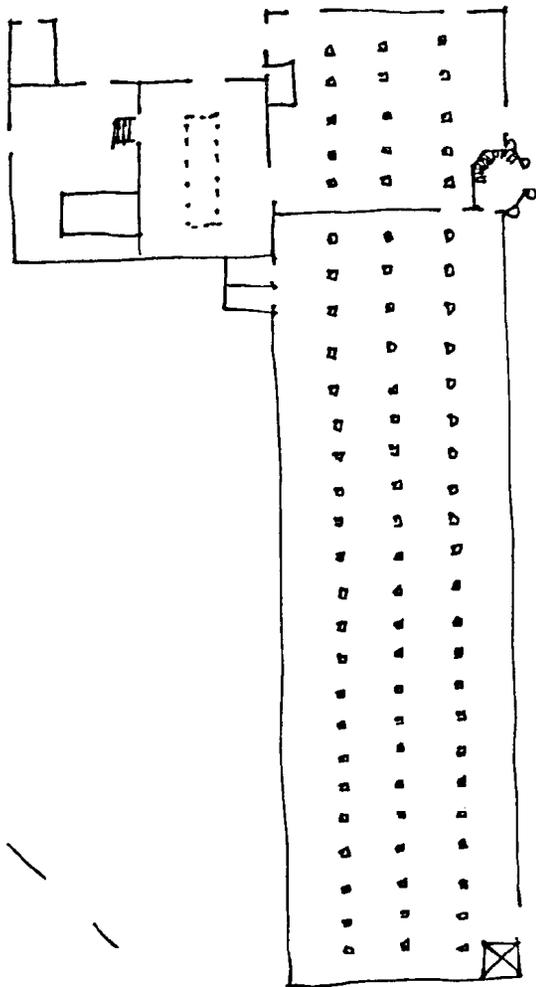


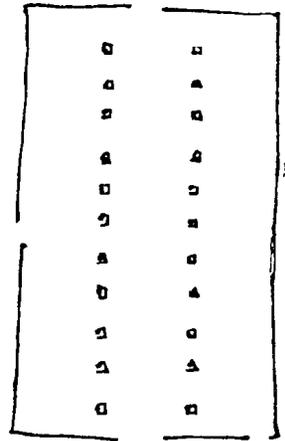
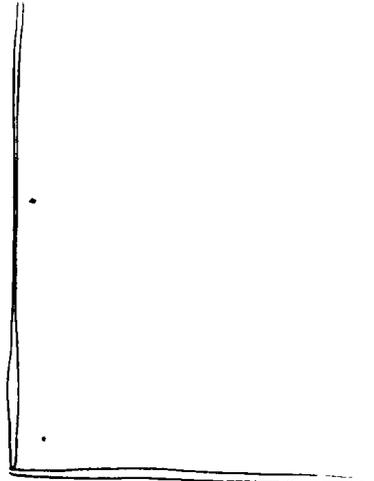
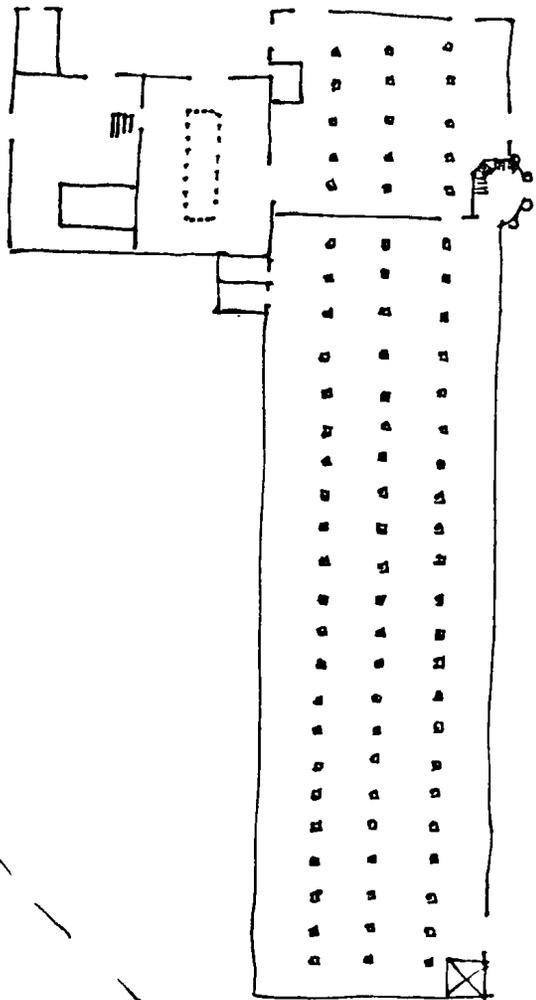
BORO COTTON MILLS

HILLSBORO COTTON MILLS

TOBT

✓

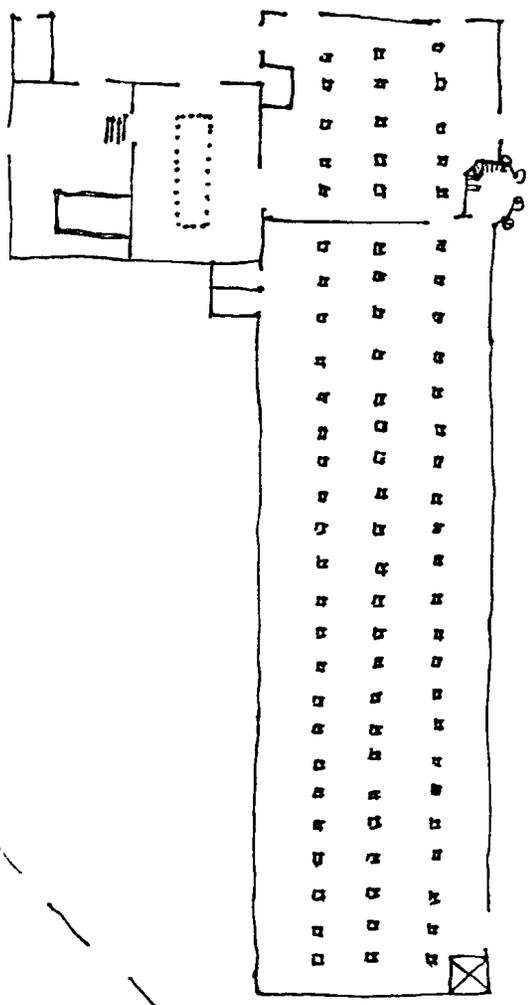




HILLSBORO COTTON MILLS

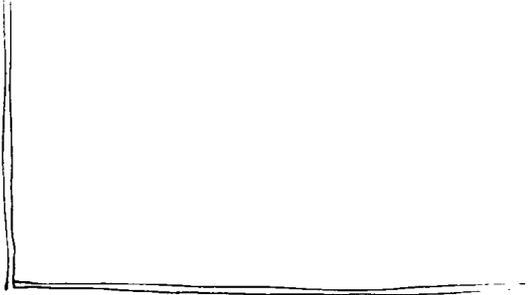
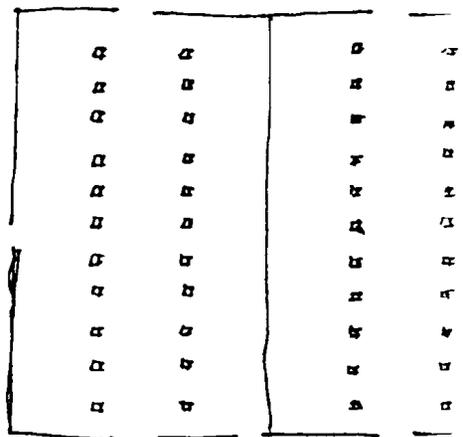
1910

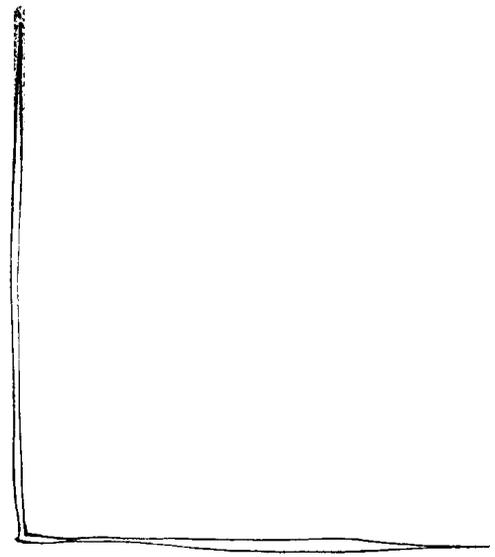
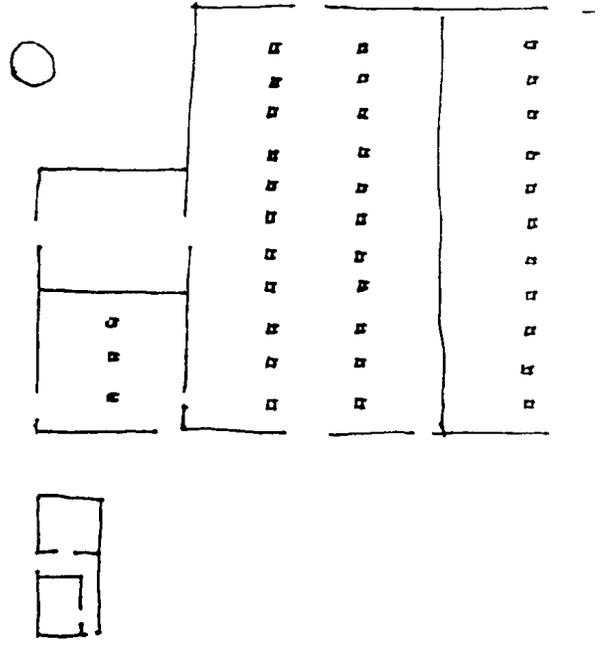
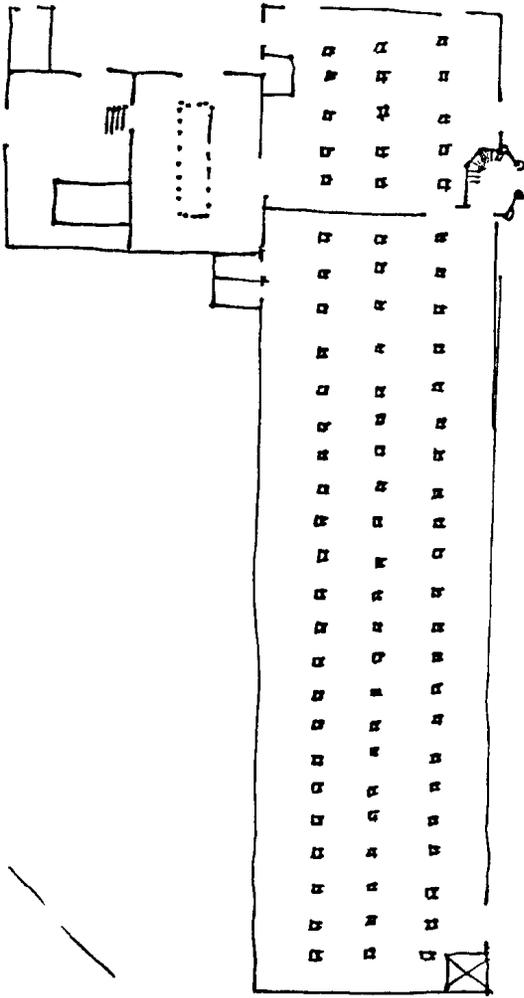
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HILLSBORO COTTON MILLS

ST 6T



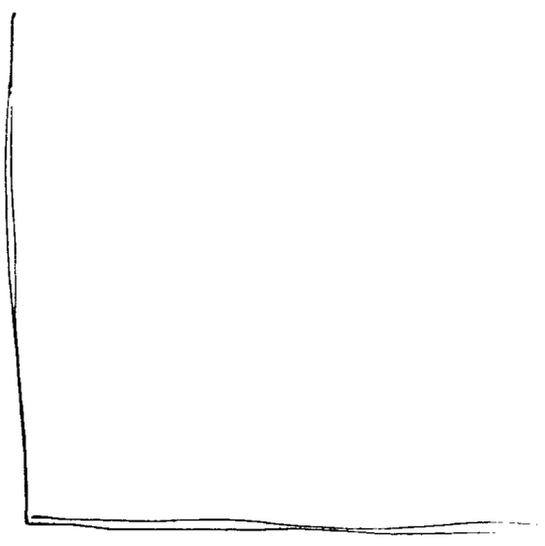
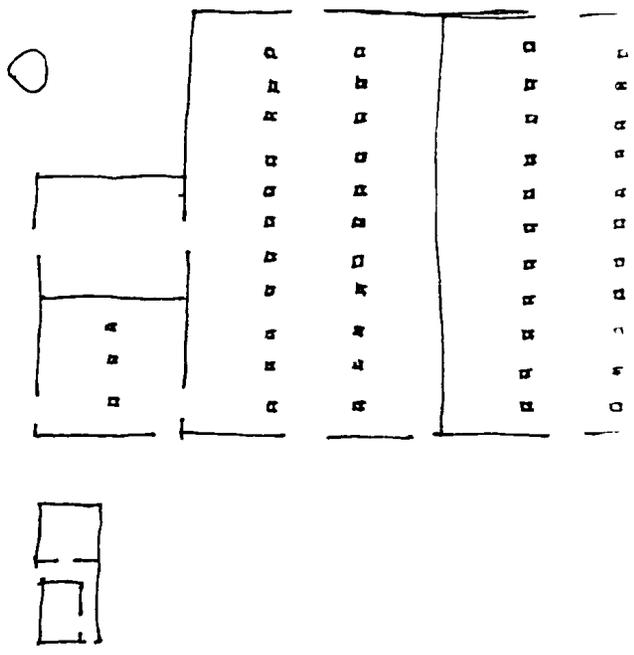
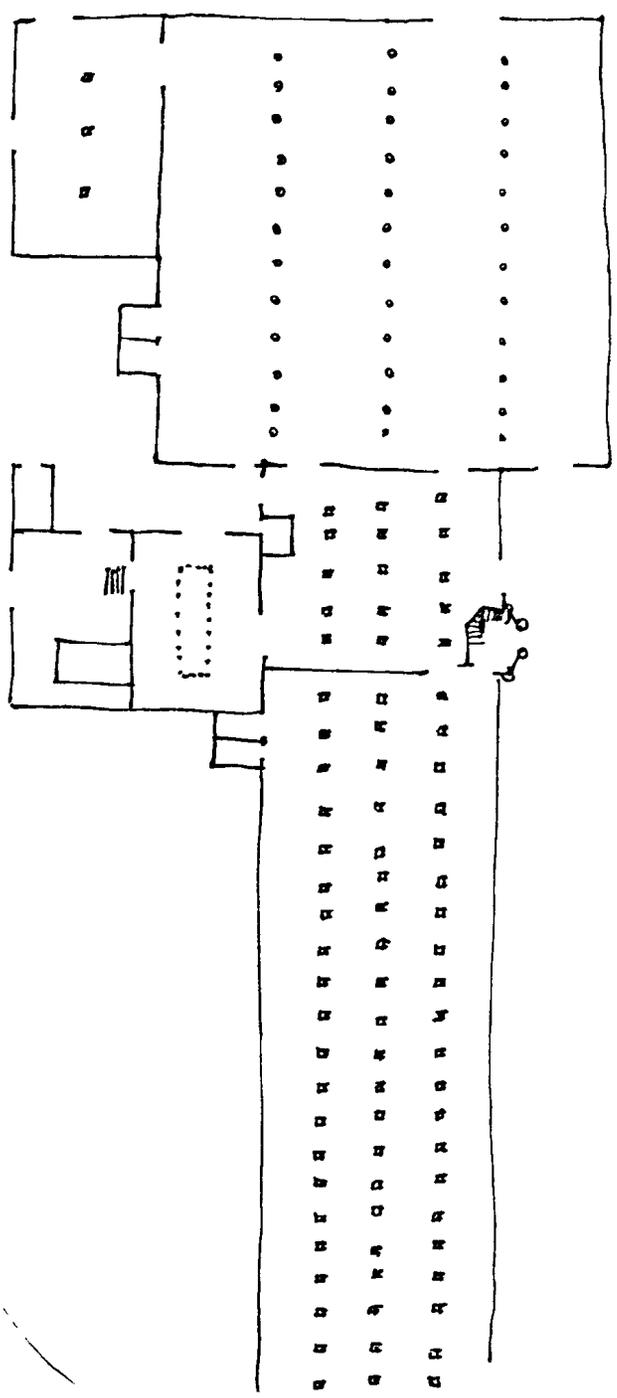


HILLSBORO COTTON MILLS

876T



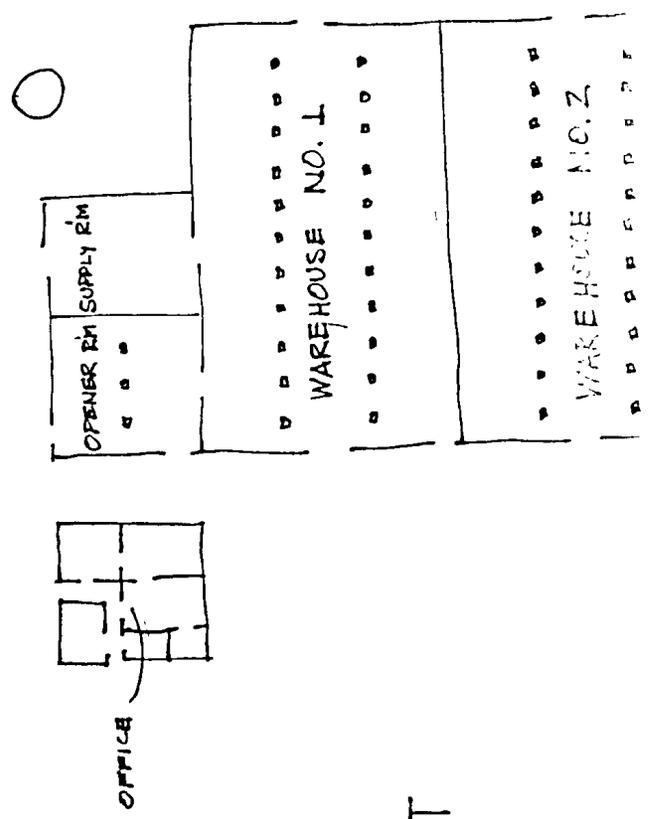
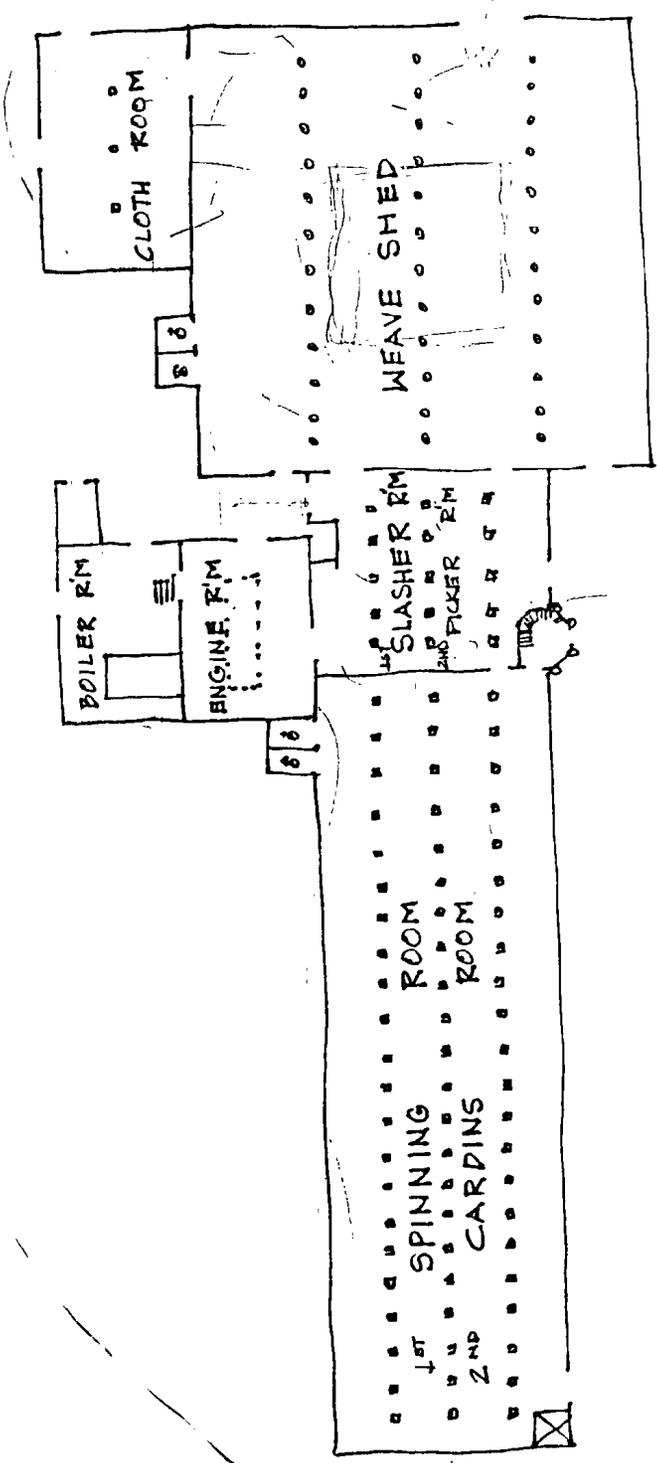
Photoduplicate of original drawing of Hillsboro Cotton Mills, 1920



HILLSBORO COTTON MILLS

1920

A

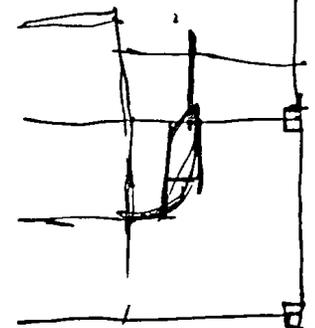
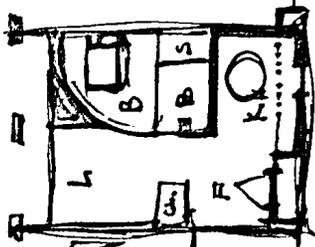
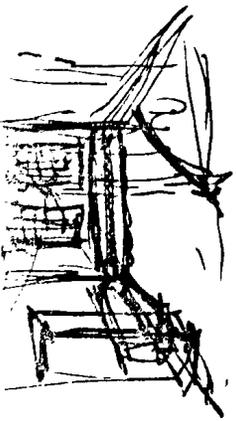
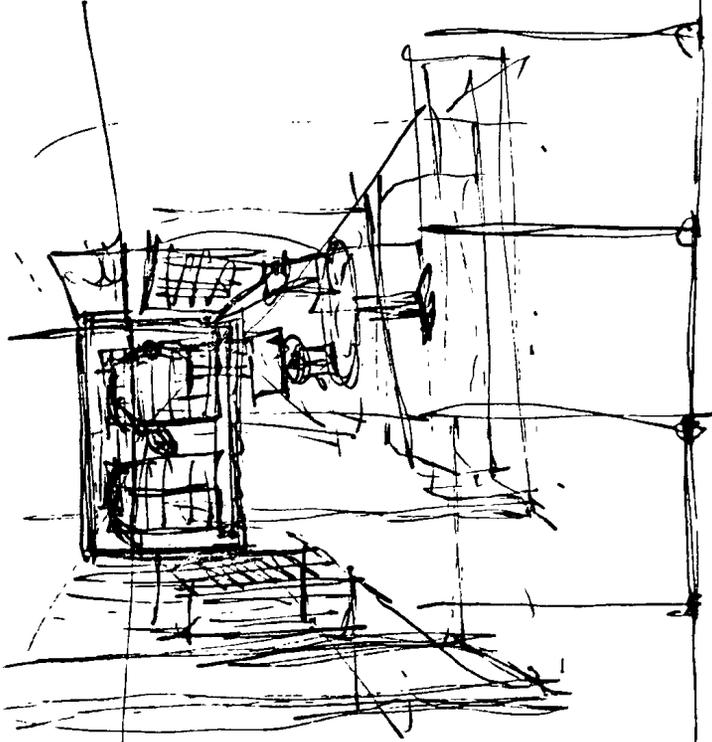


HILLSBORO COTTON MILLS

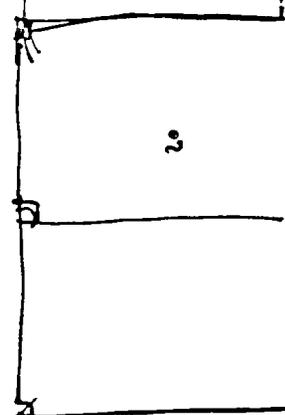
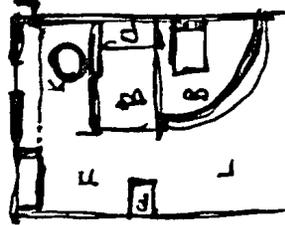
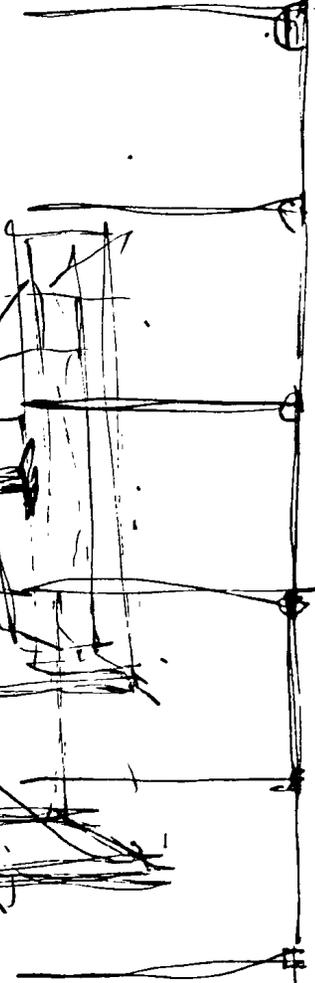
1926 - PRESENT



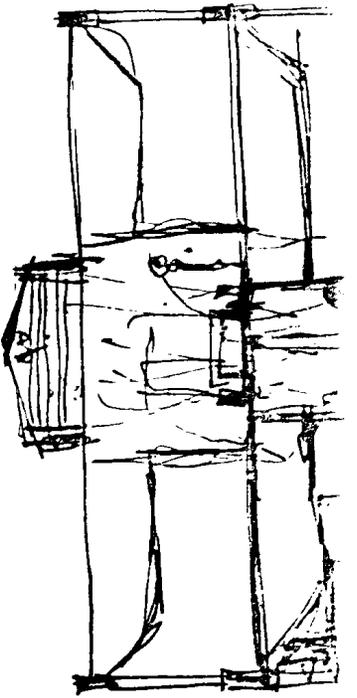
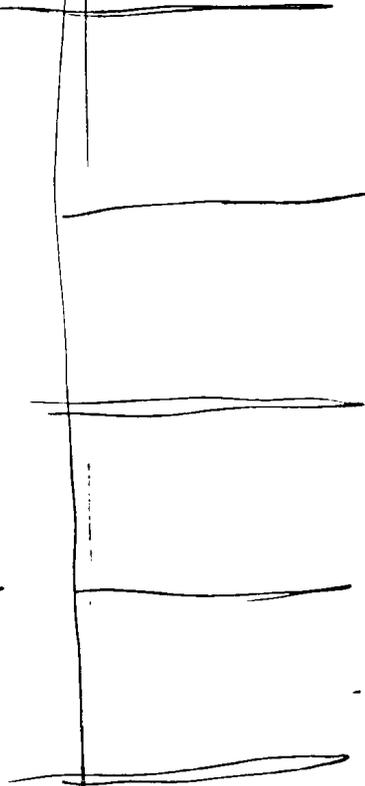
7-Sept



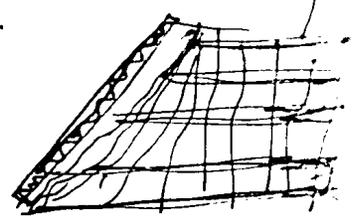
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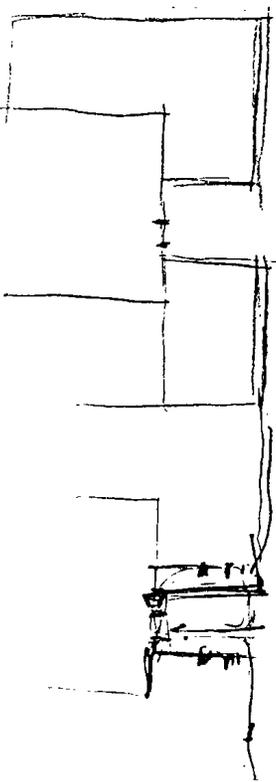
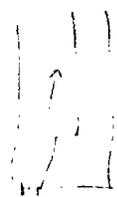
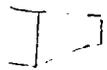
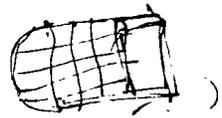
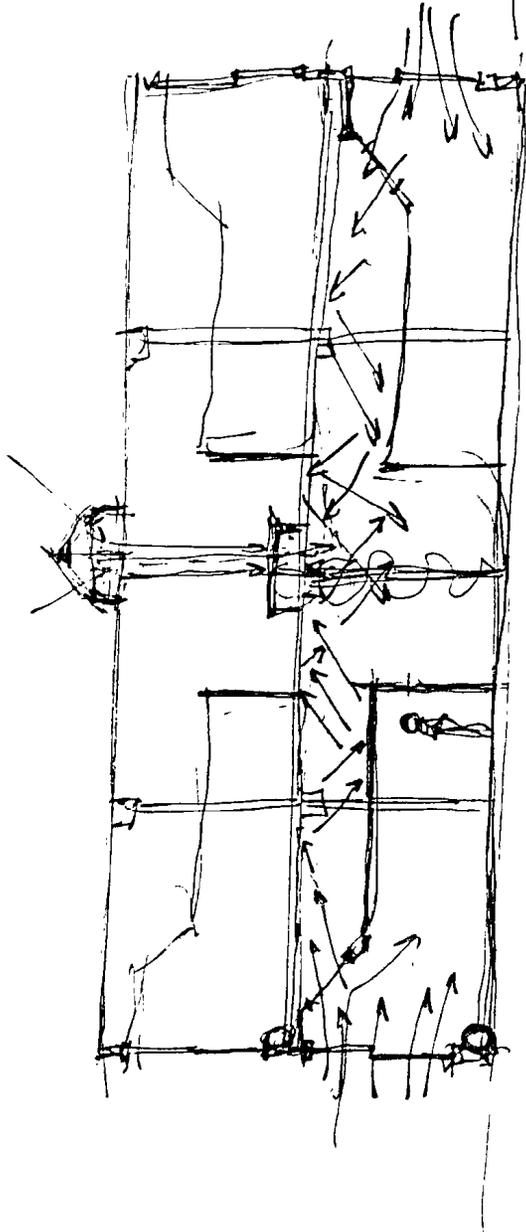
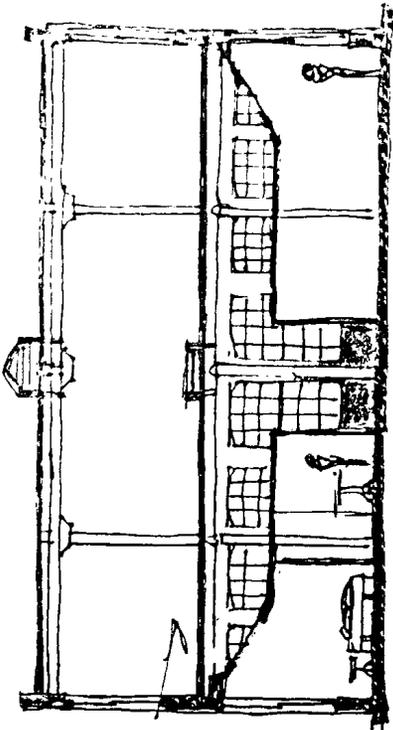
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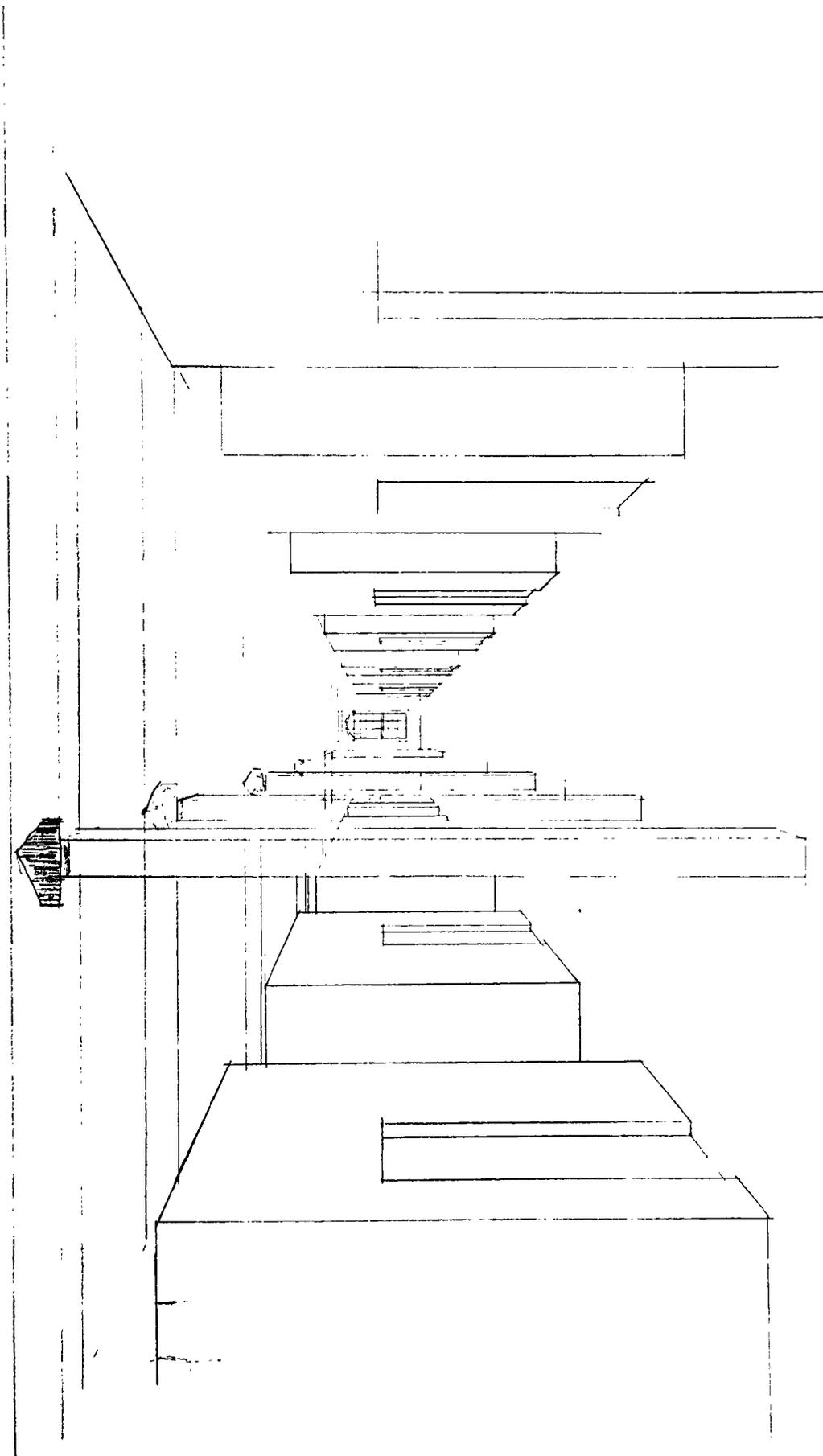


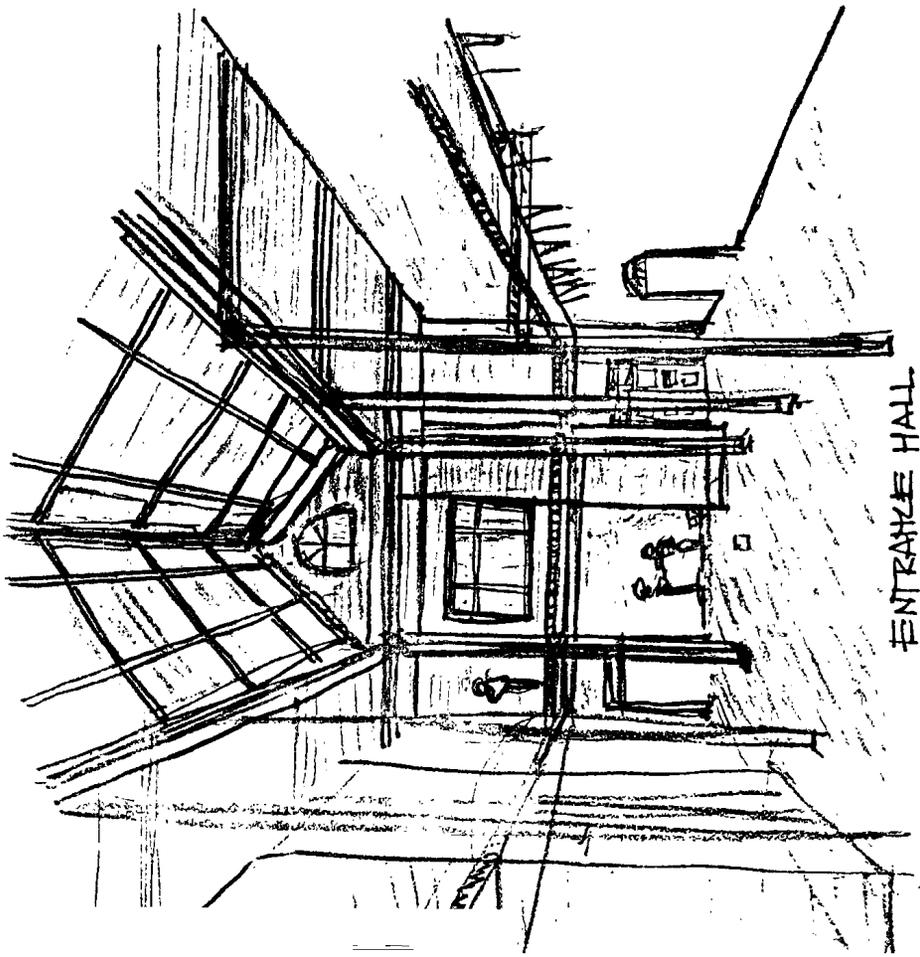
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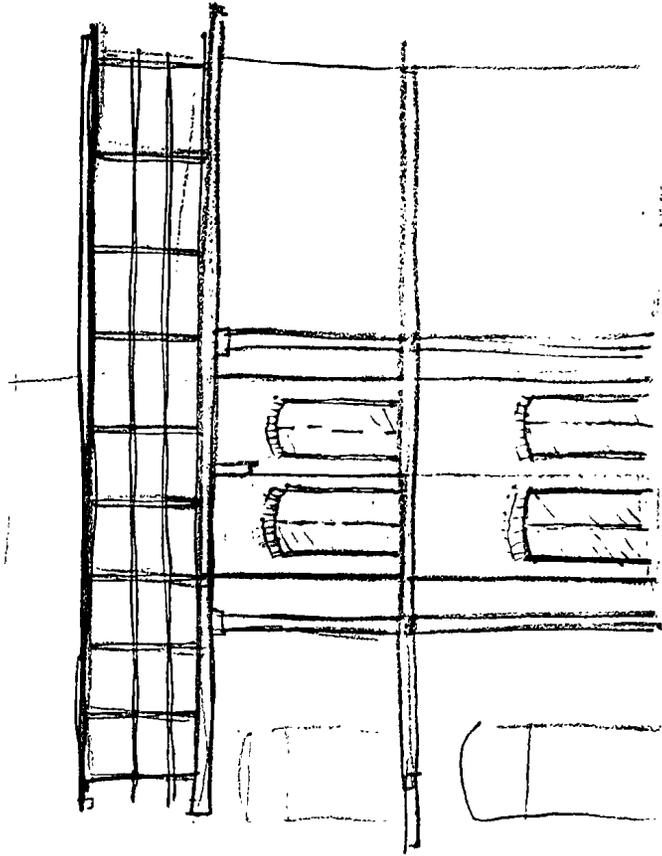
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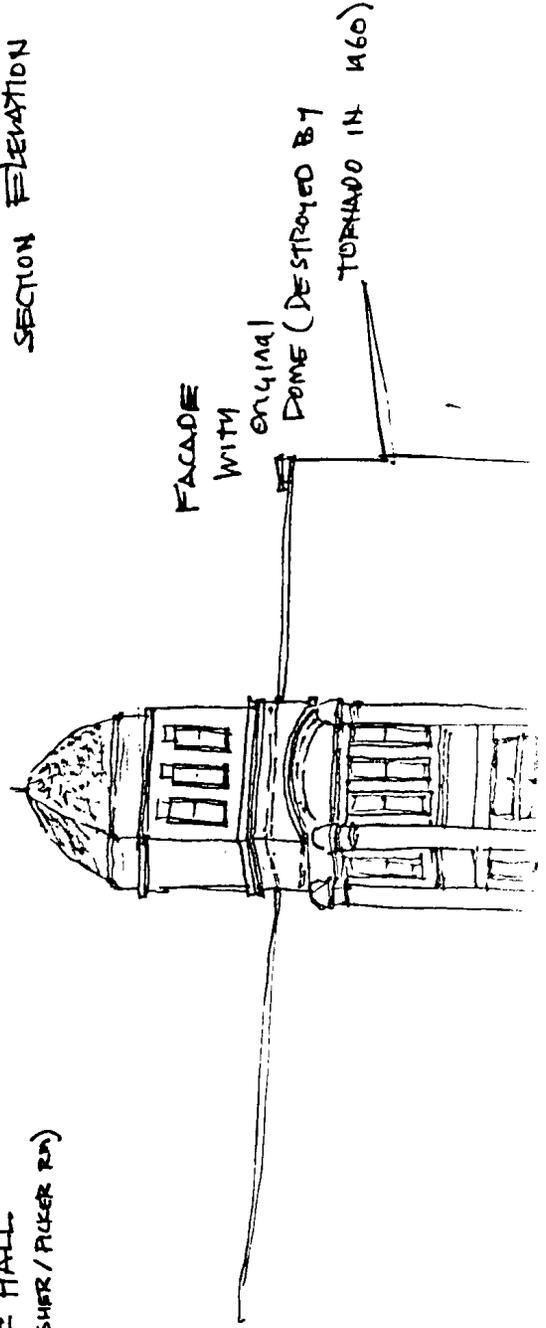


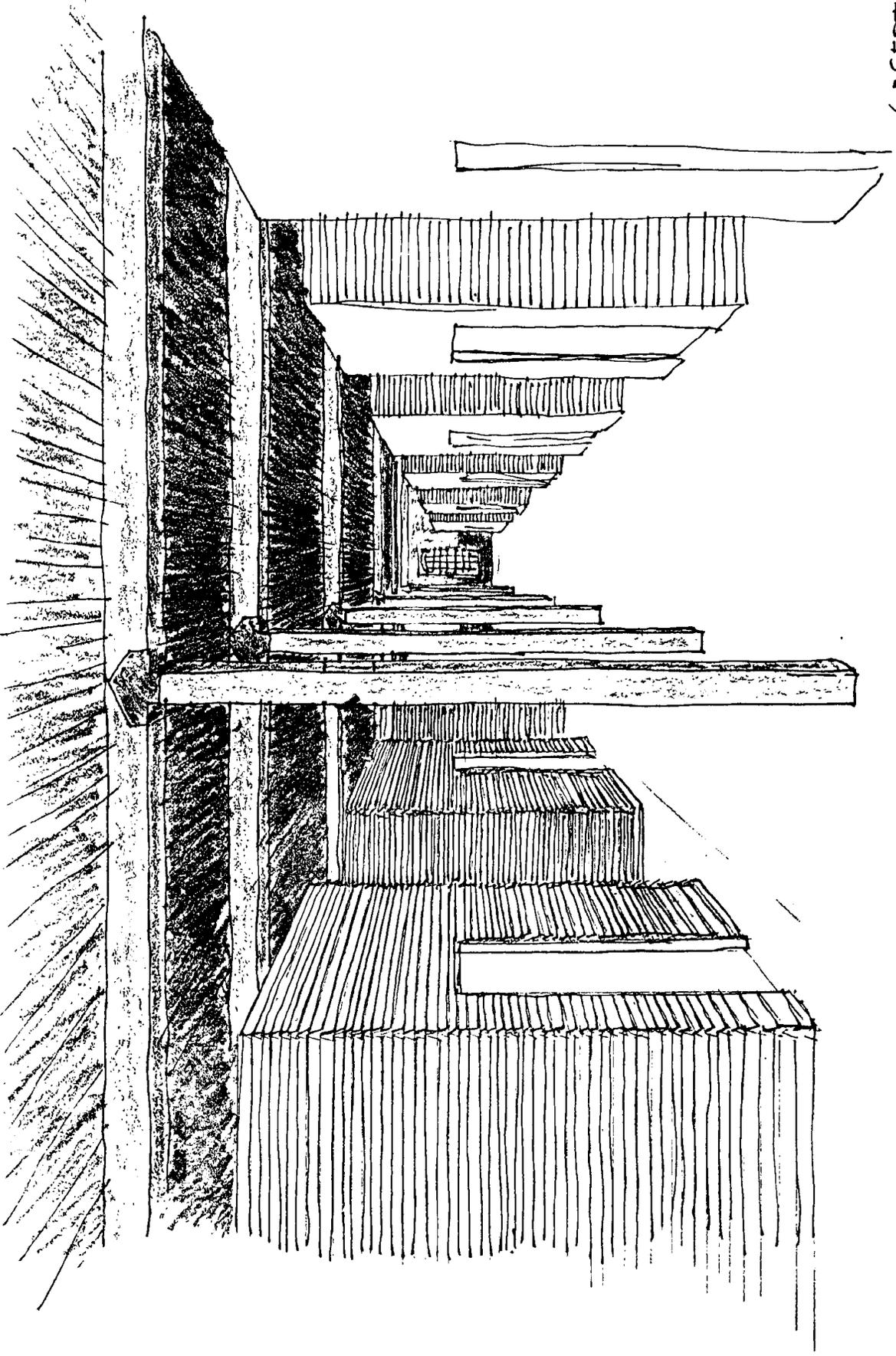


ENTRANCE HALL
(SLASHER / PICKER RUN)

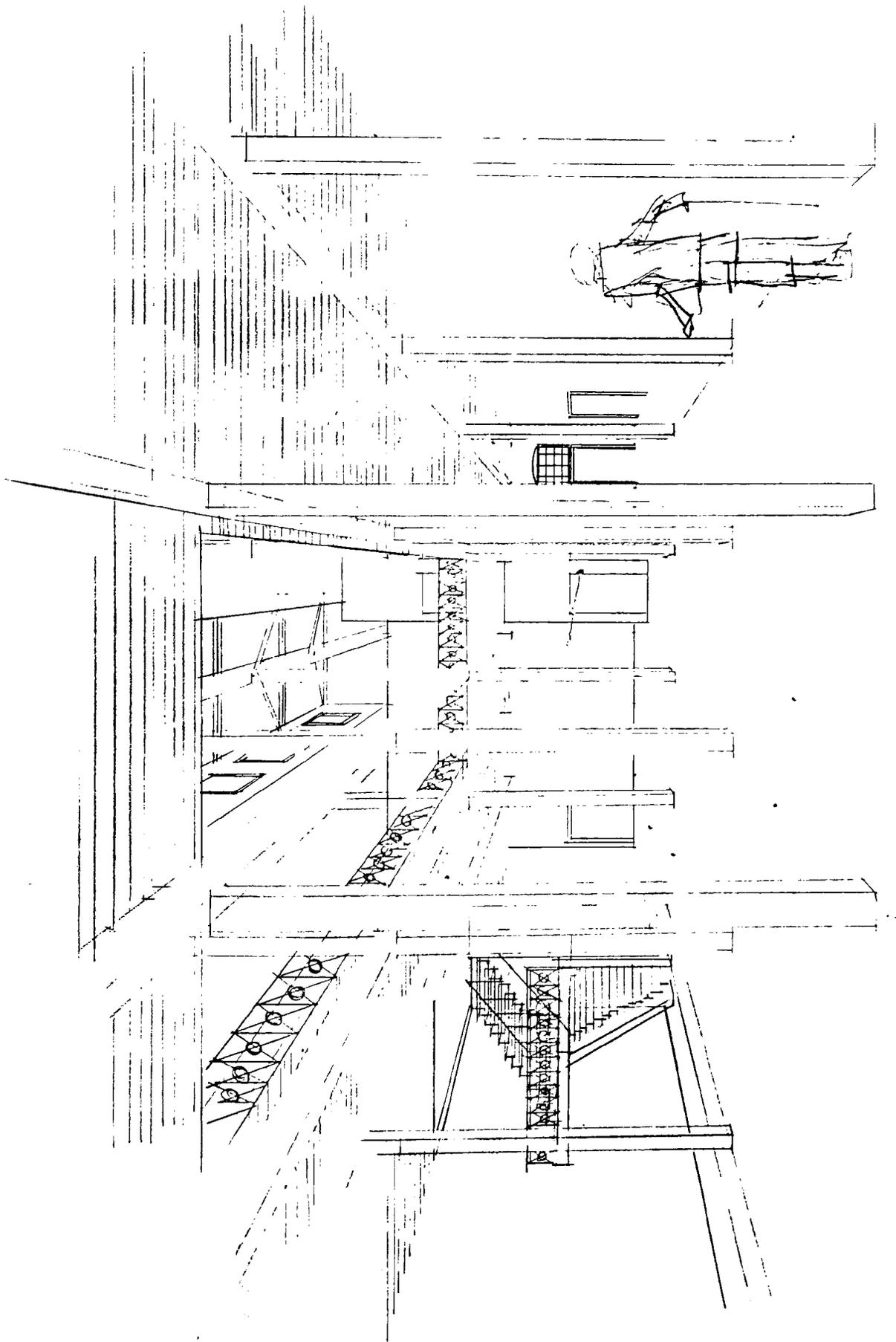


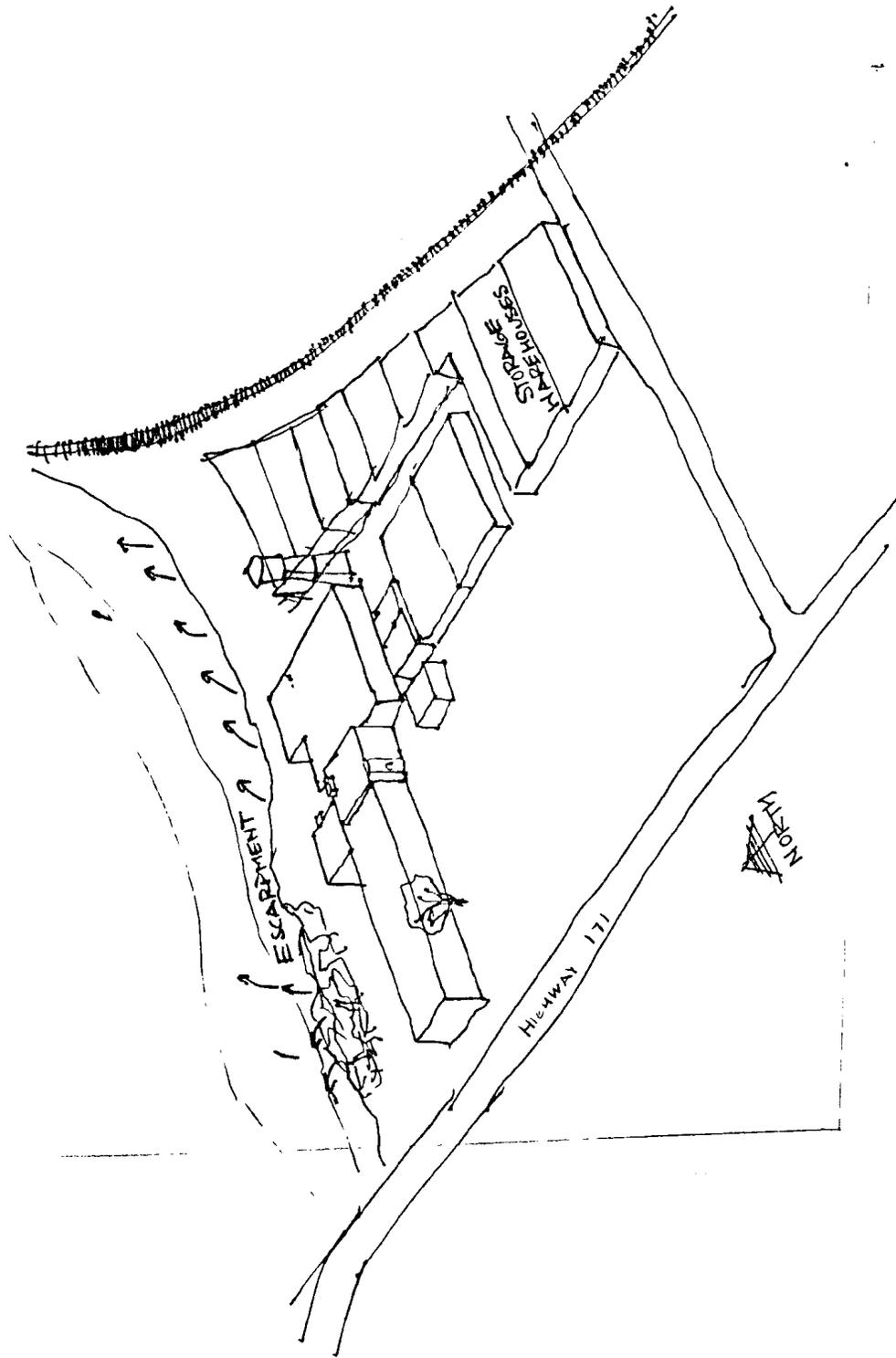
SECTION ELEVATION





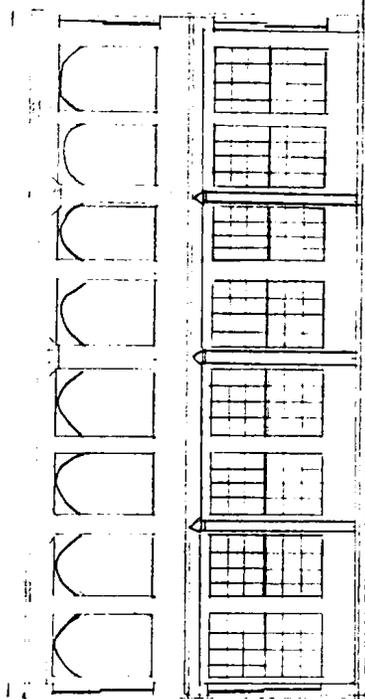
6 SEPT 1990

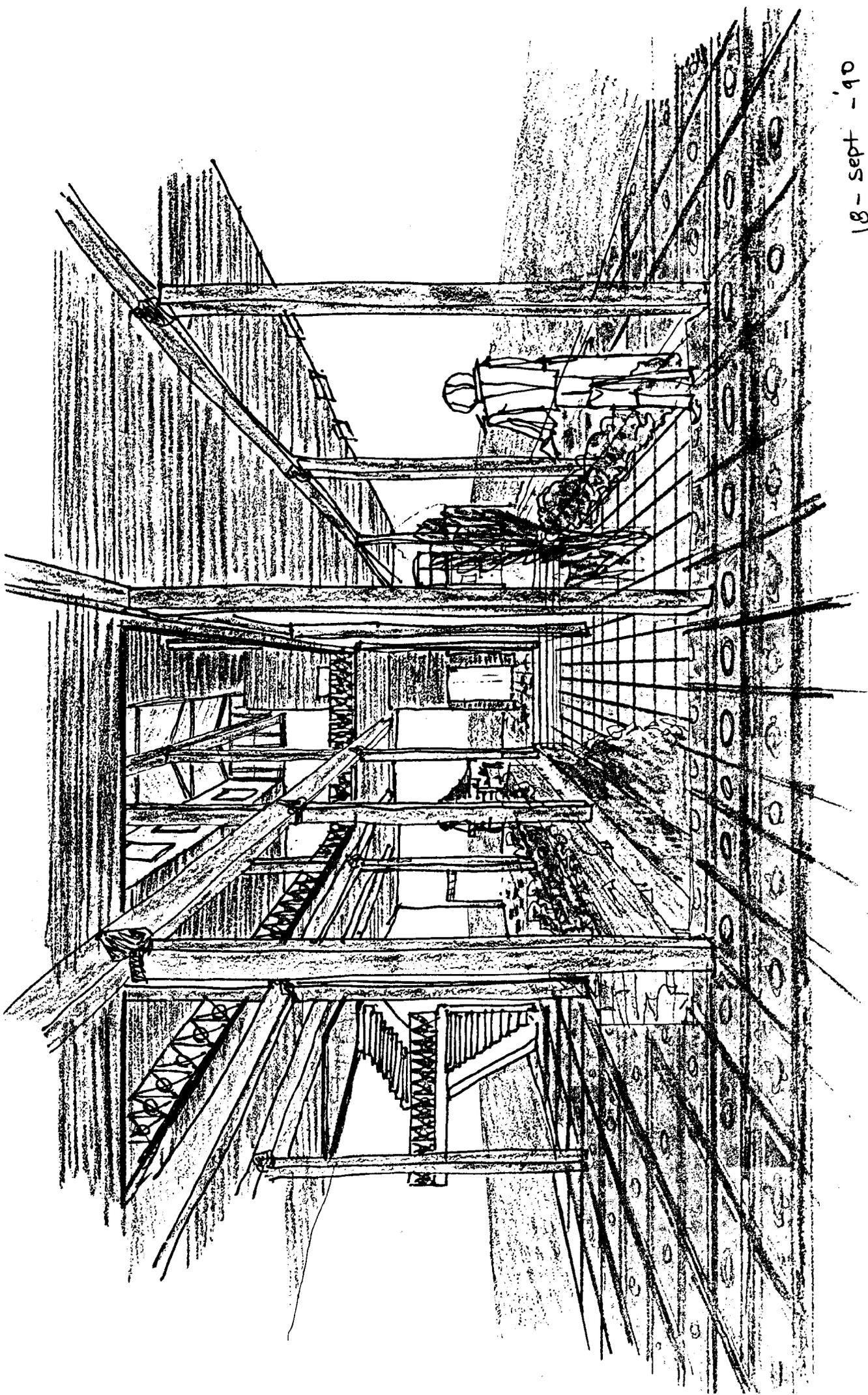




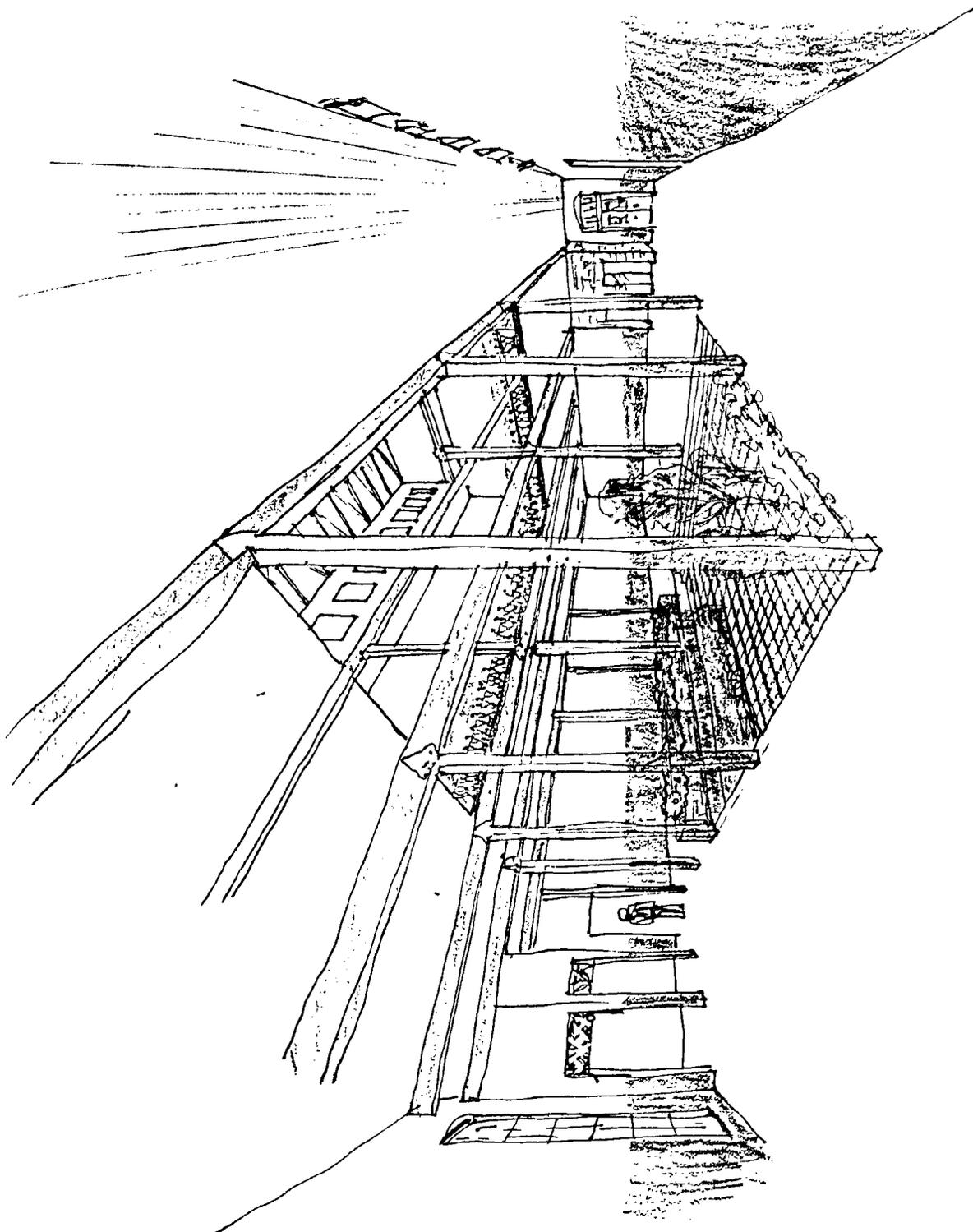
SITE AXON

105-2

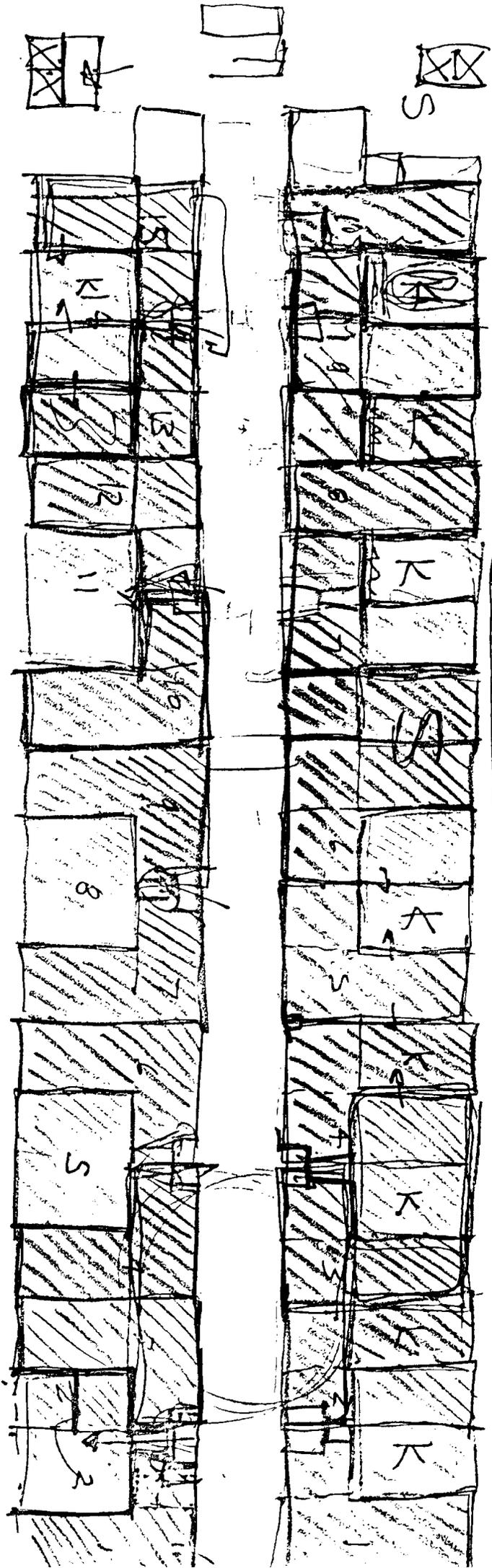
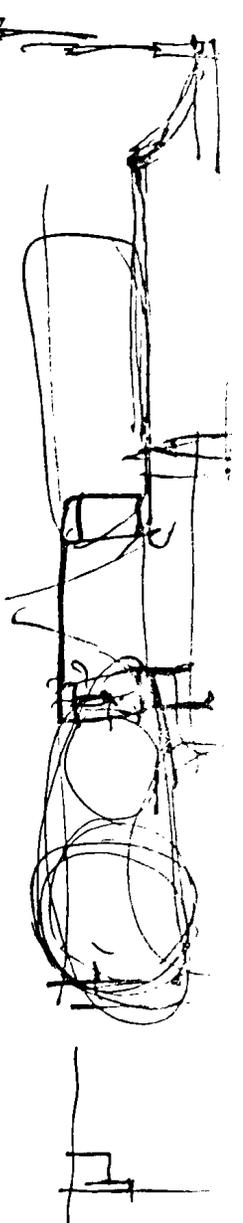




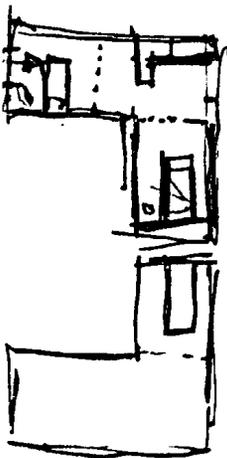
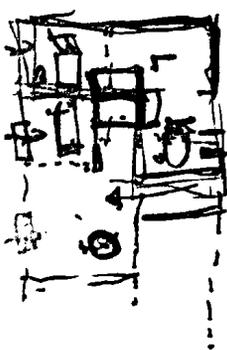
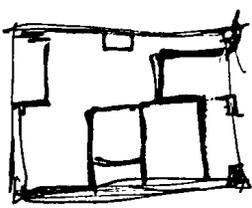
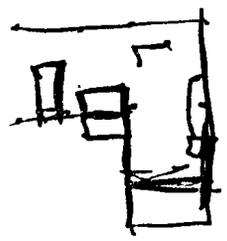
18 - sept - '90



15-1

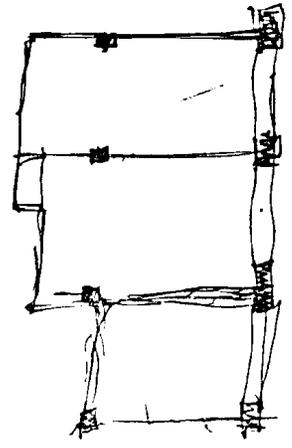
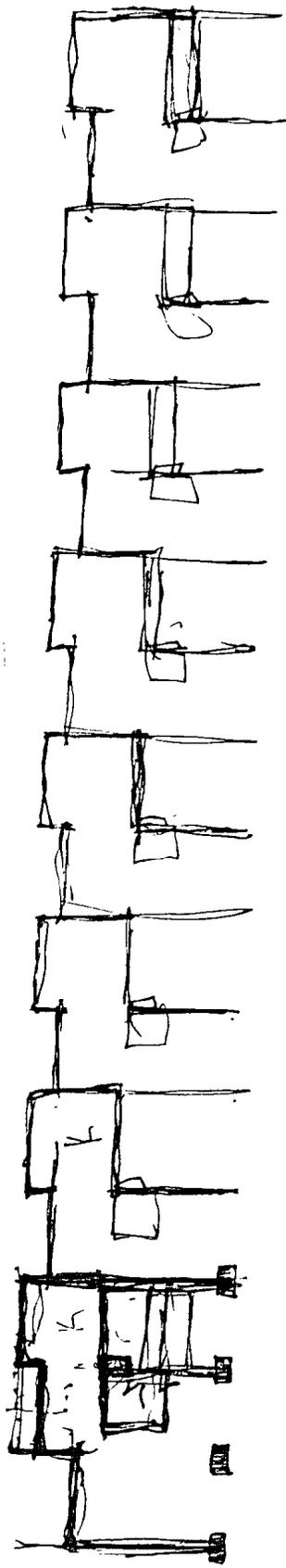
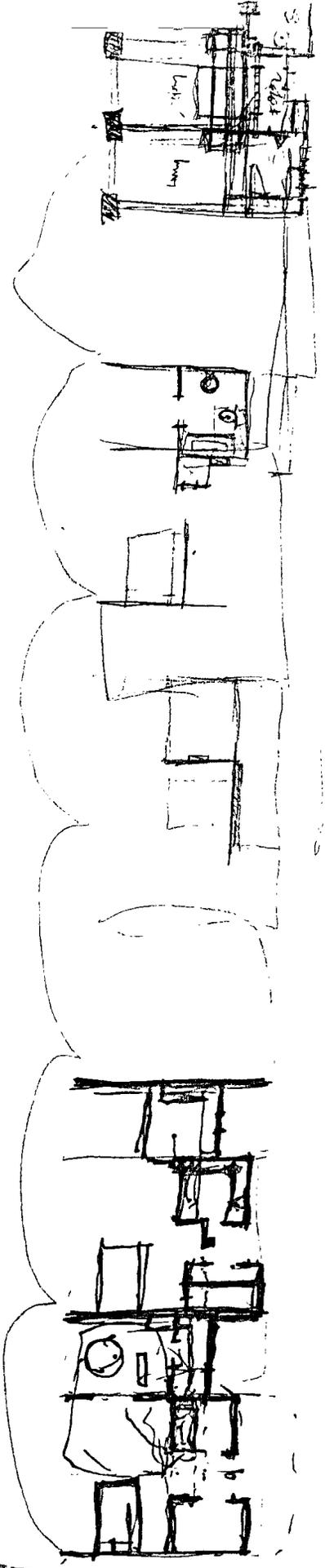


1-4 SFT.
35 SQ FT
DOWN



6-1

Crisscross
2-2-2

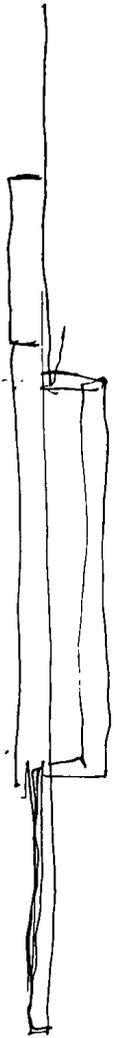
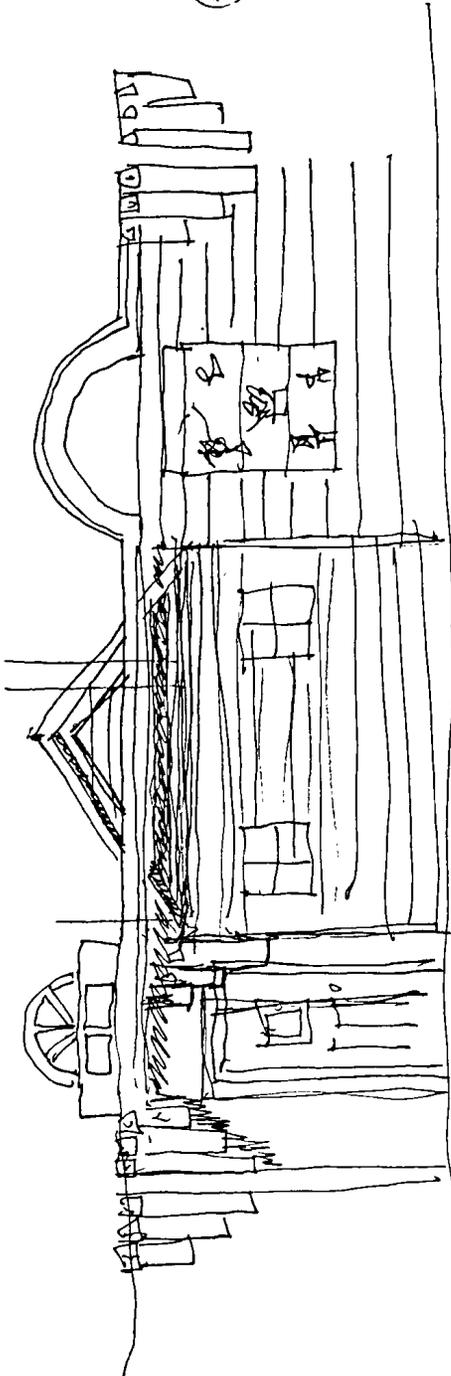
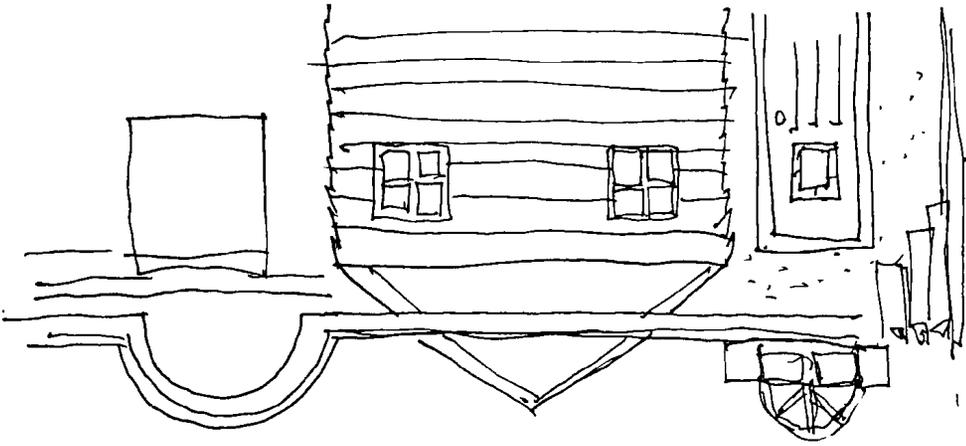


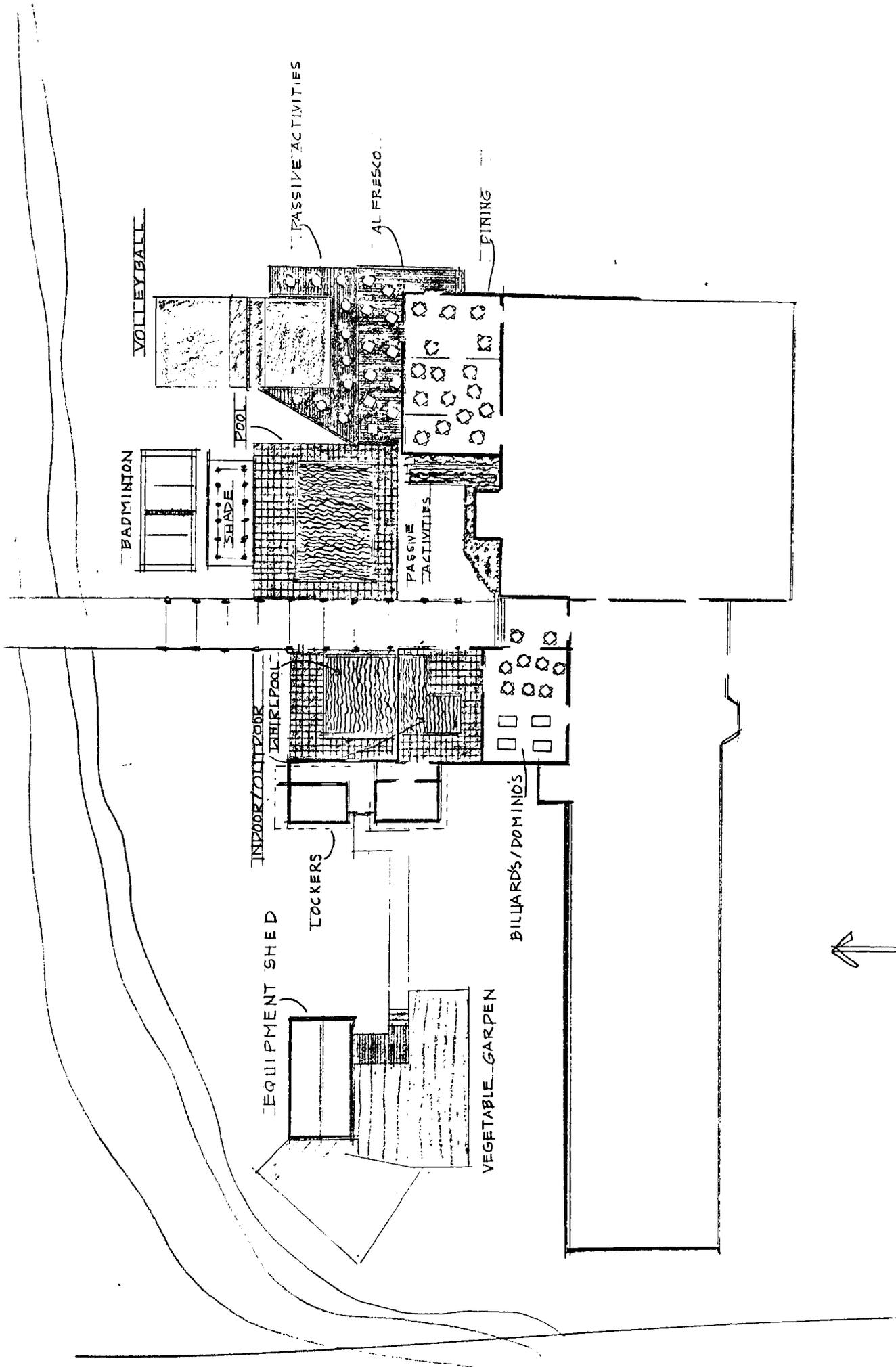
24
2/10

19
17

11







VOLLEYBALL

PASSIVE ACTIVITIES

AL FRESCO

PINING

ADMINISTRATION

POOL

SHADE

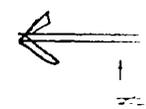
PASSIVE ACTIVITIES

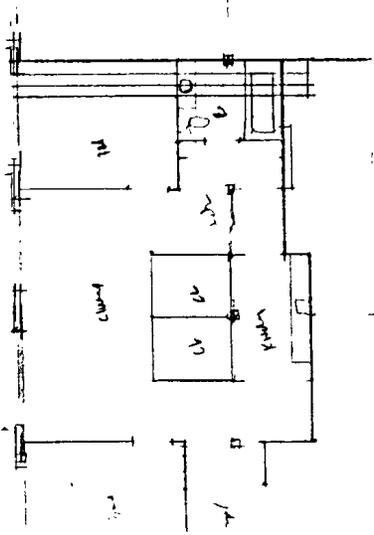
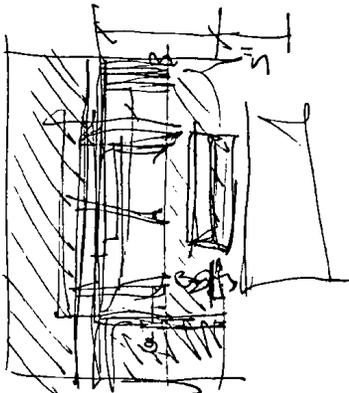
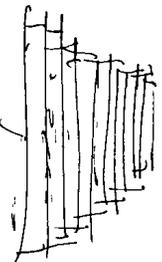
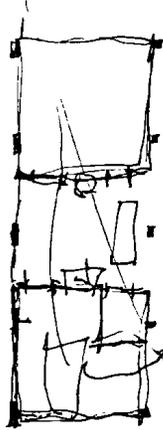
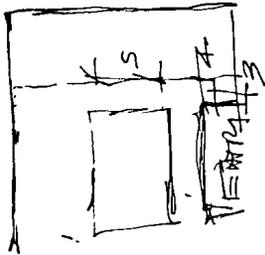
INDOOR/OUTDOOR SWIMMING POOL

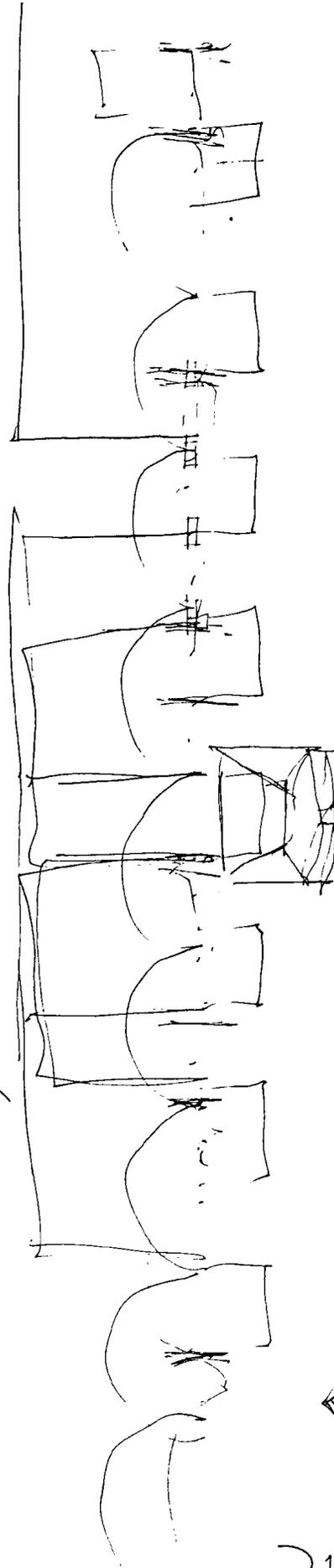
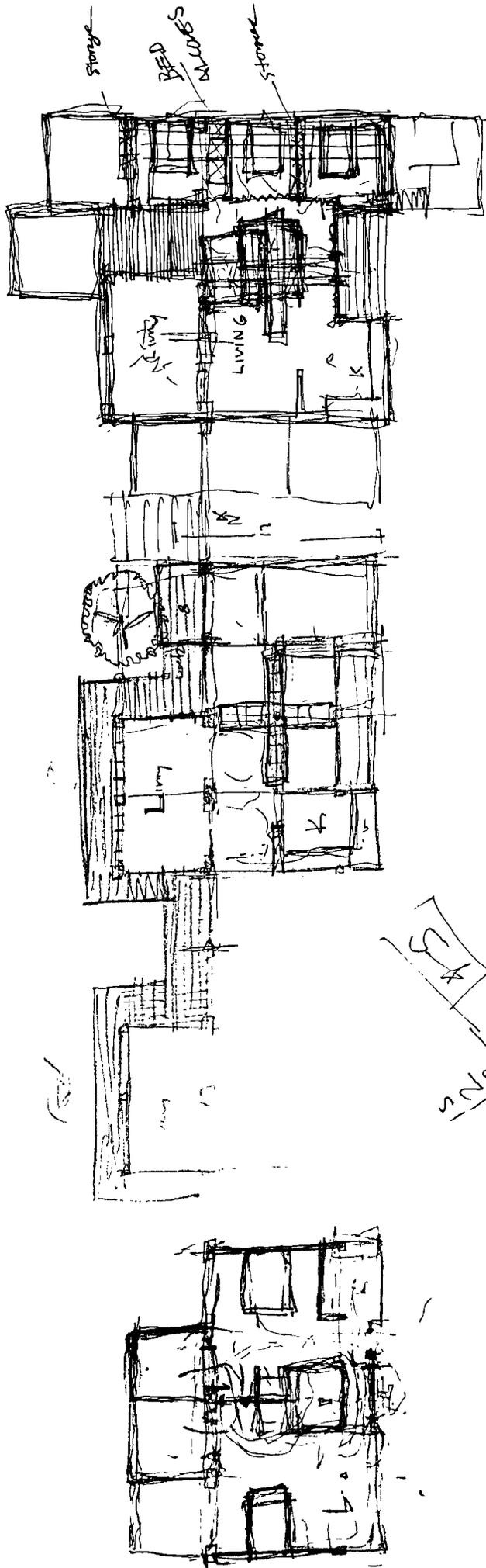
LOCKERS

VEGETABLE GARDEN

BILLIARDS/DOMINO'S







5 X 3
 15-17

12-17

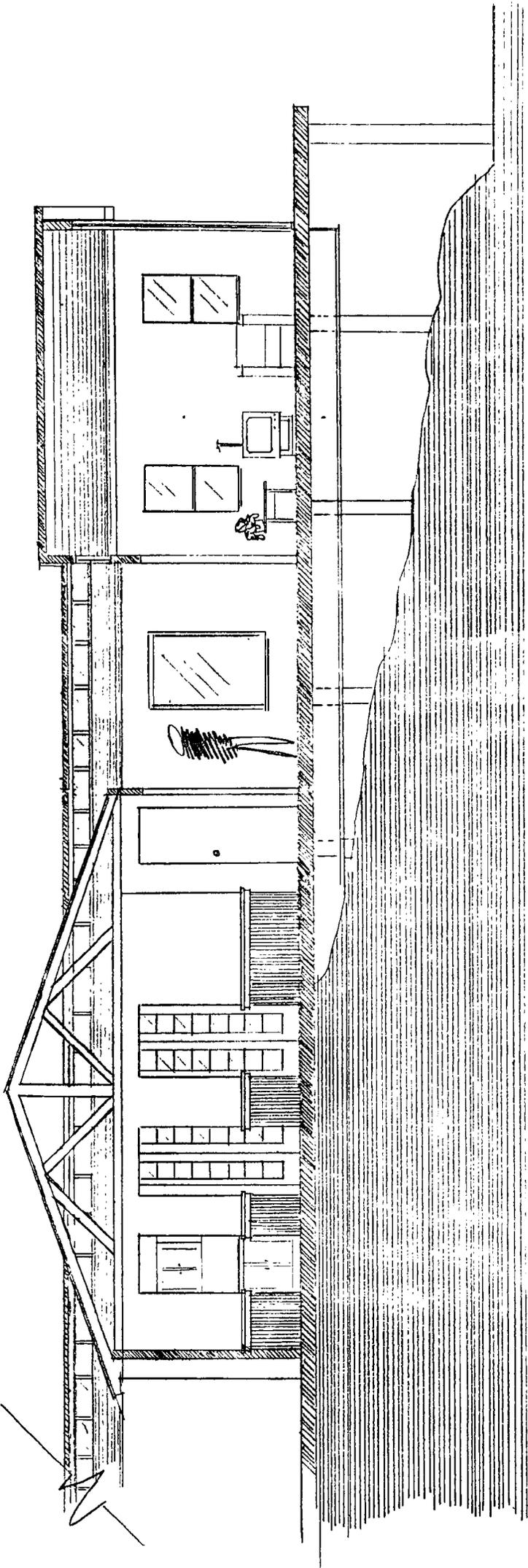
15-17

15-17

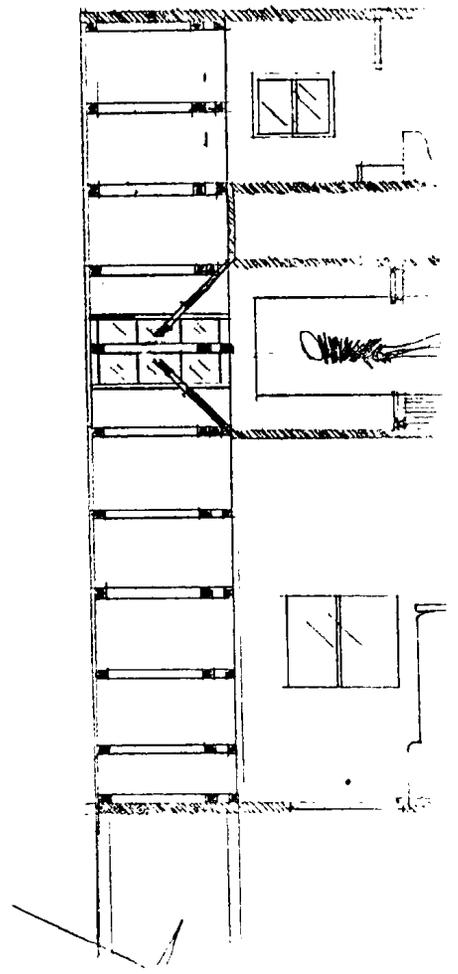
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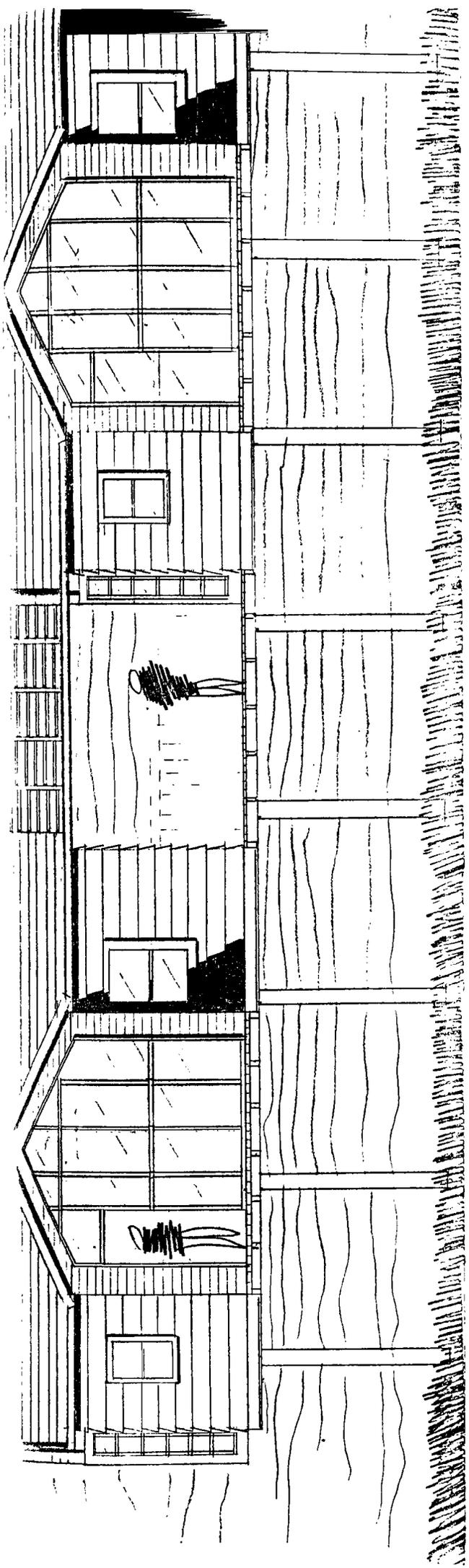


15-17

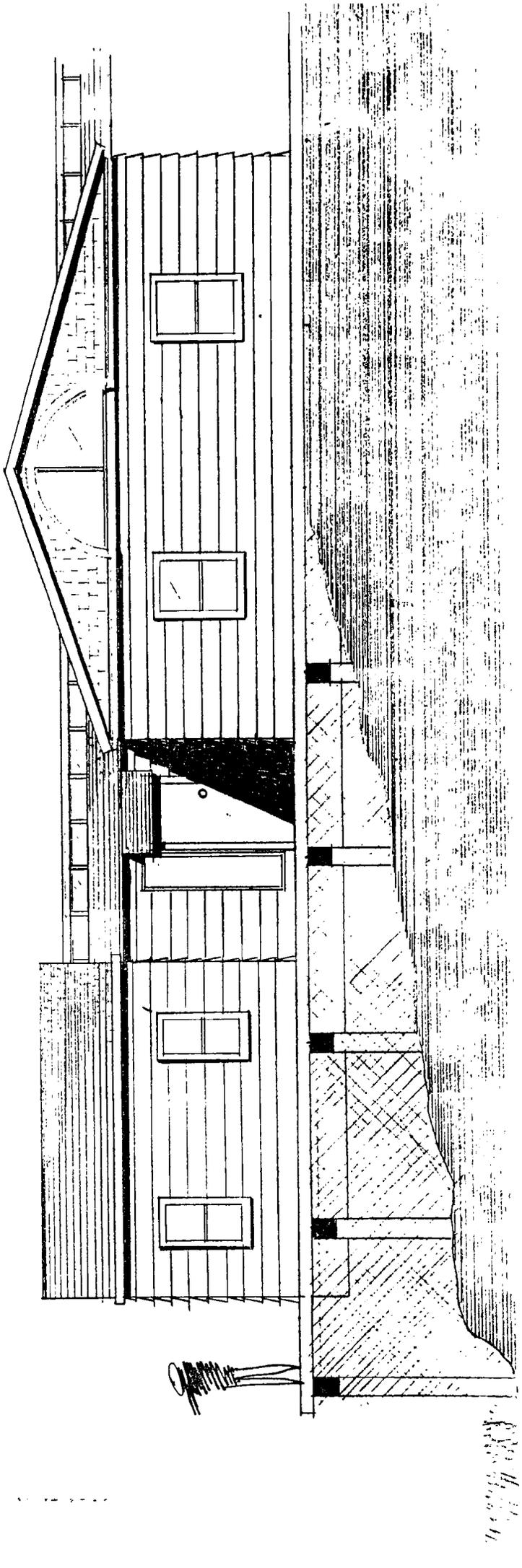


SECTION 1/4 = 1'-0"



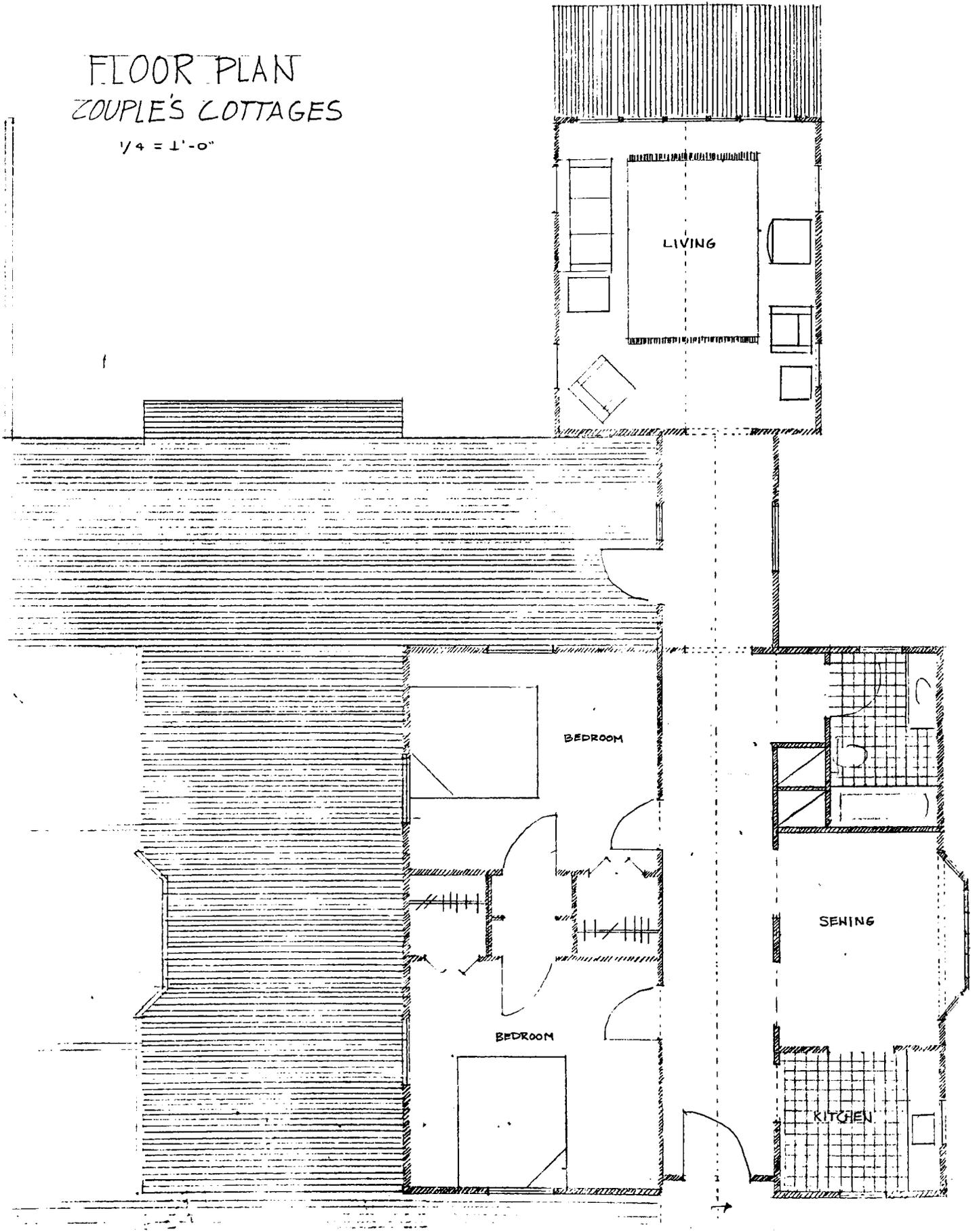


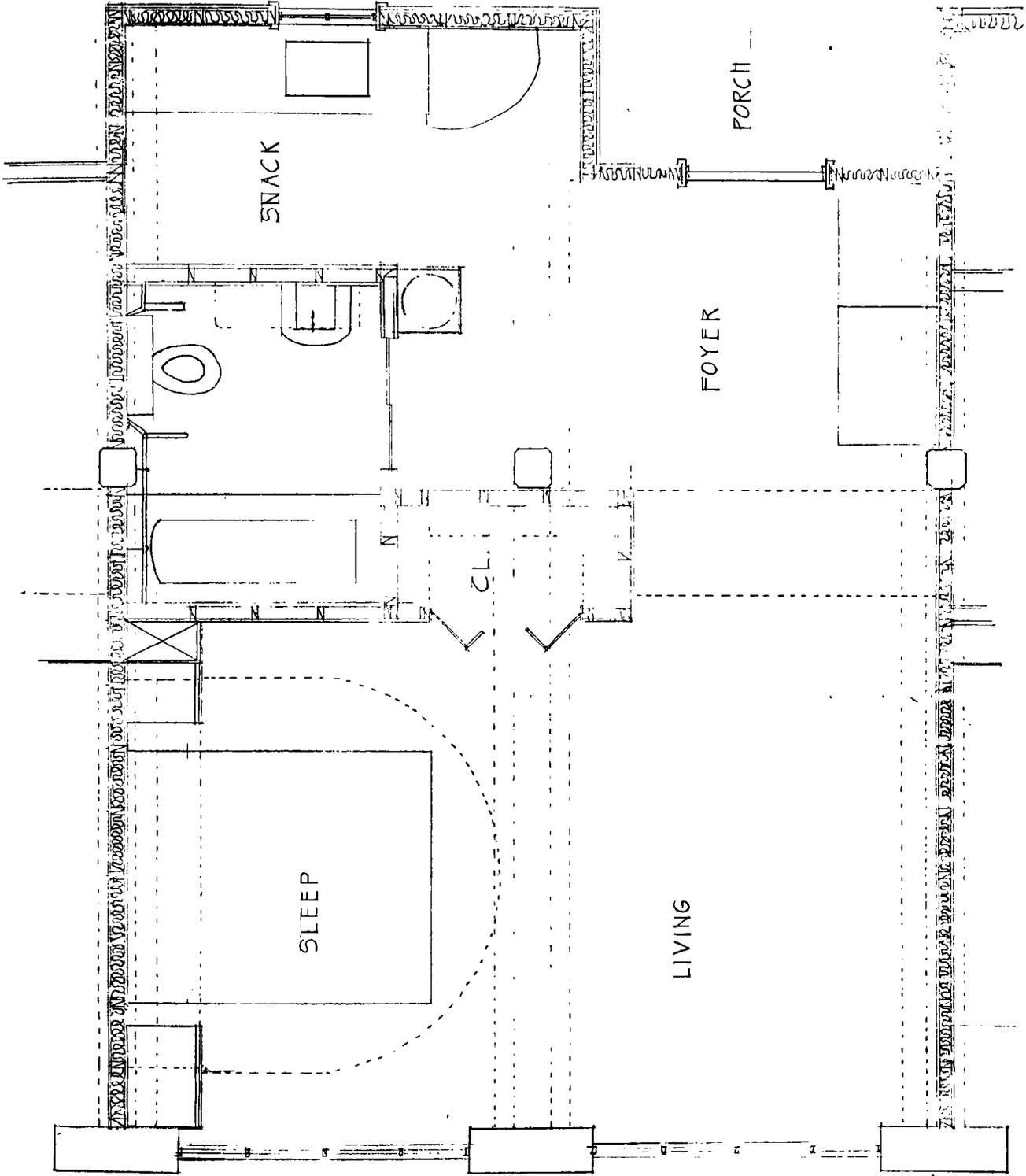
ELEVATION 1/4" = 1'-0"

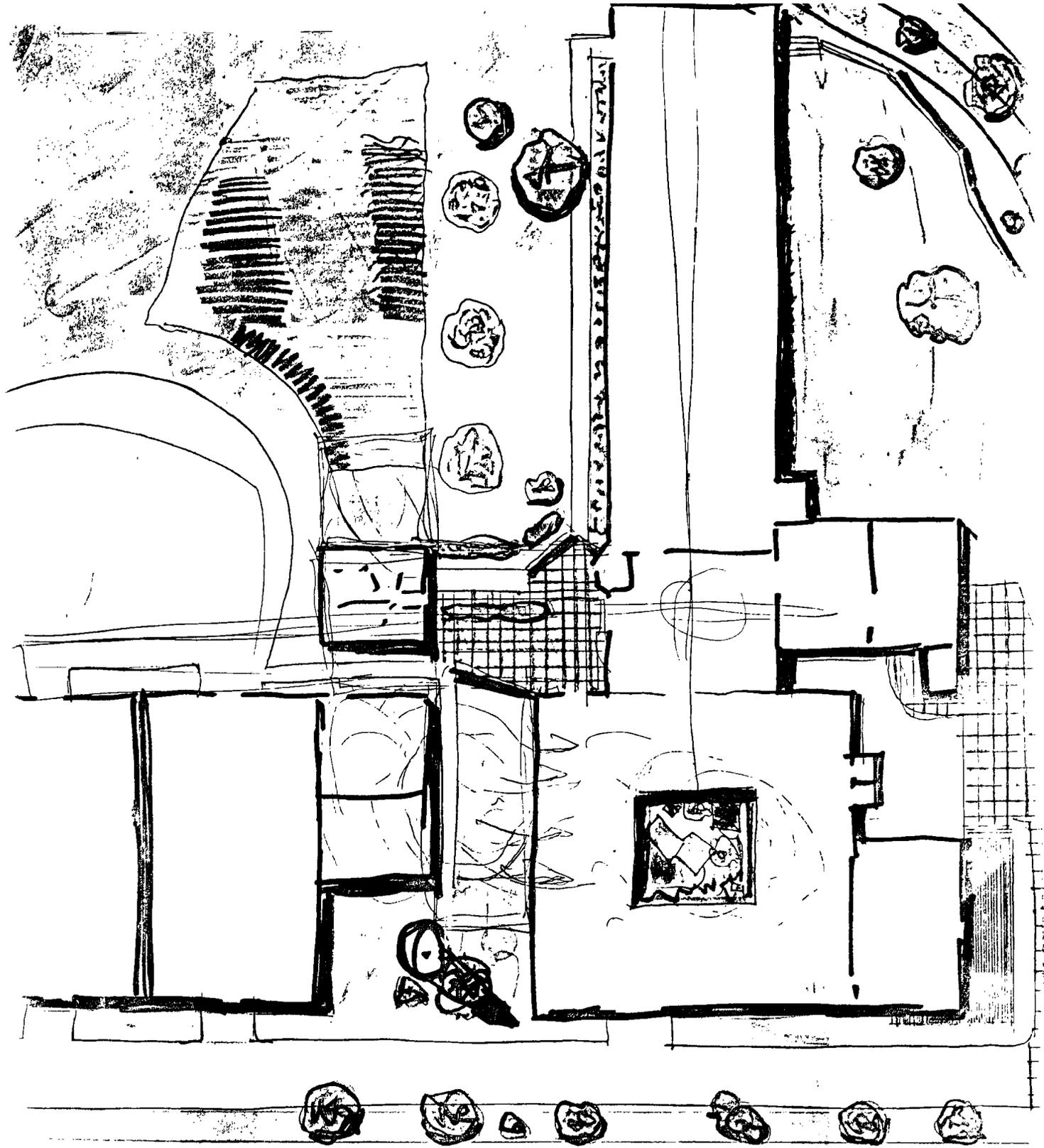


FLOOR PLAN COUPLE'S COTTAGES

1/4" = 1'-0"

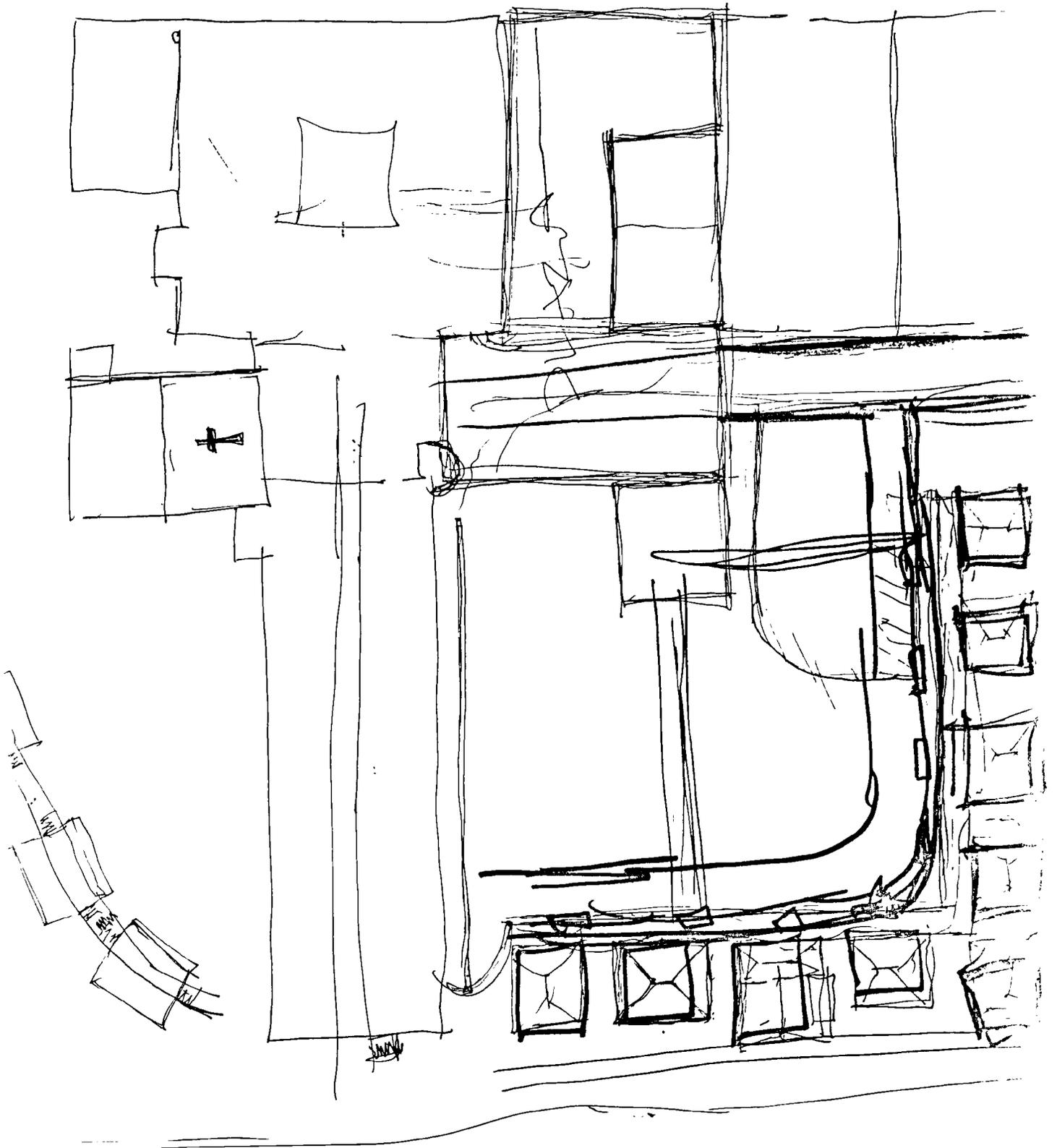


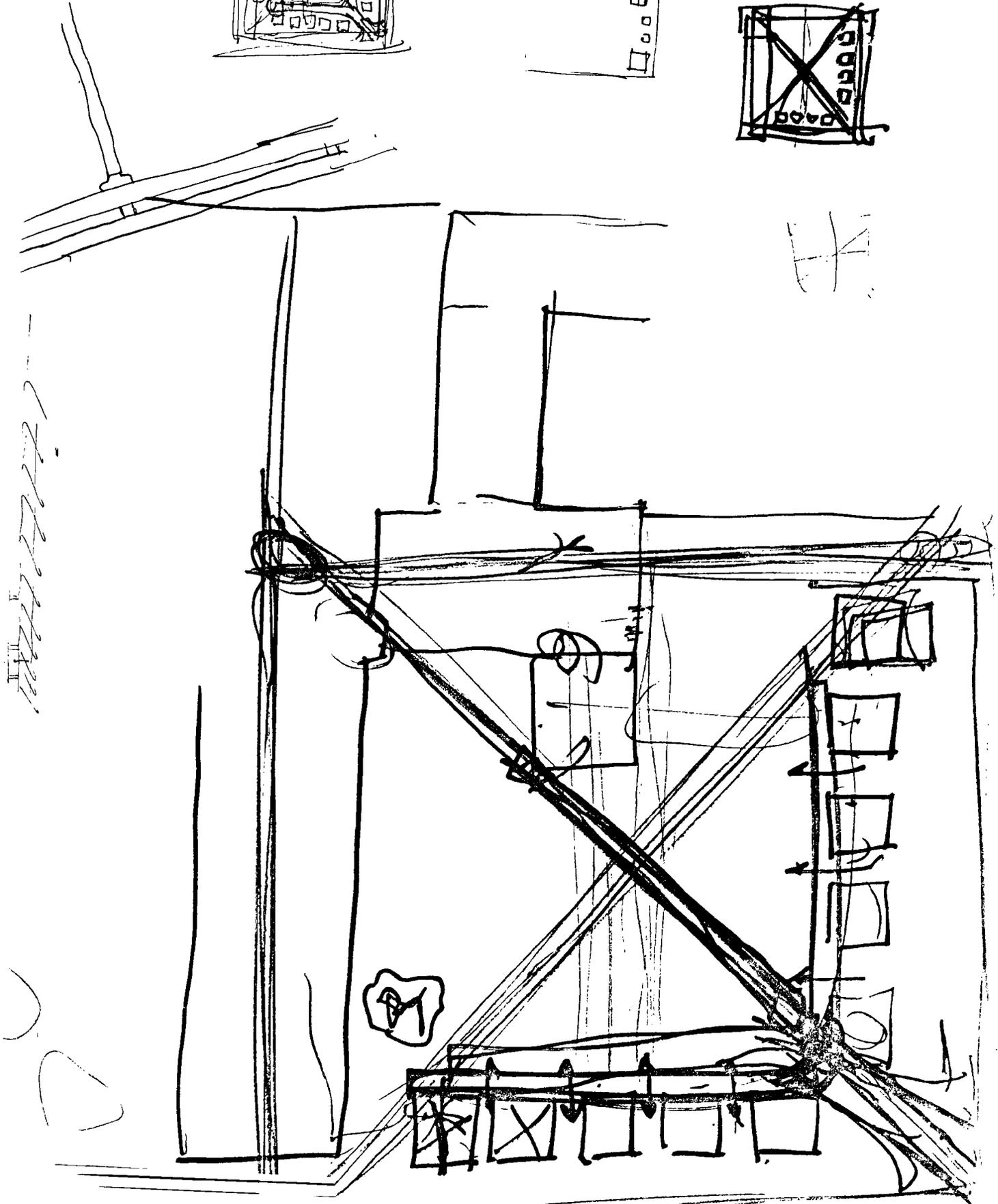
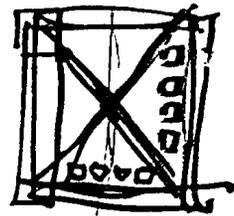
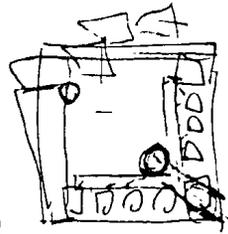
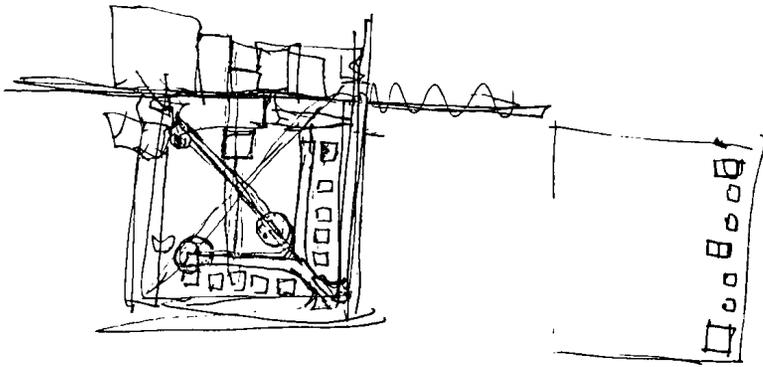


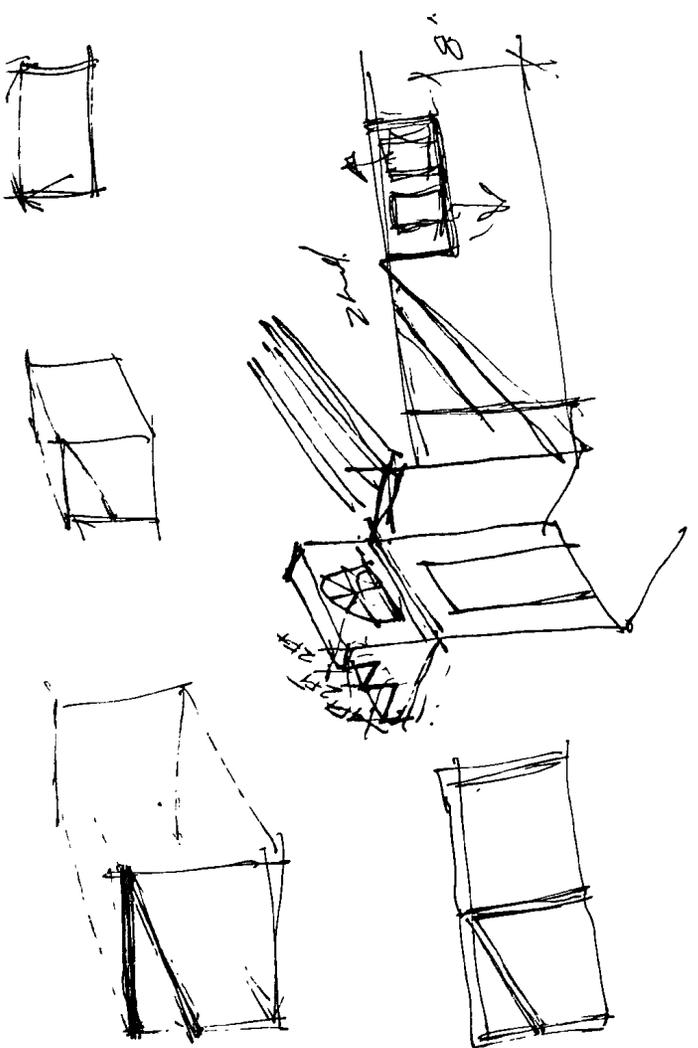


SITE PLAN

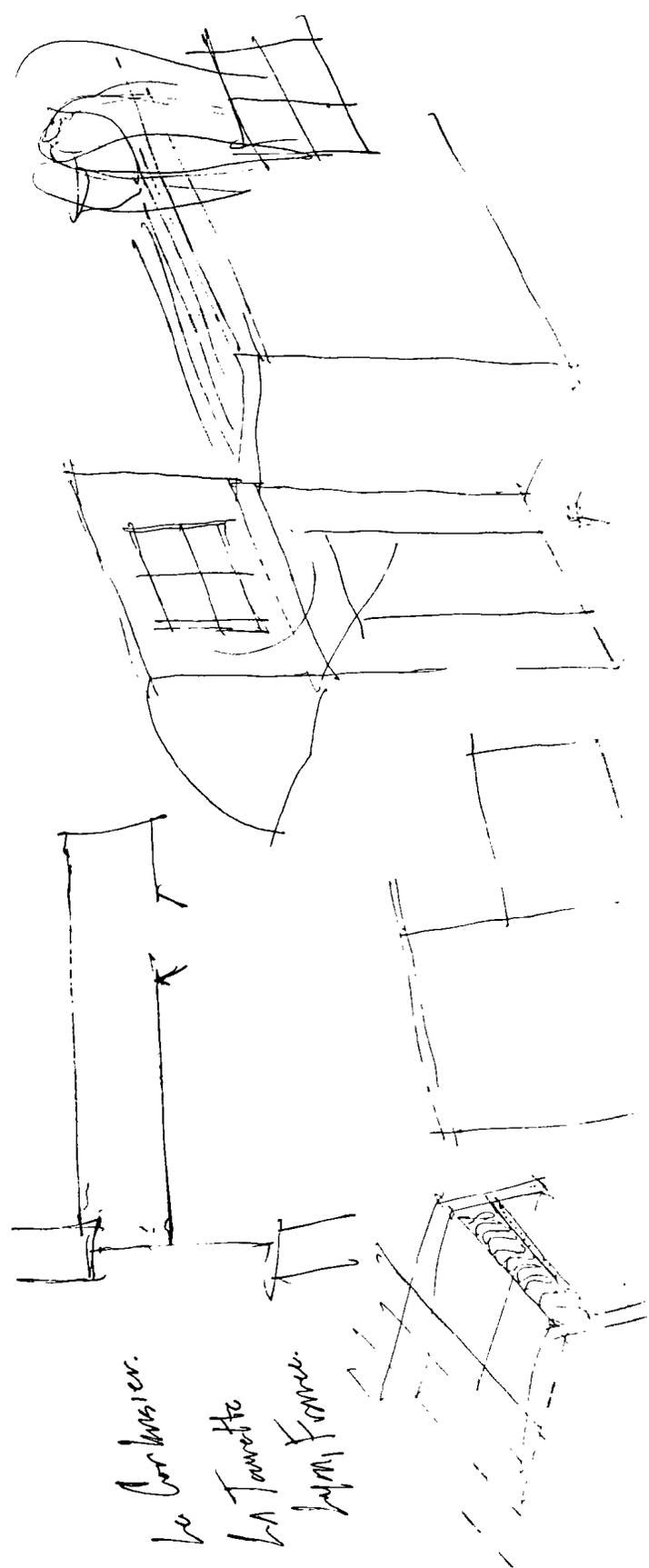






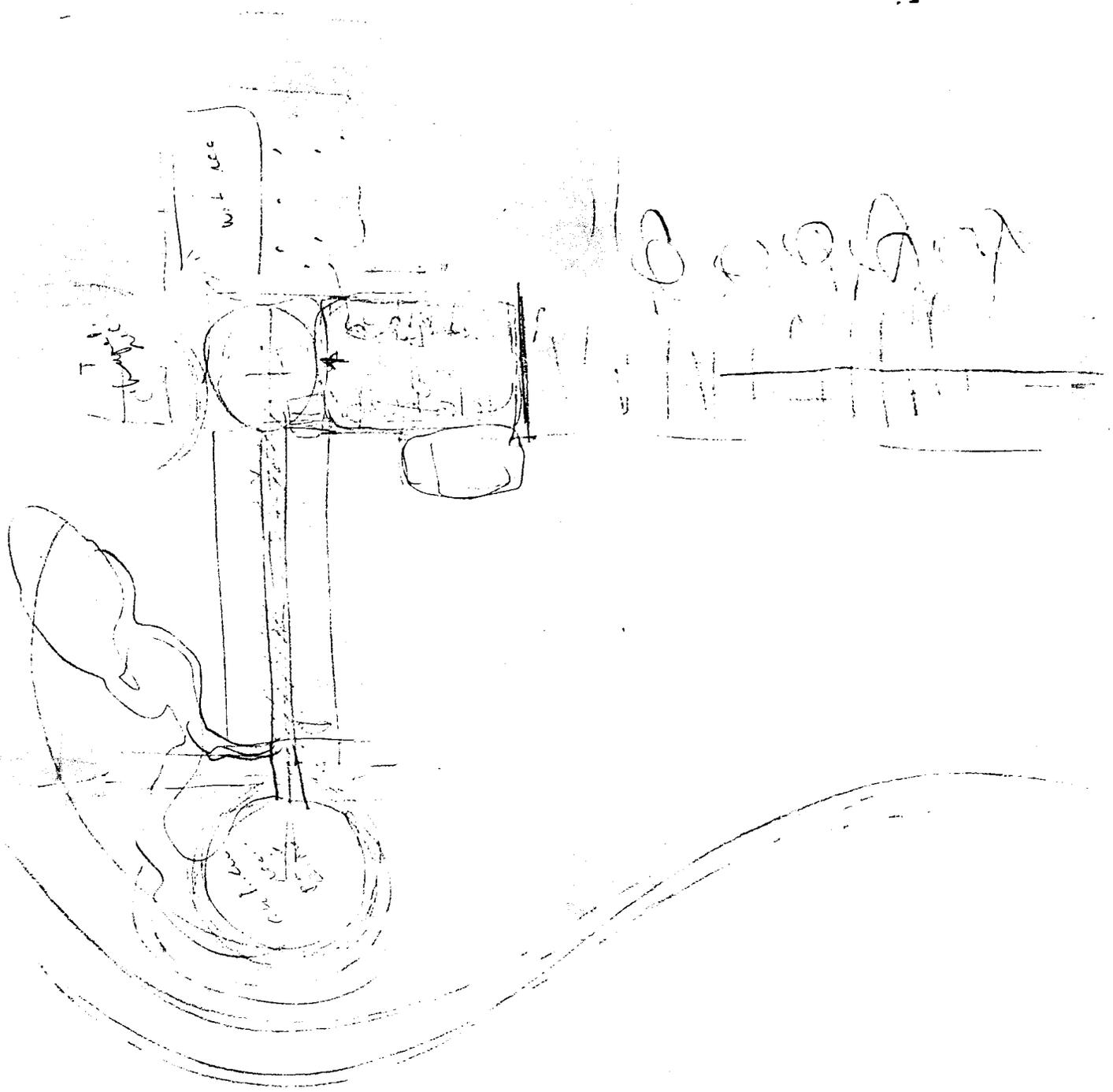


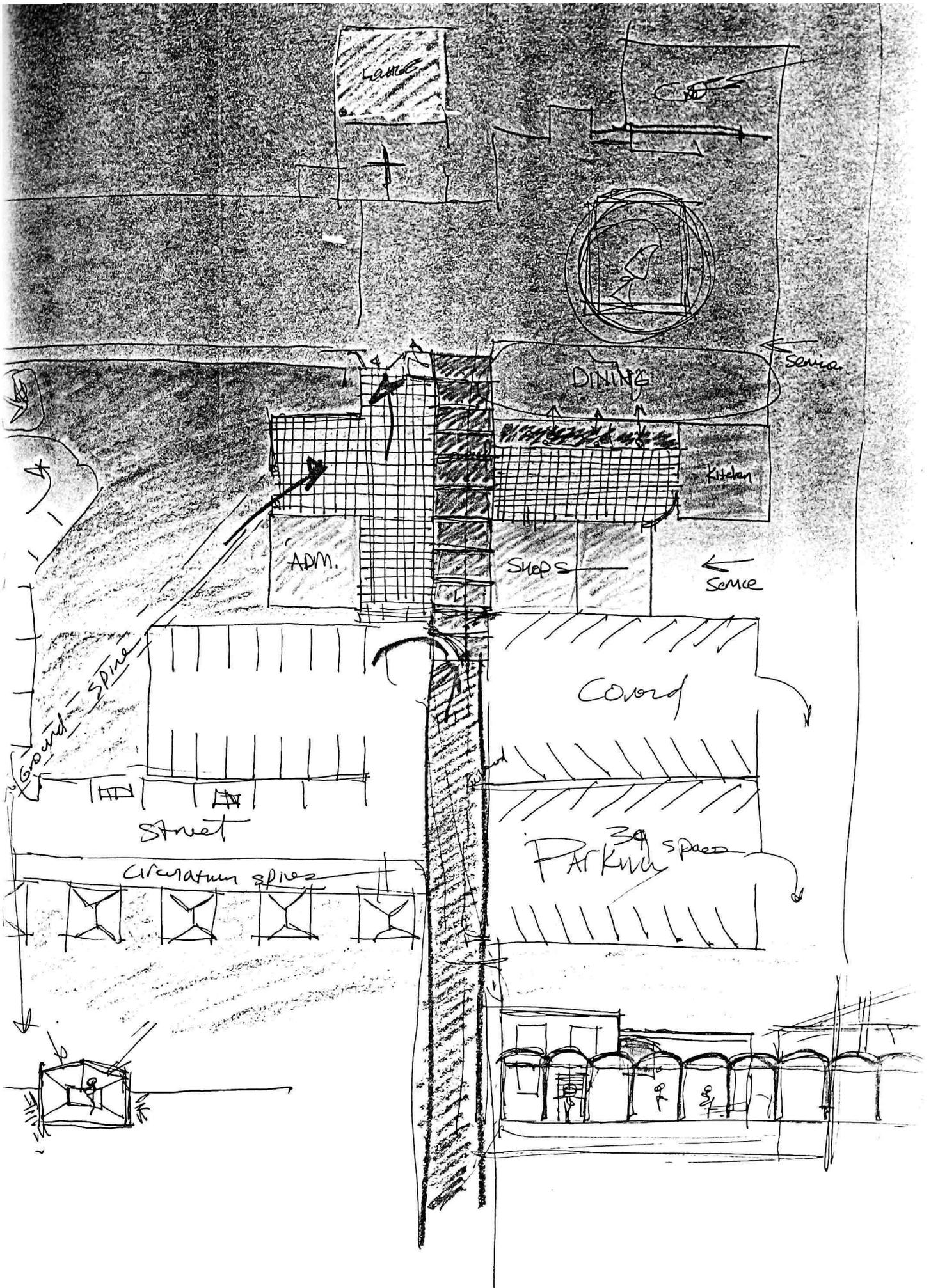
8" - every 16"

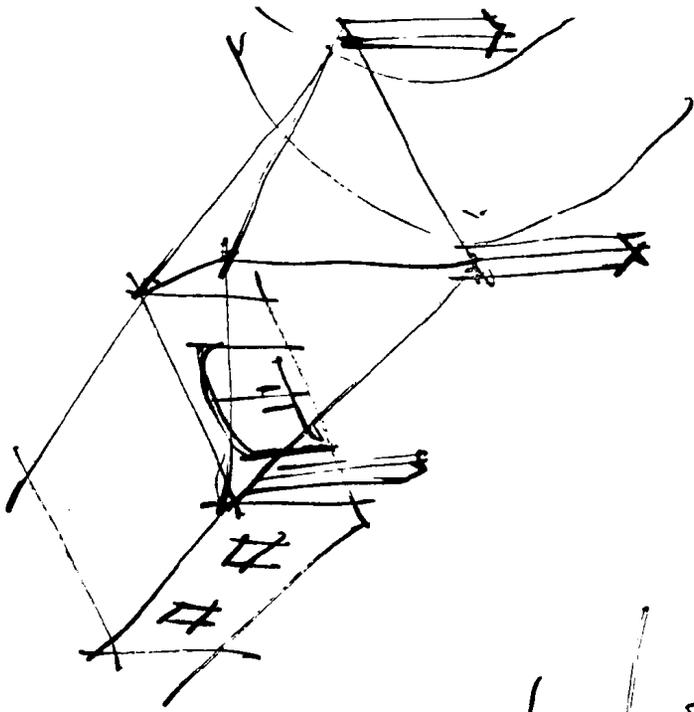


Le Carlier.
La Tour de
Lyon France.

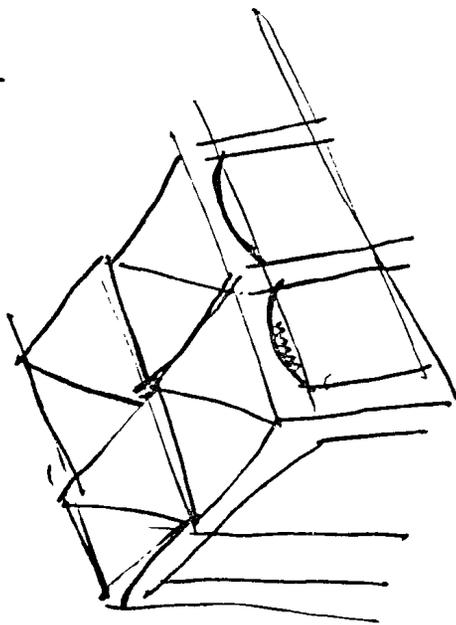
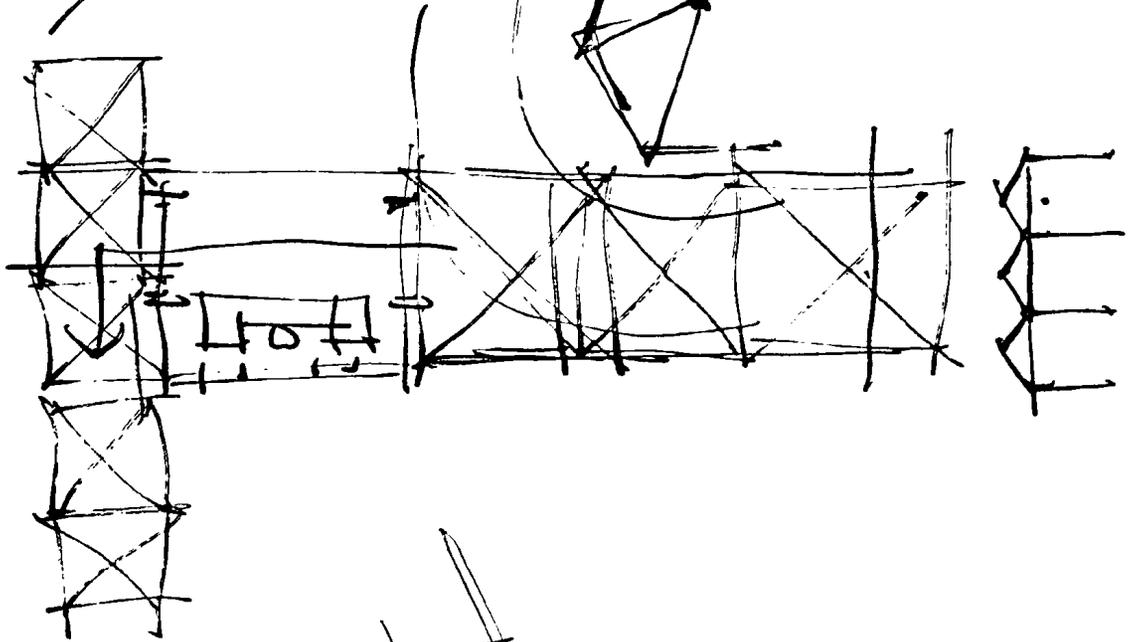
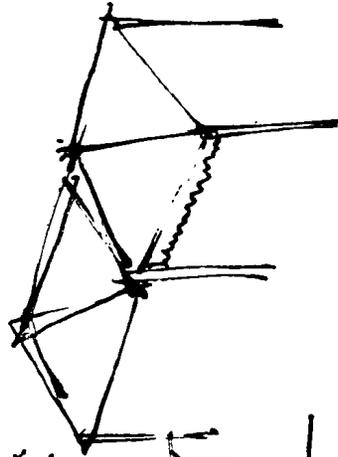
Handwritten scribbles at the top of the page, possibly representing a waveform or a series of connected peaks.

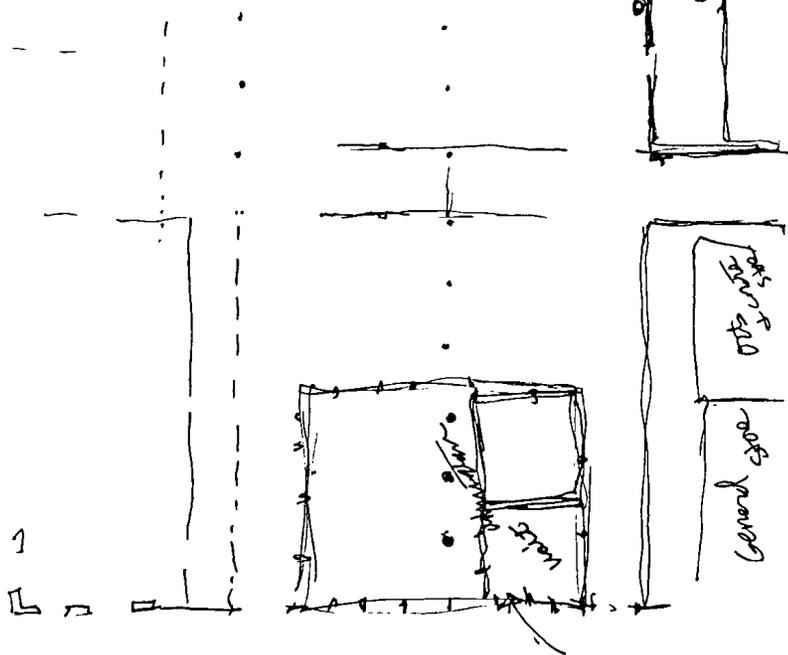
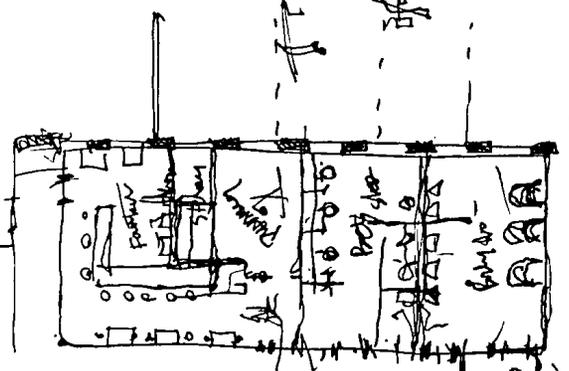
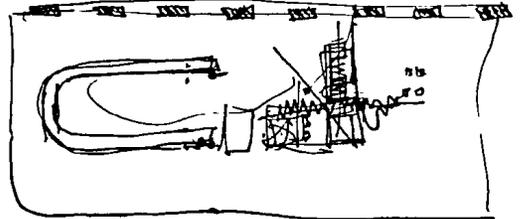
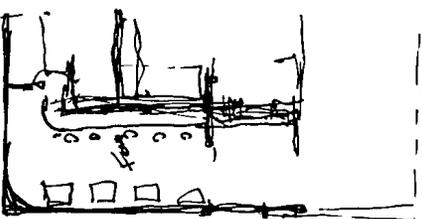
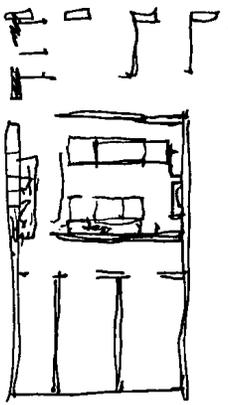
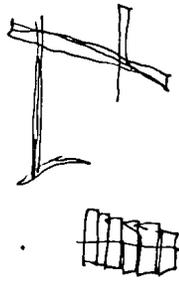






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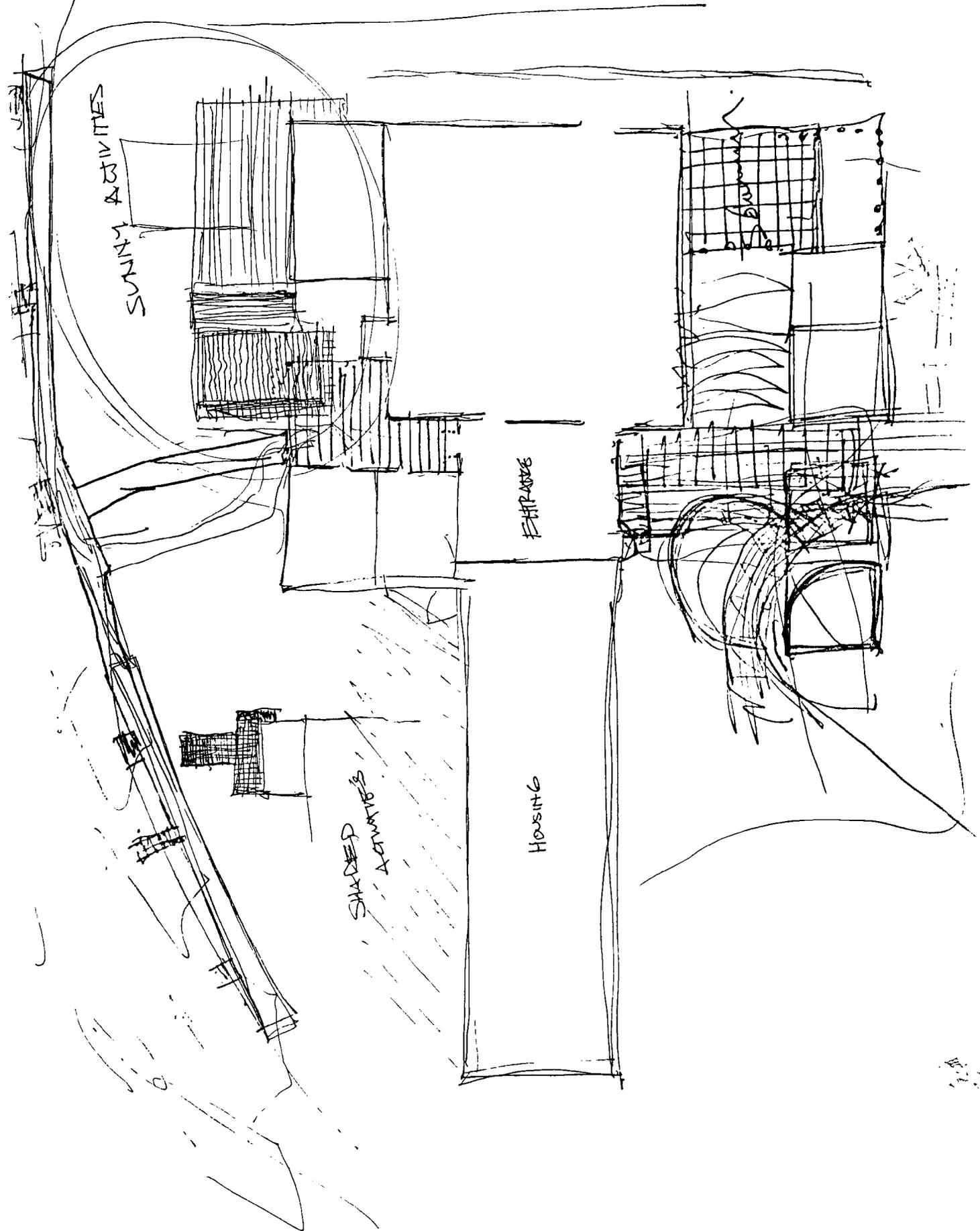




General store

Woods

- 1. STADIUM
- 2. POOL
- 3. VOLLEYBALL COURTS
- 4. BATTMATTON COURTS
- 5. OUTSIDE VEGETATION GARDEN



ACTIVITIES & SUNBATHING

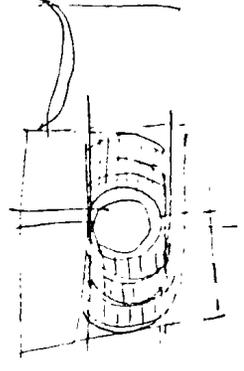
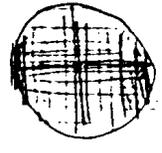
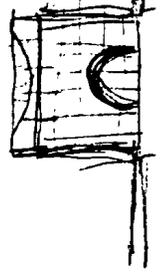
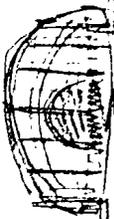
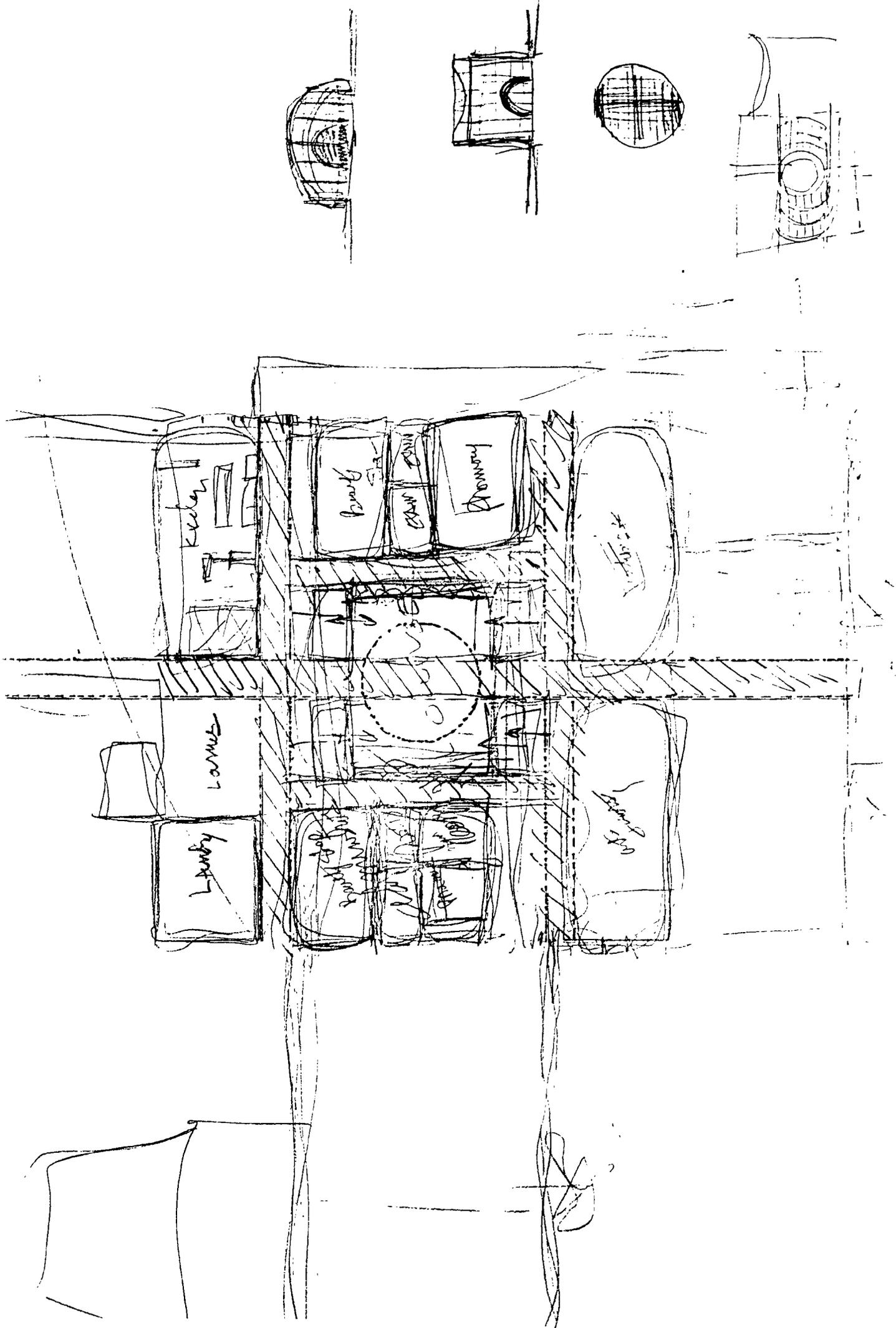
SHARED ACTIVITIES

ENTRANCE

HOUSING

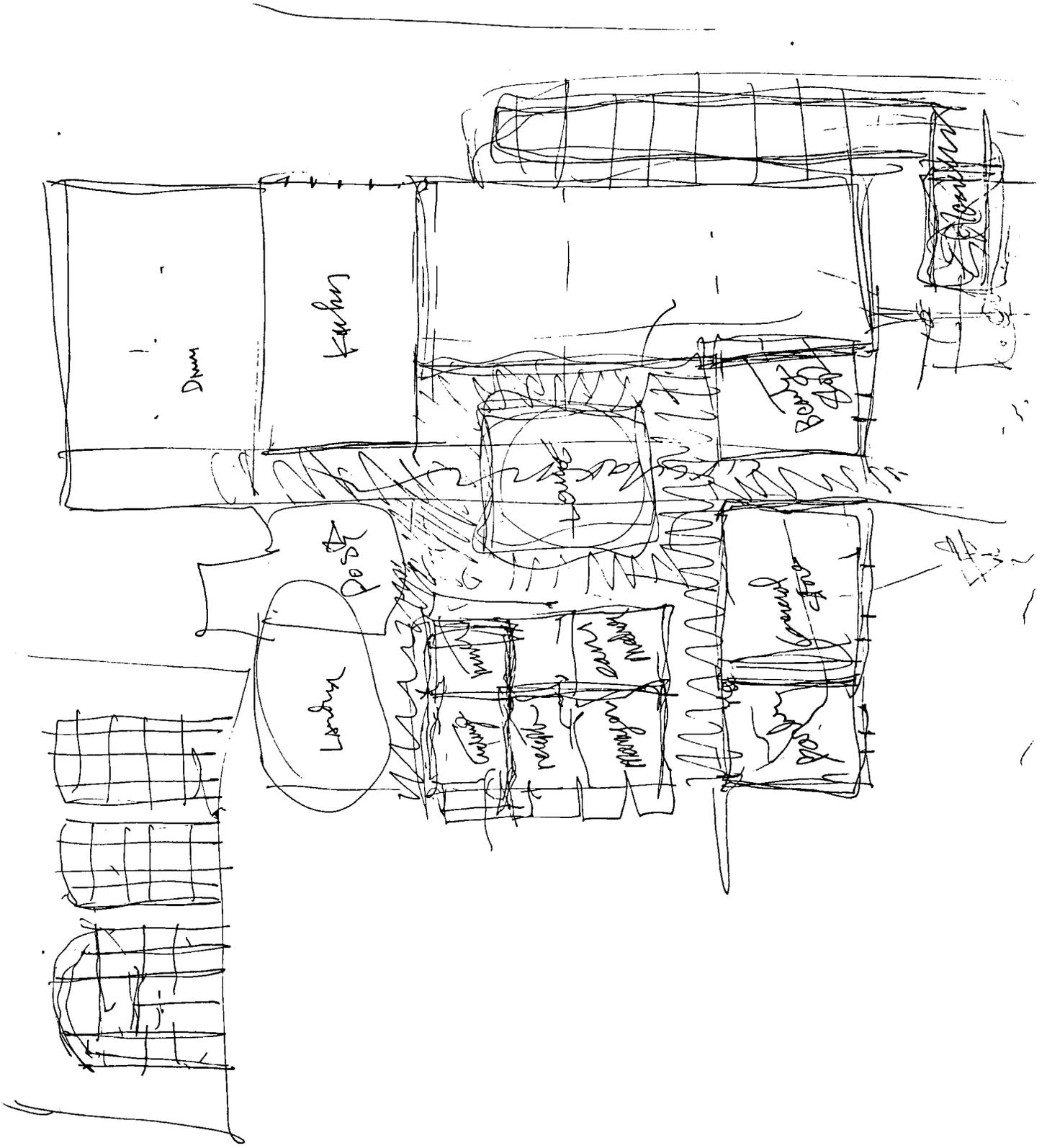
STADIUM

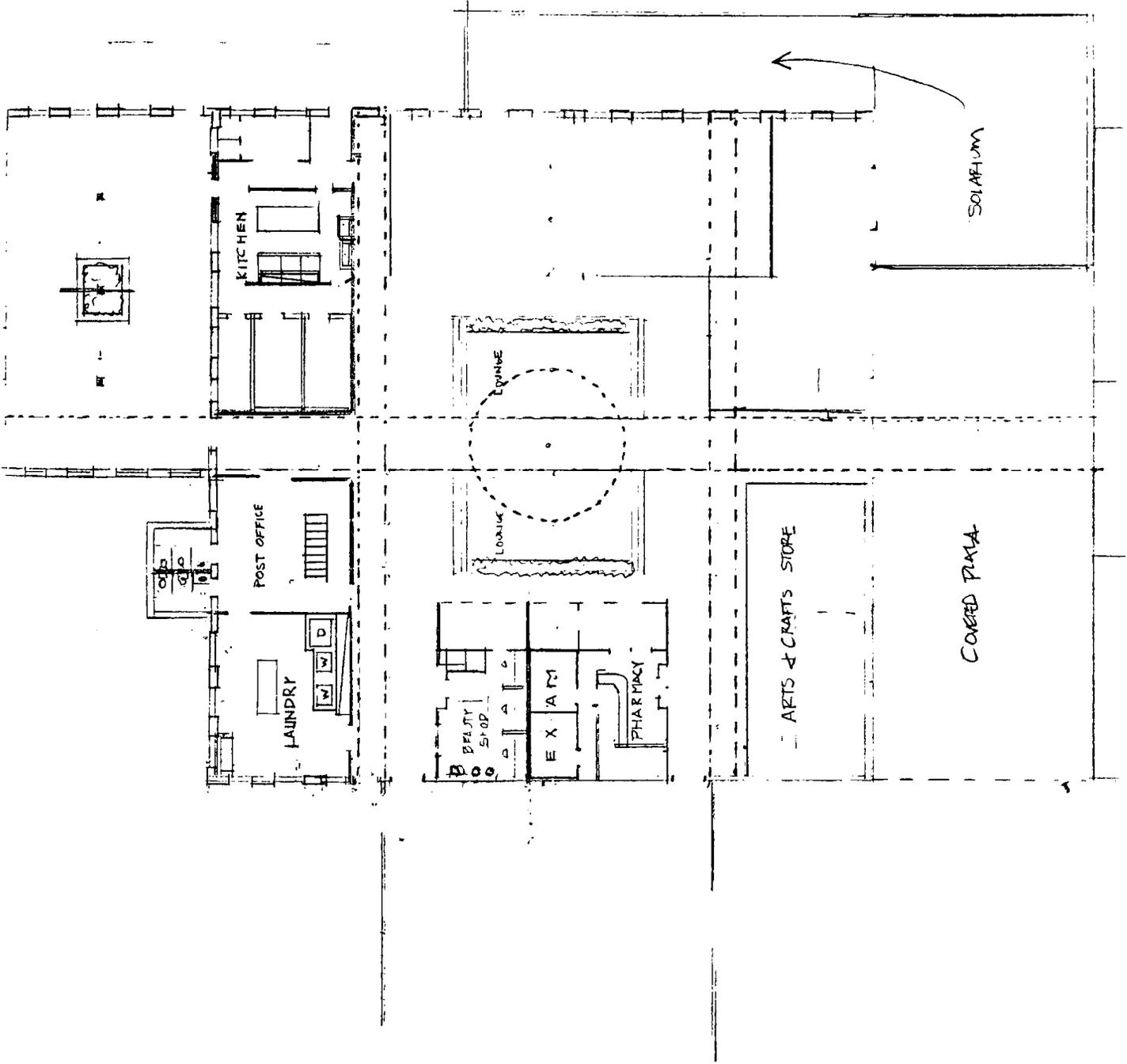
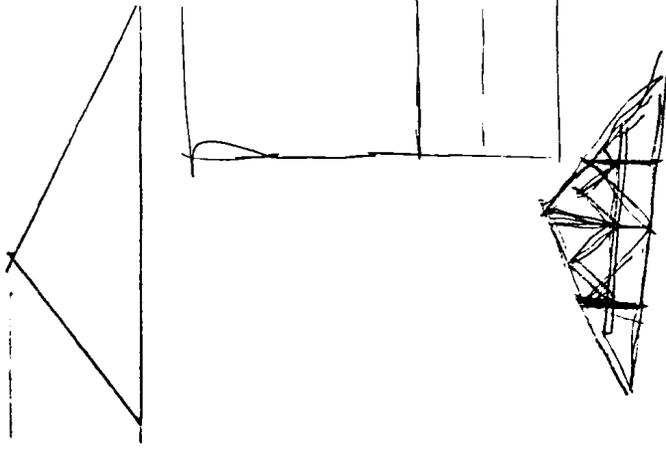
10/10/15



ADMINISTRATIVE
→ MANAGE
→ KU
→ PANG

W

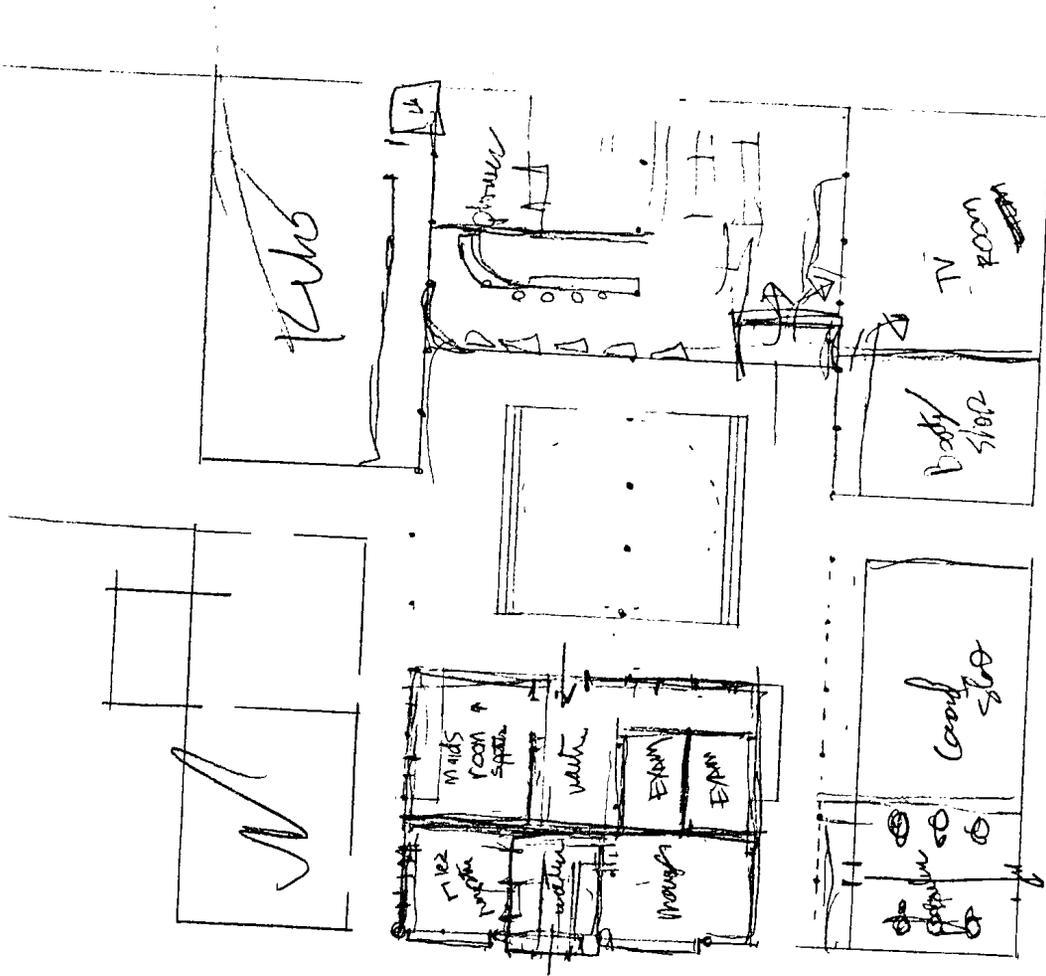
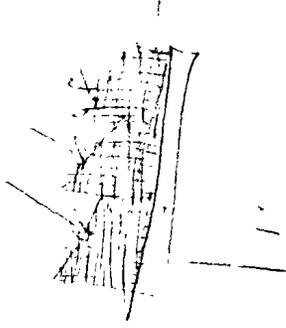


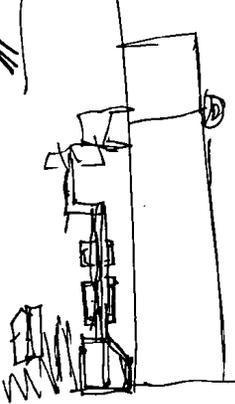
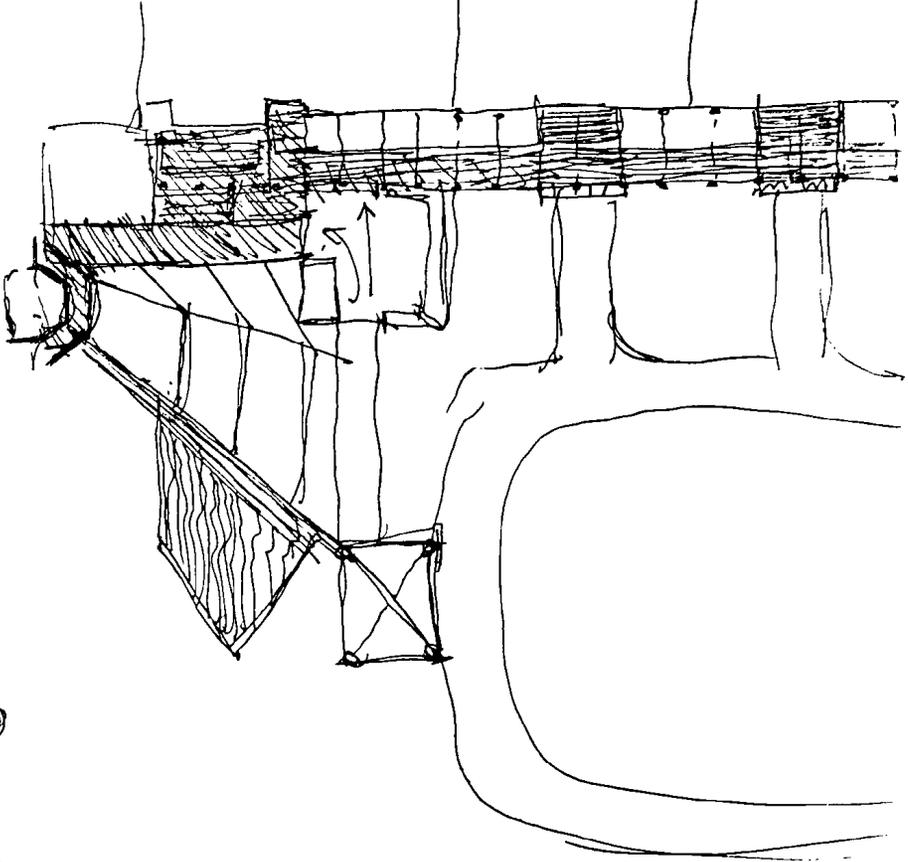
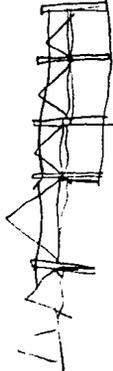
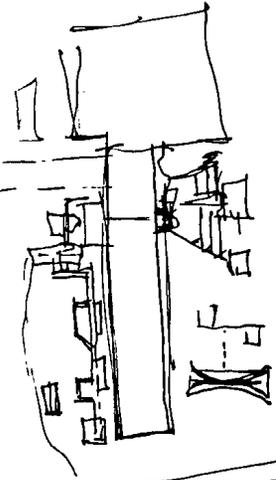
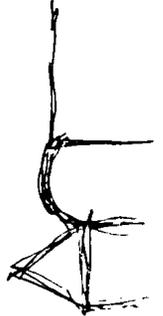
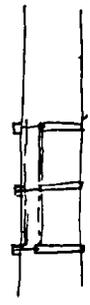
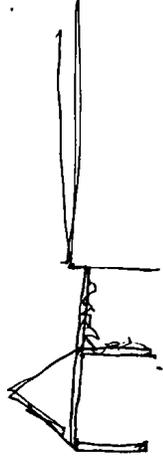
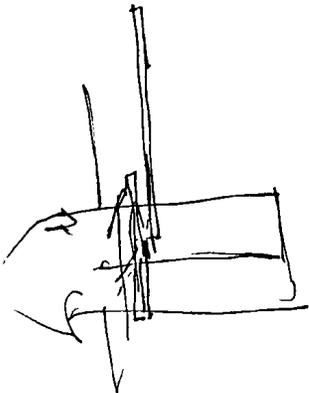


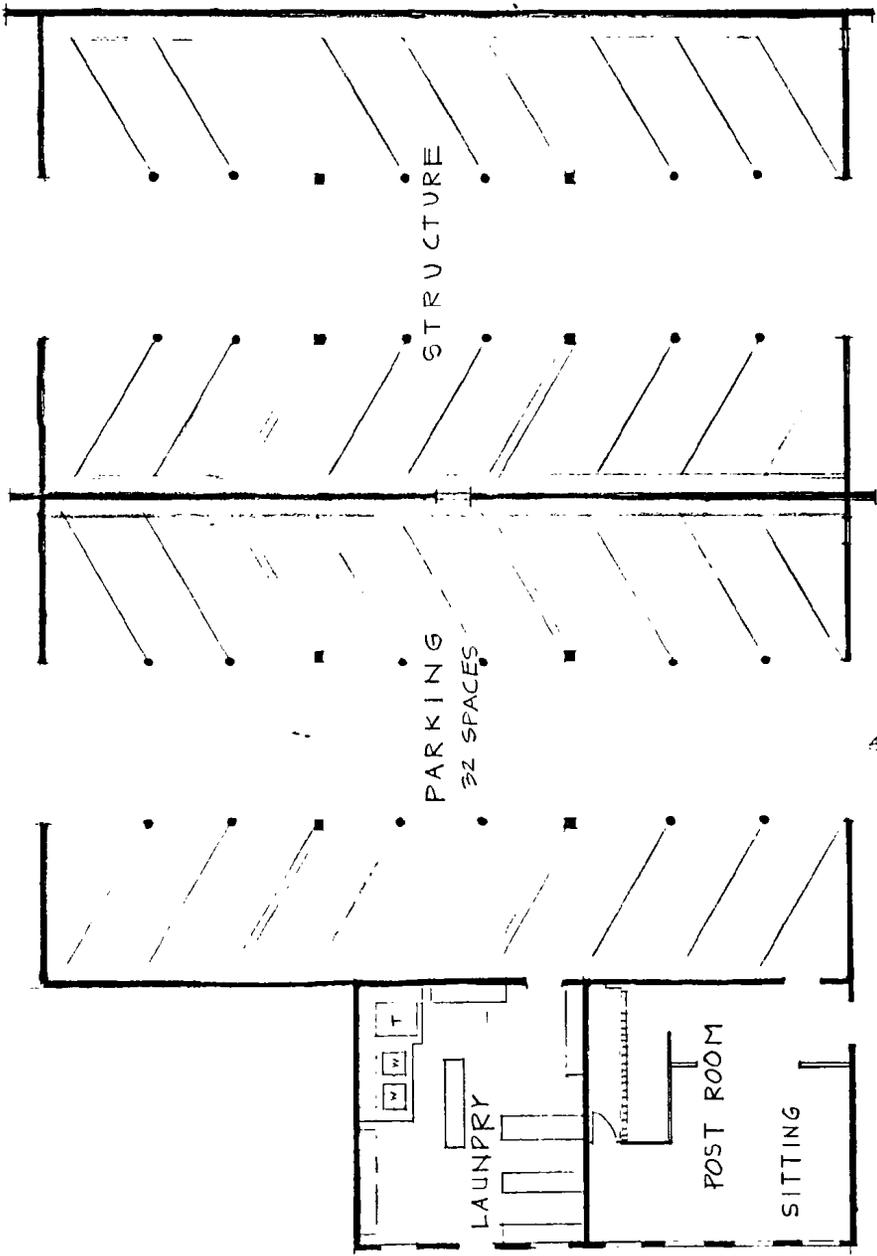
LAUNDRY
 POST OFFICE
 PUCONIAN
 DIMENSIONAL SIDE
 BEHIND SHOP
 BARBER SHOP
 DOMESTICATION

NO
 ANTIQUE
 STORE

ARTS + CRAFTS
 MONTHLY
 MARCH 2014



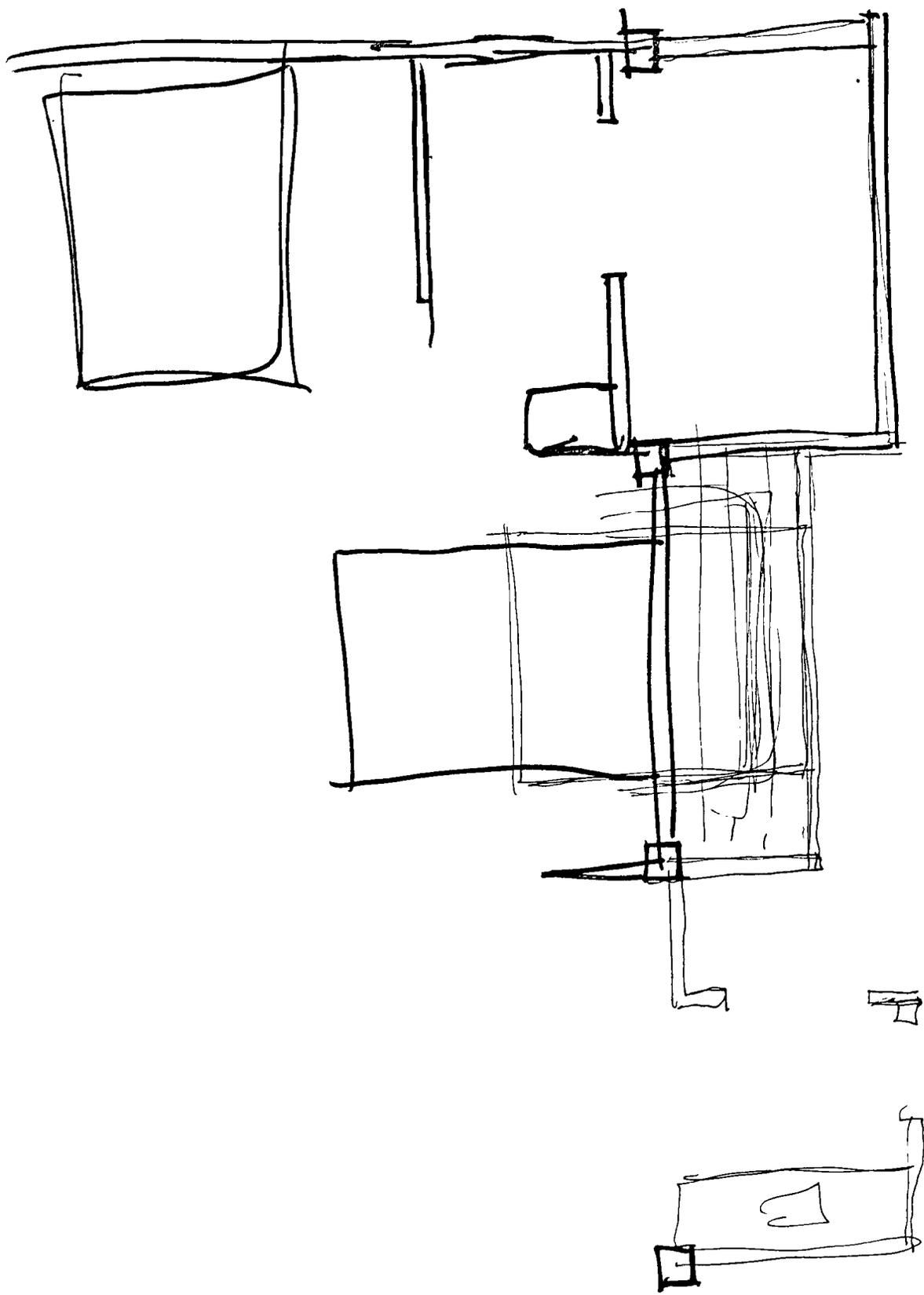


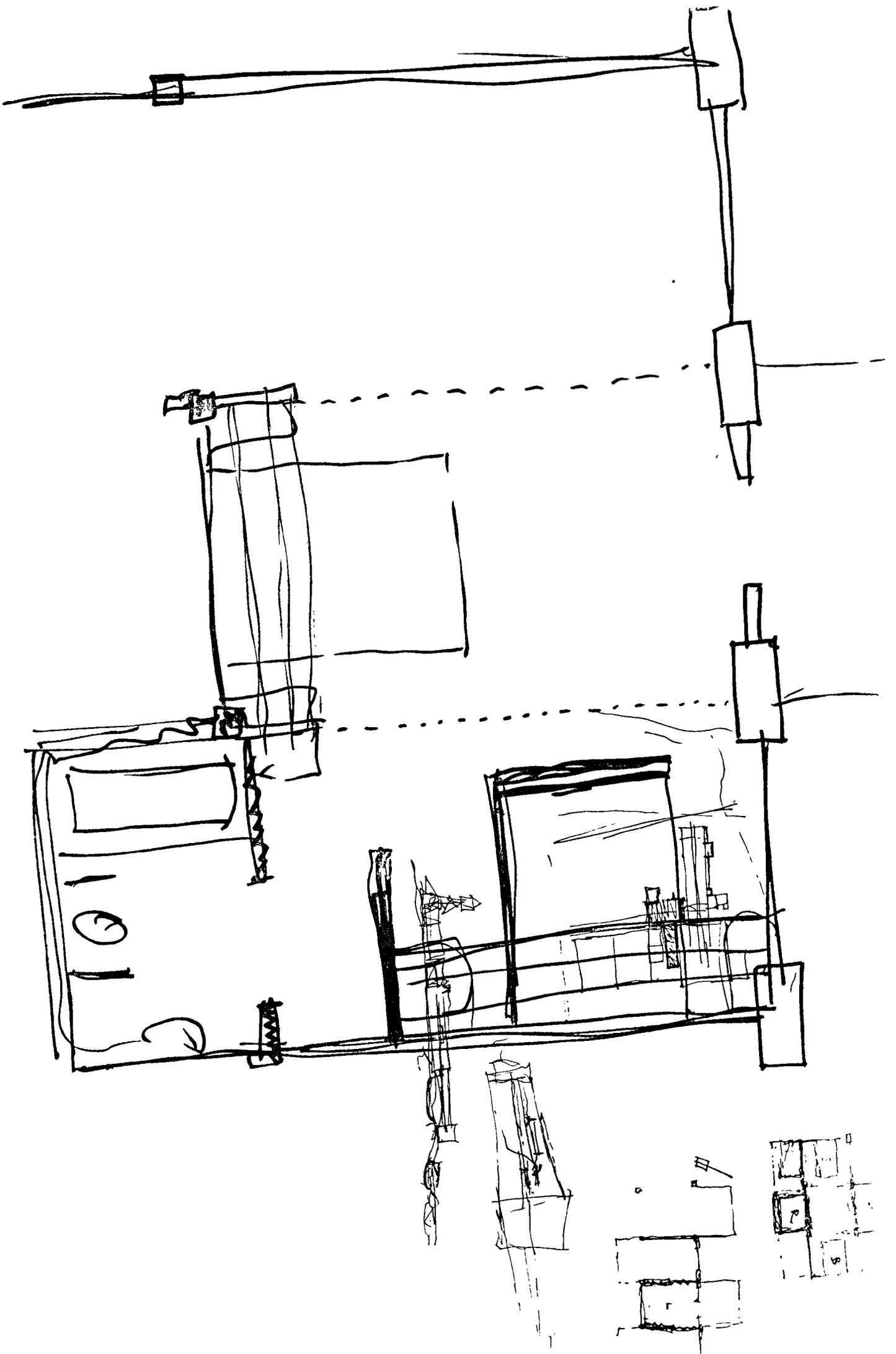


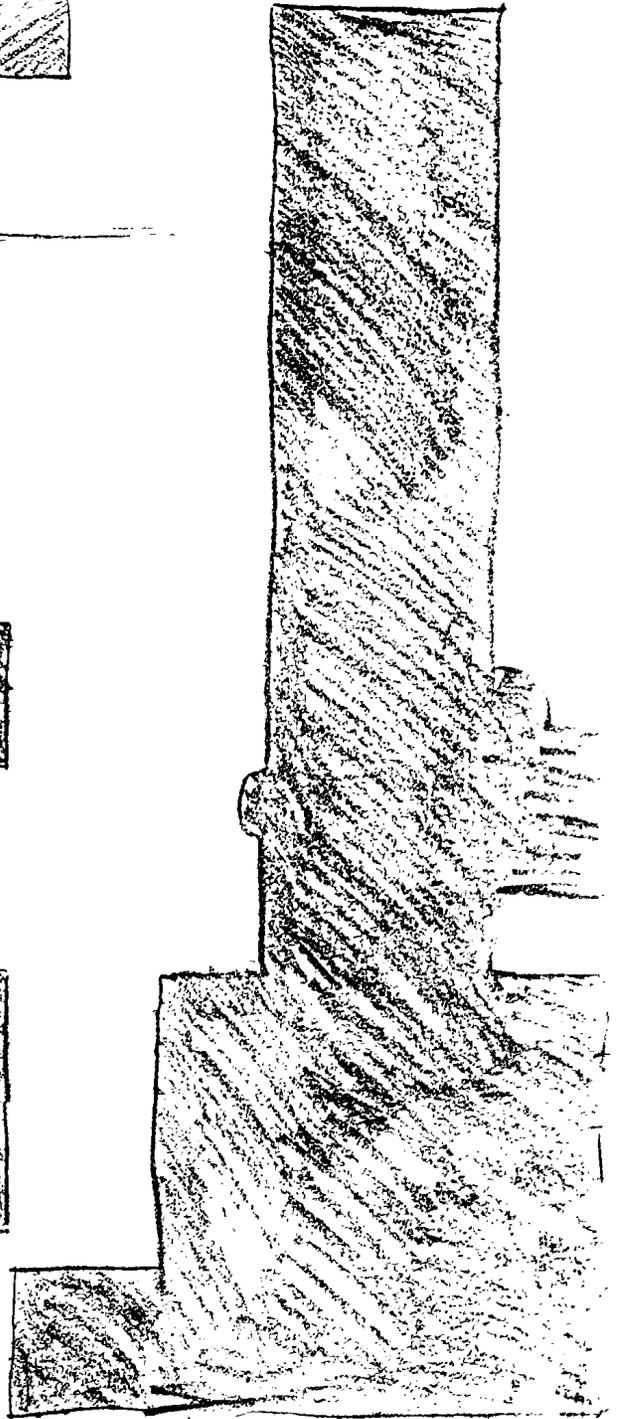
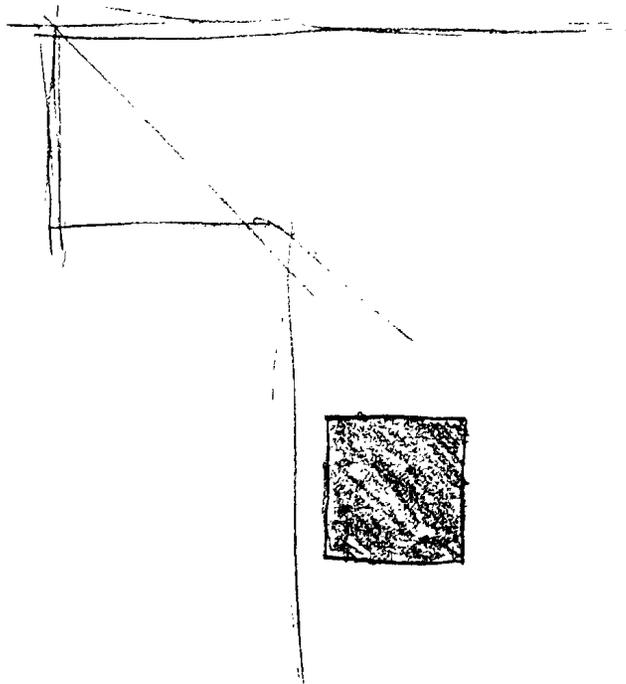
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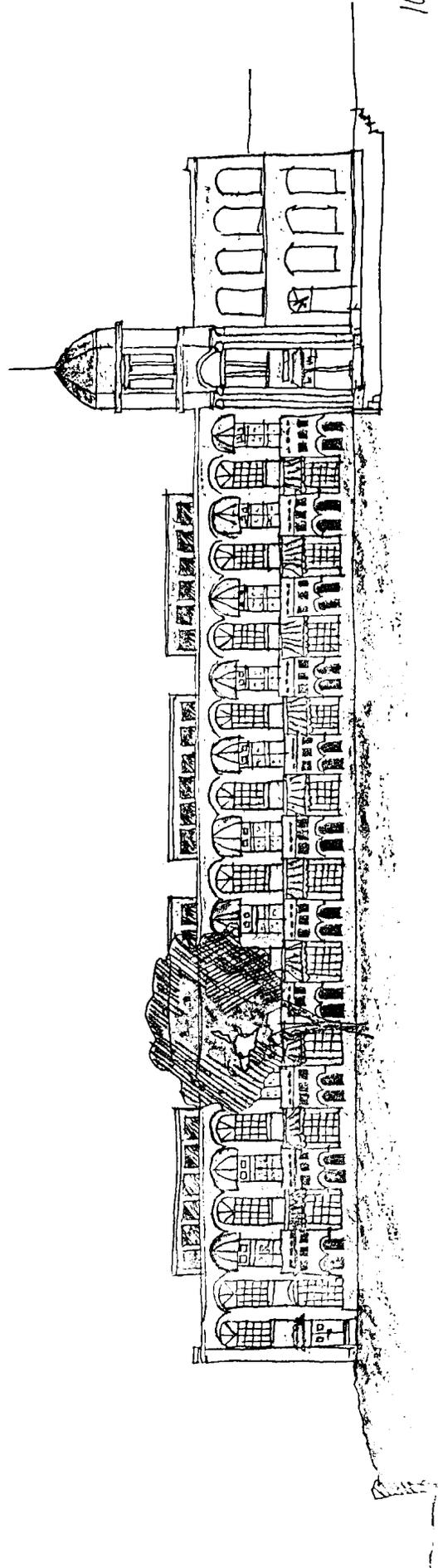
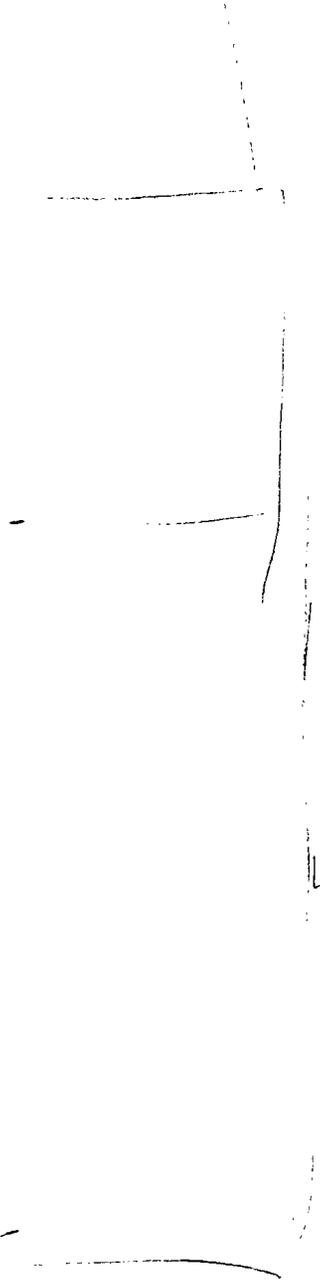
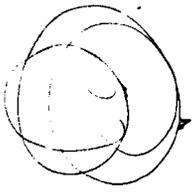
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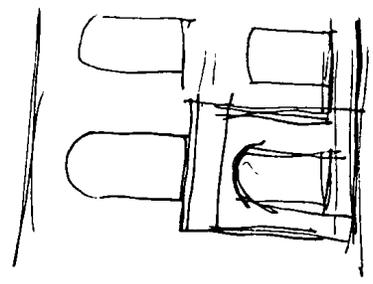
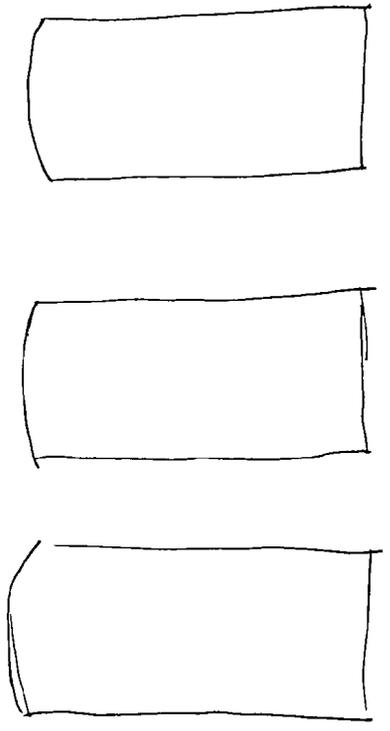
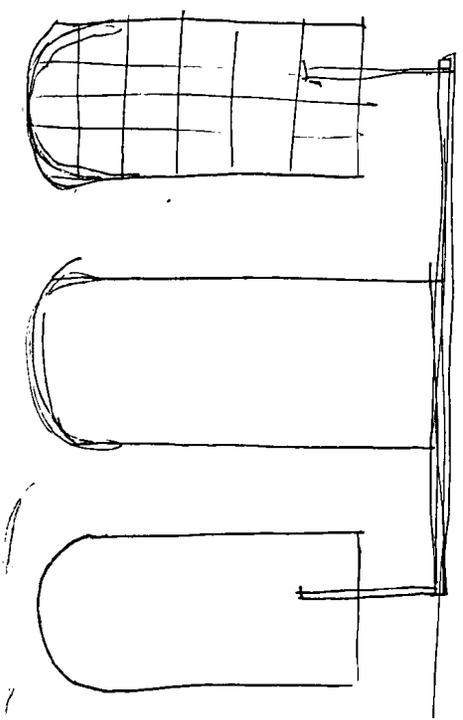




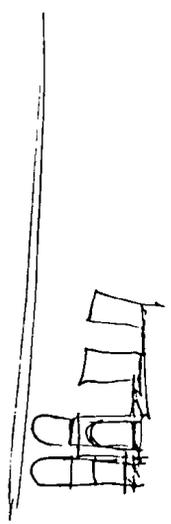
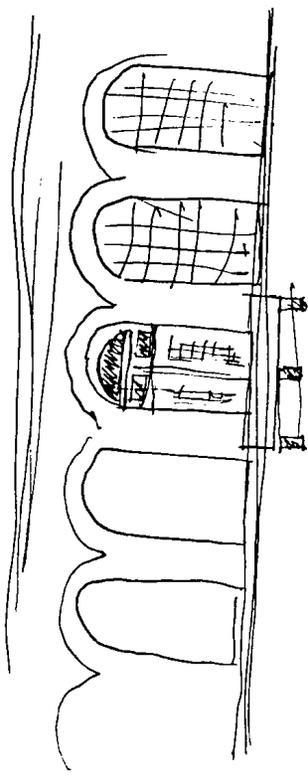
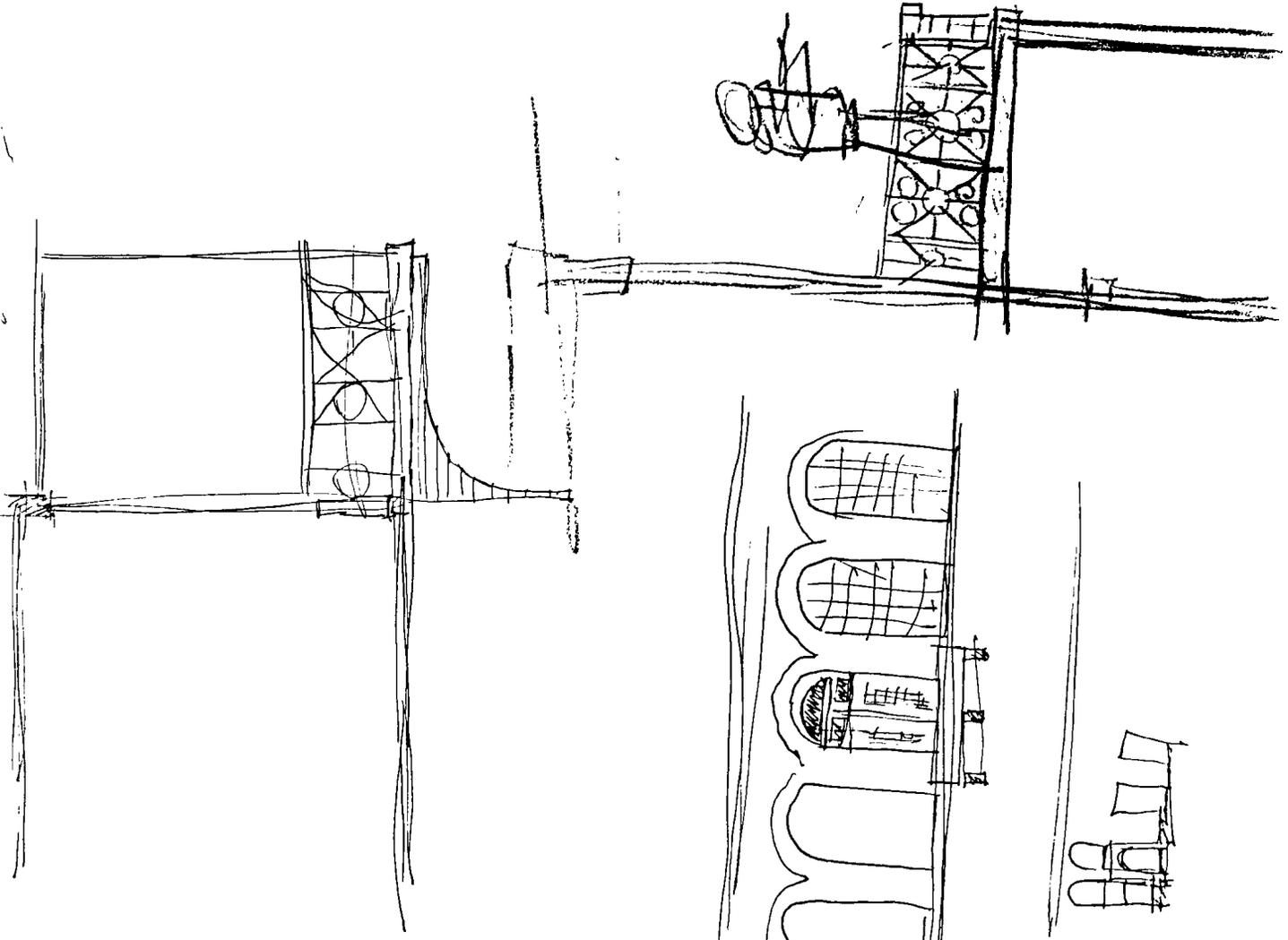
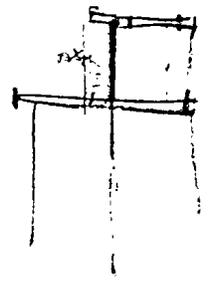


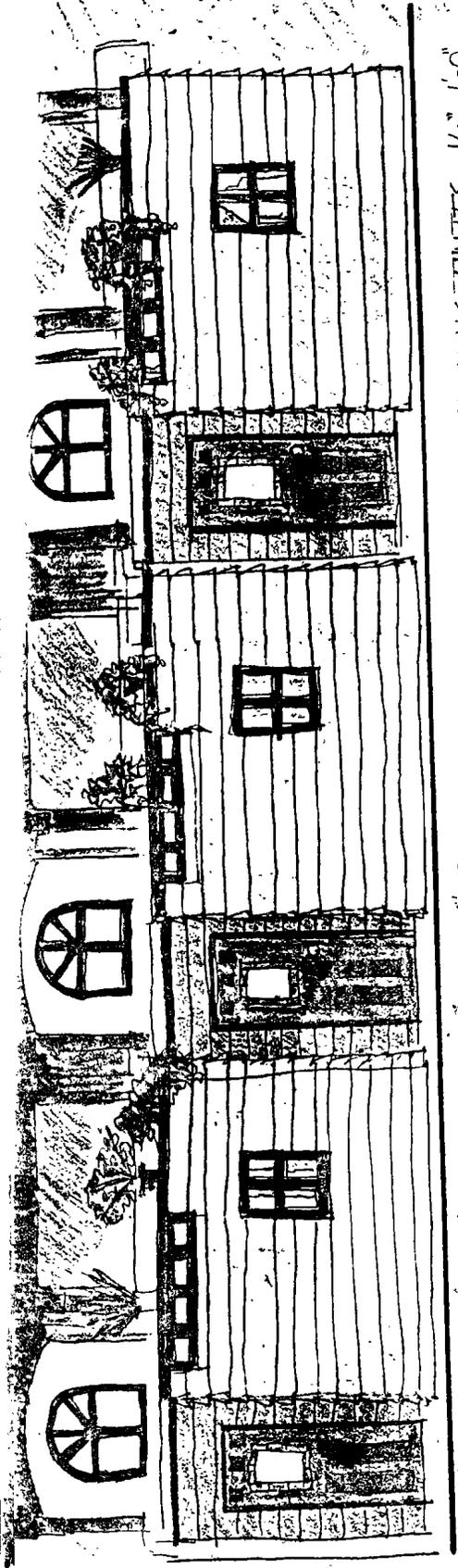


10-13-90
J.R.H.

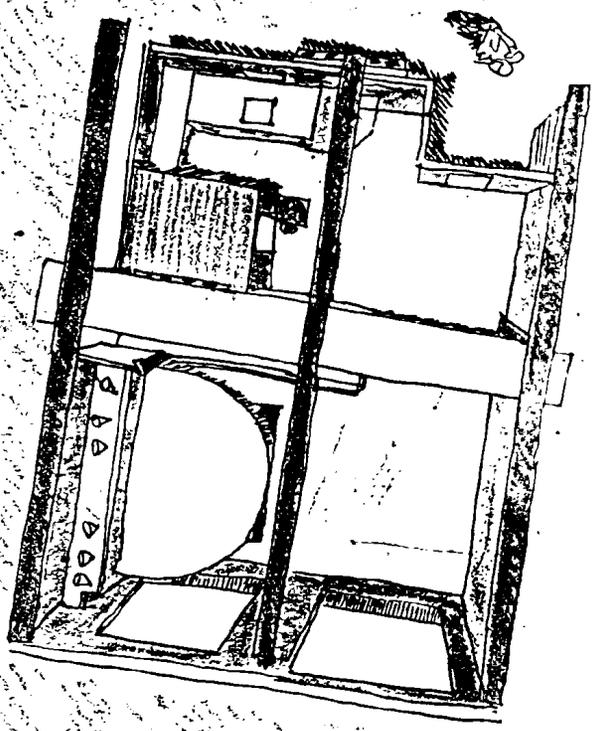
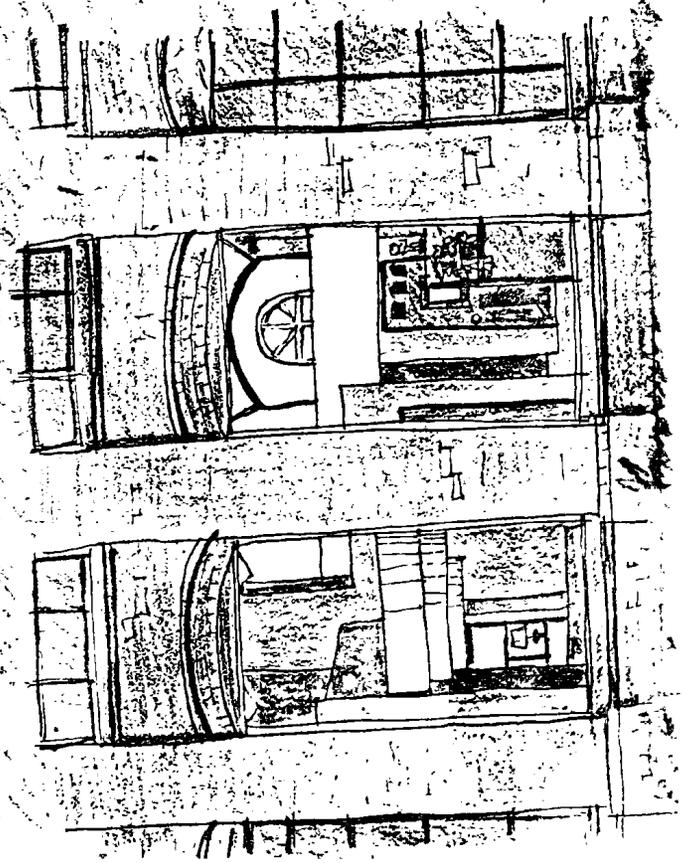


III III III III

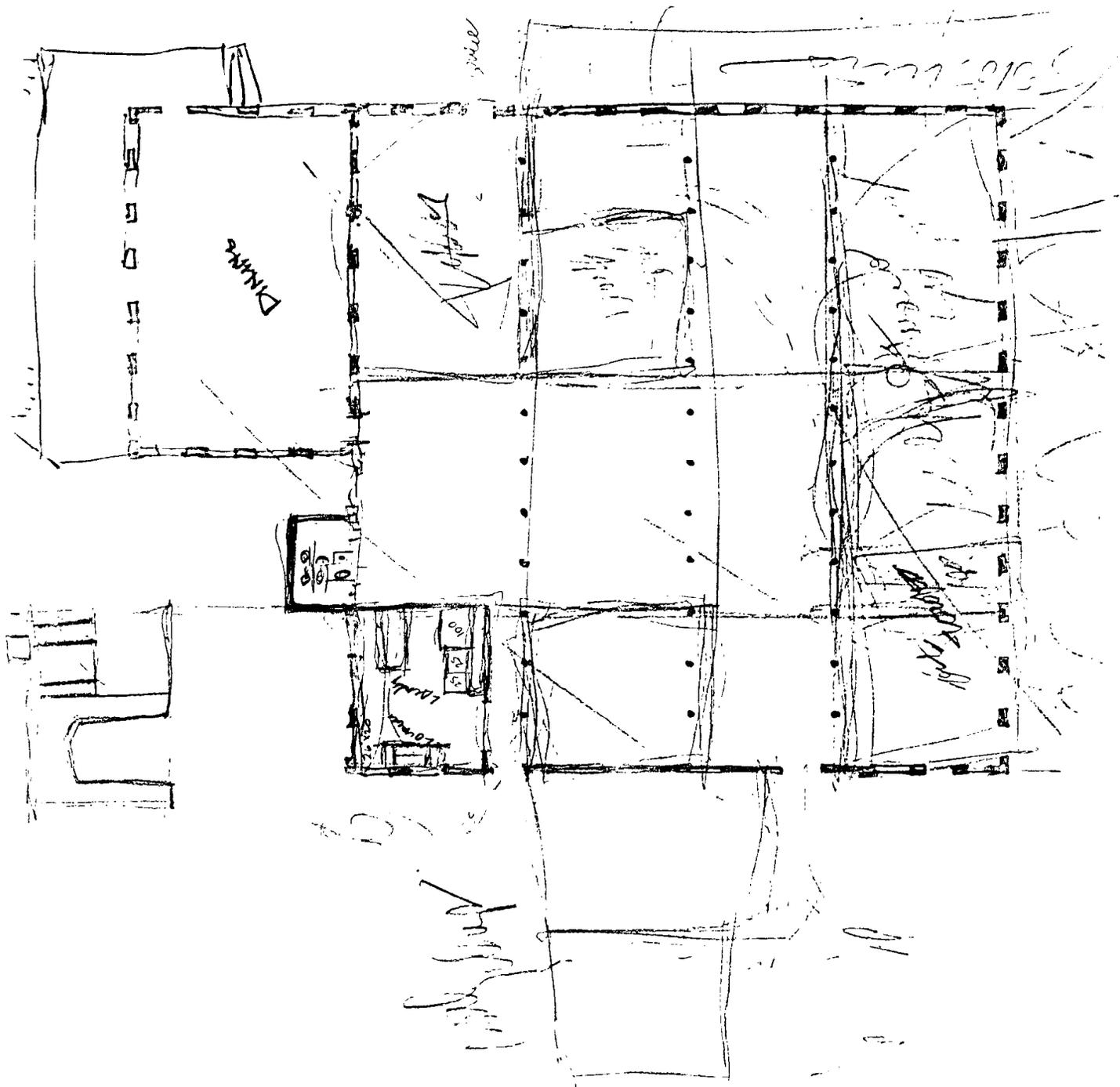
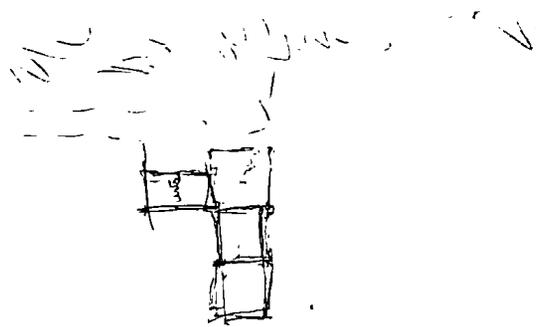
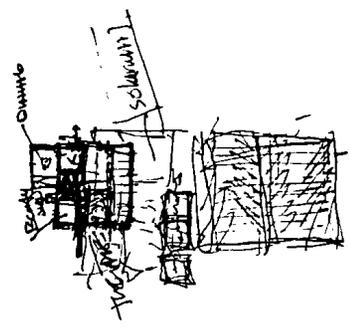


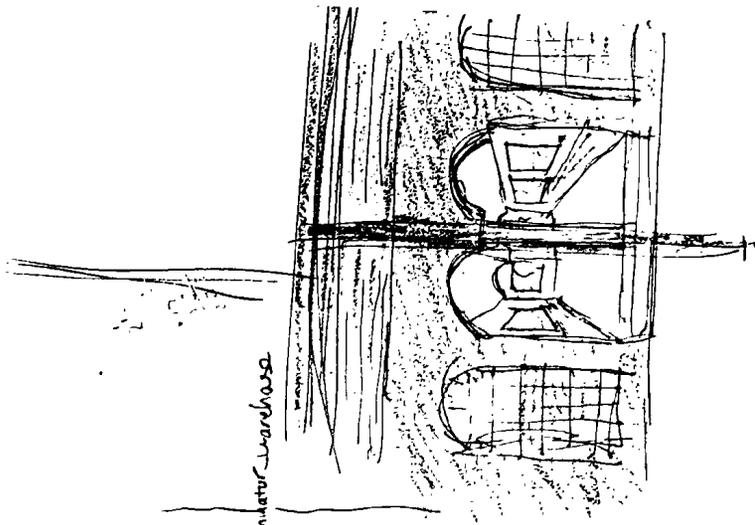
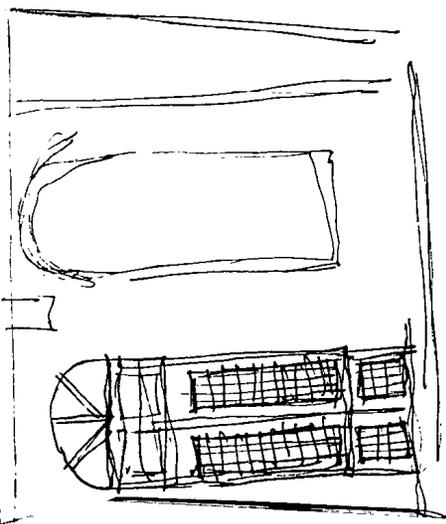


ELEVATION - HOUSING UNITS 1/4" = 1'-0"

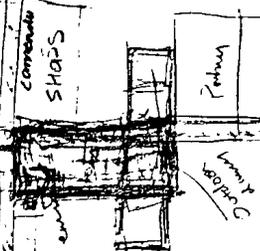


- DYING
- KITCHEN
- STORING
- WASHING
- MAIL ROOM
- BERRY SHOP
- PHARMACY
- MEDICAL TREATMENT ROOMS
- ARTS + CRAFTS
- CINEMA
- CHAPEL
- THROUGH + MASSAGE

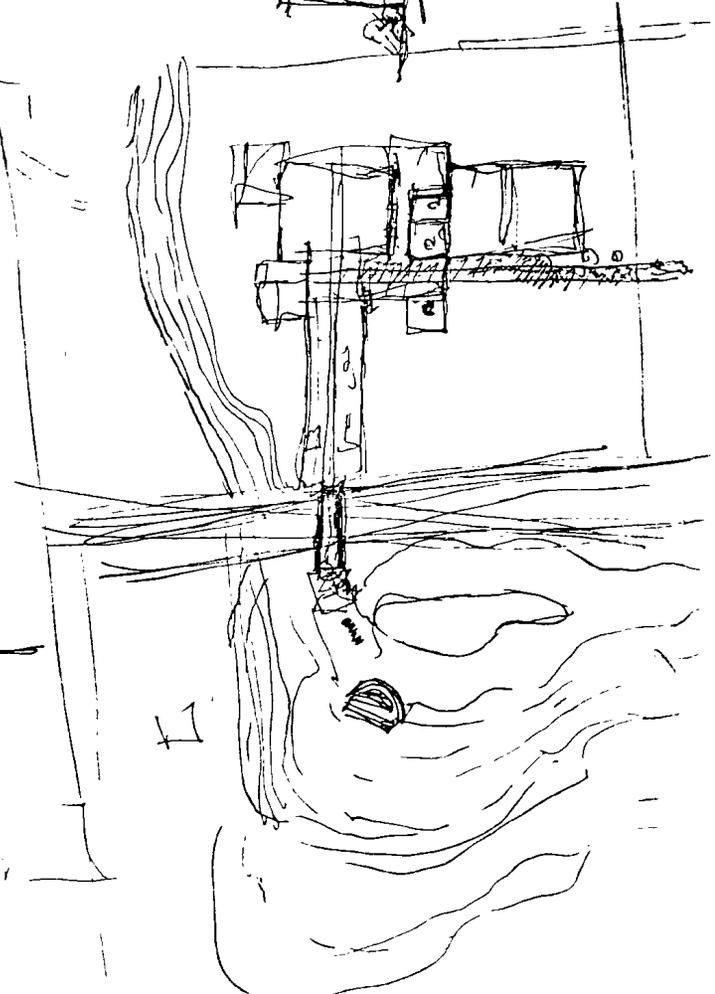
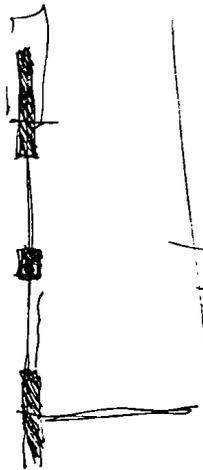
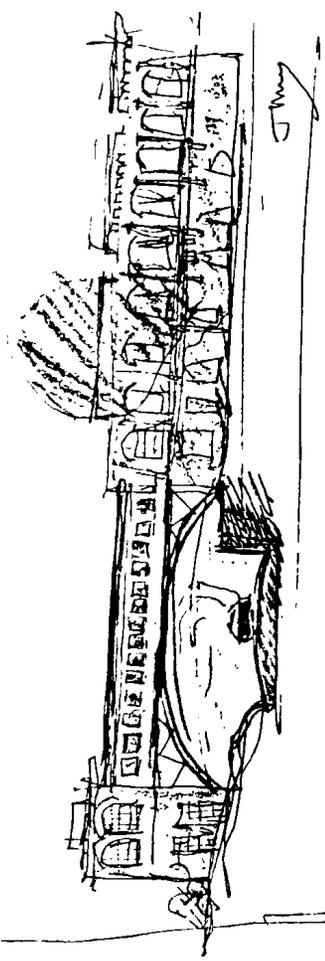




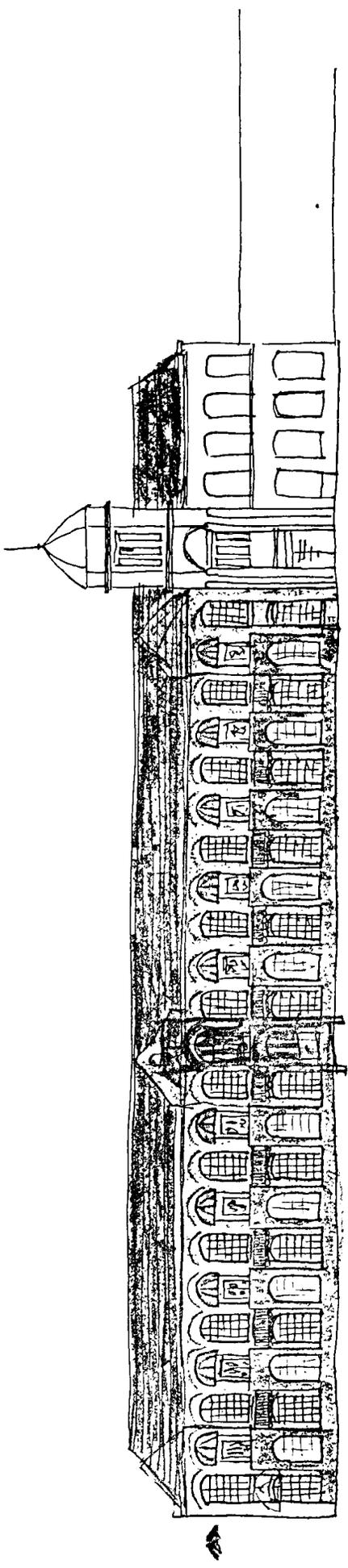
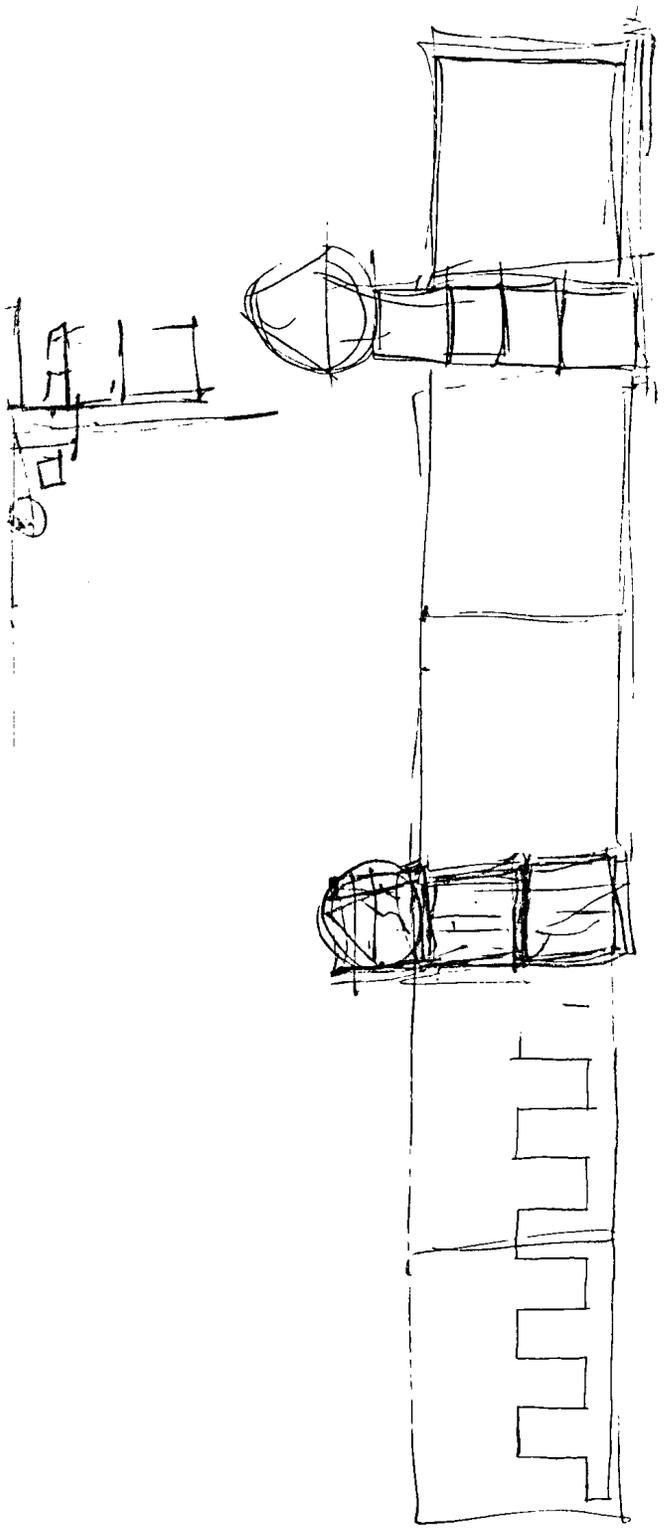
terminasi 10x15 Room
Indo archway
concrete Street
SHOPS
Rumah
Lantai 2
Lantai 1



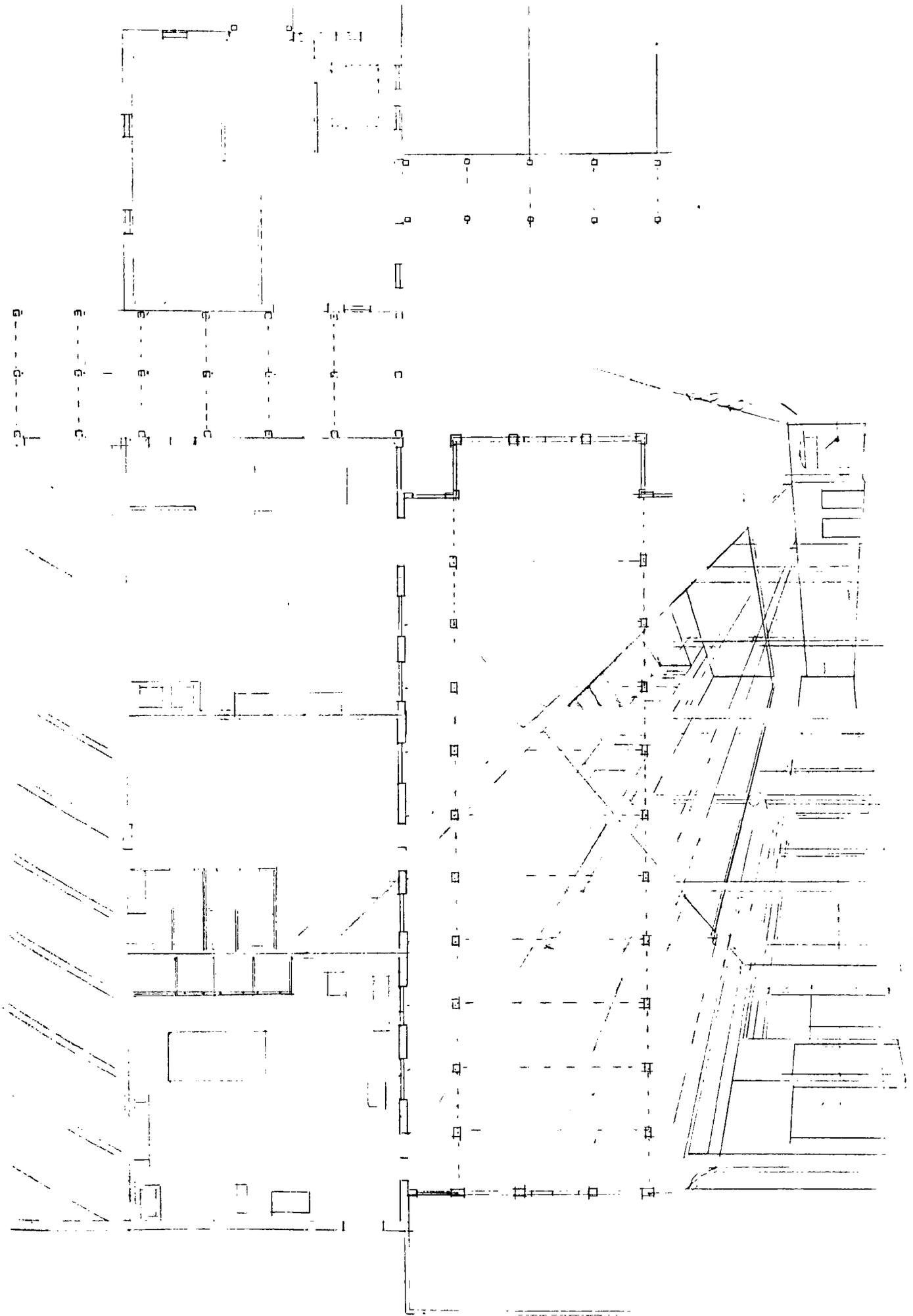
terminasi

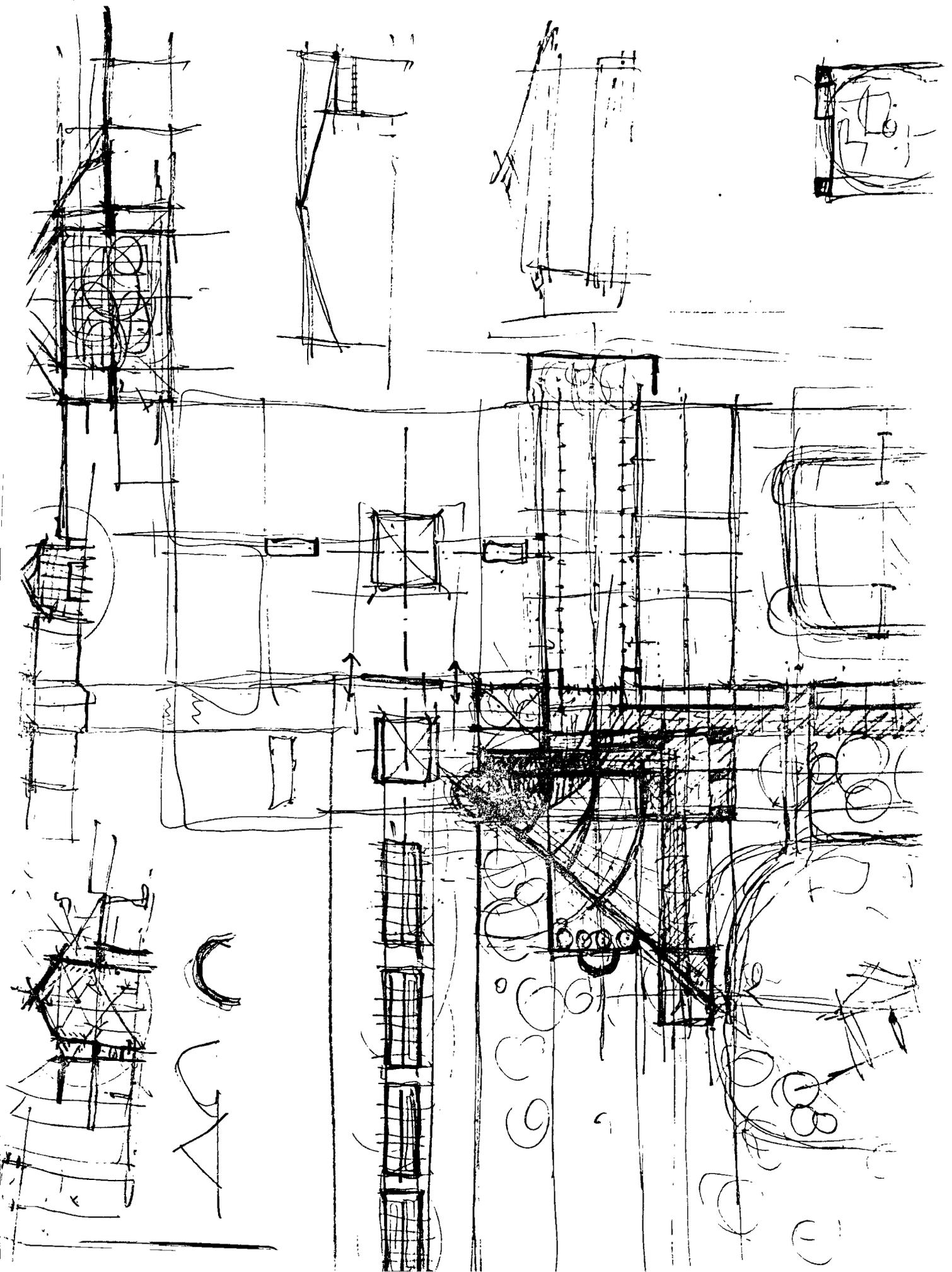


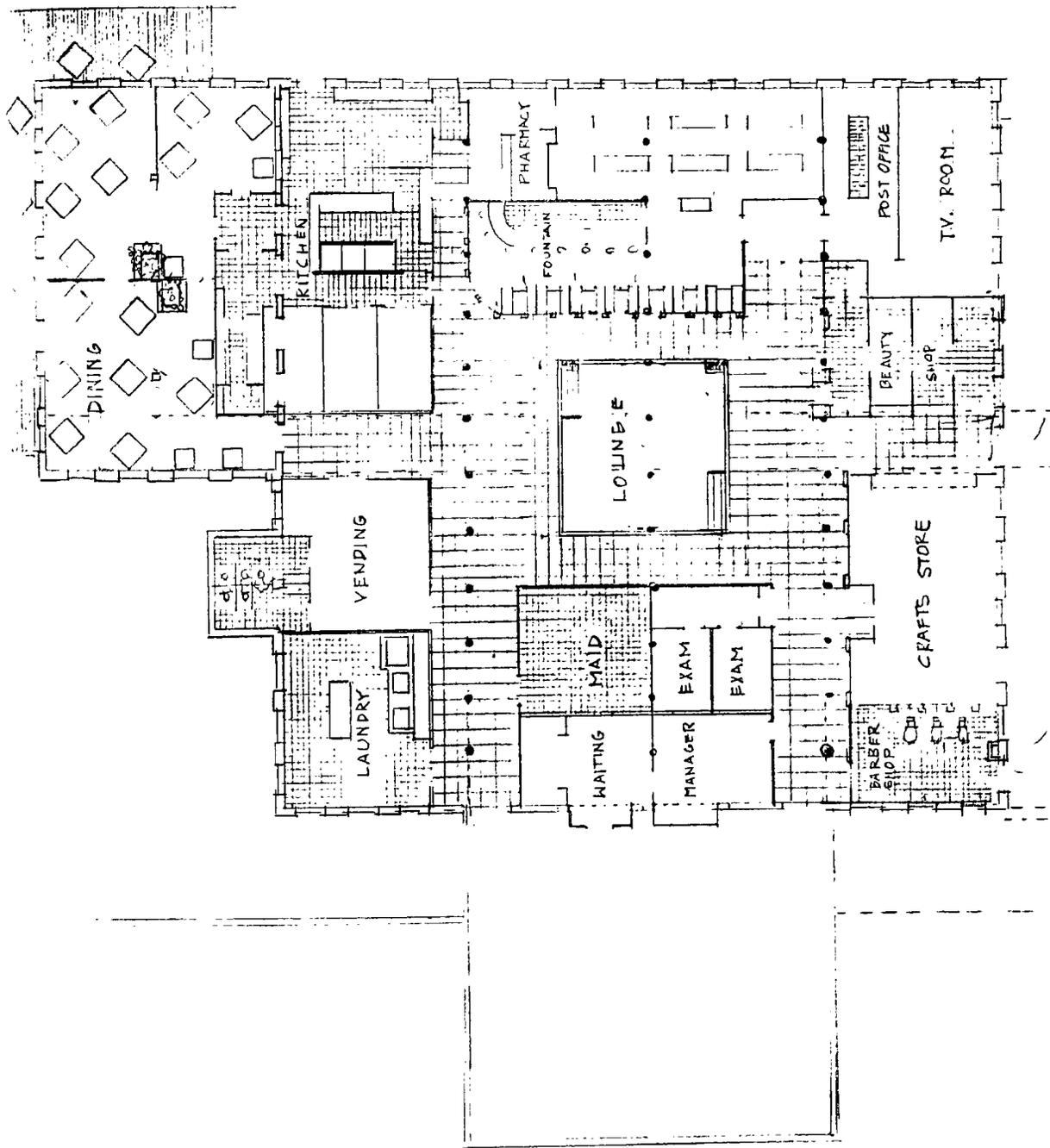
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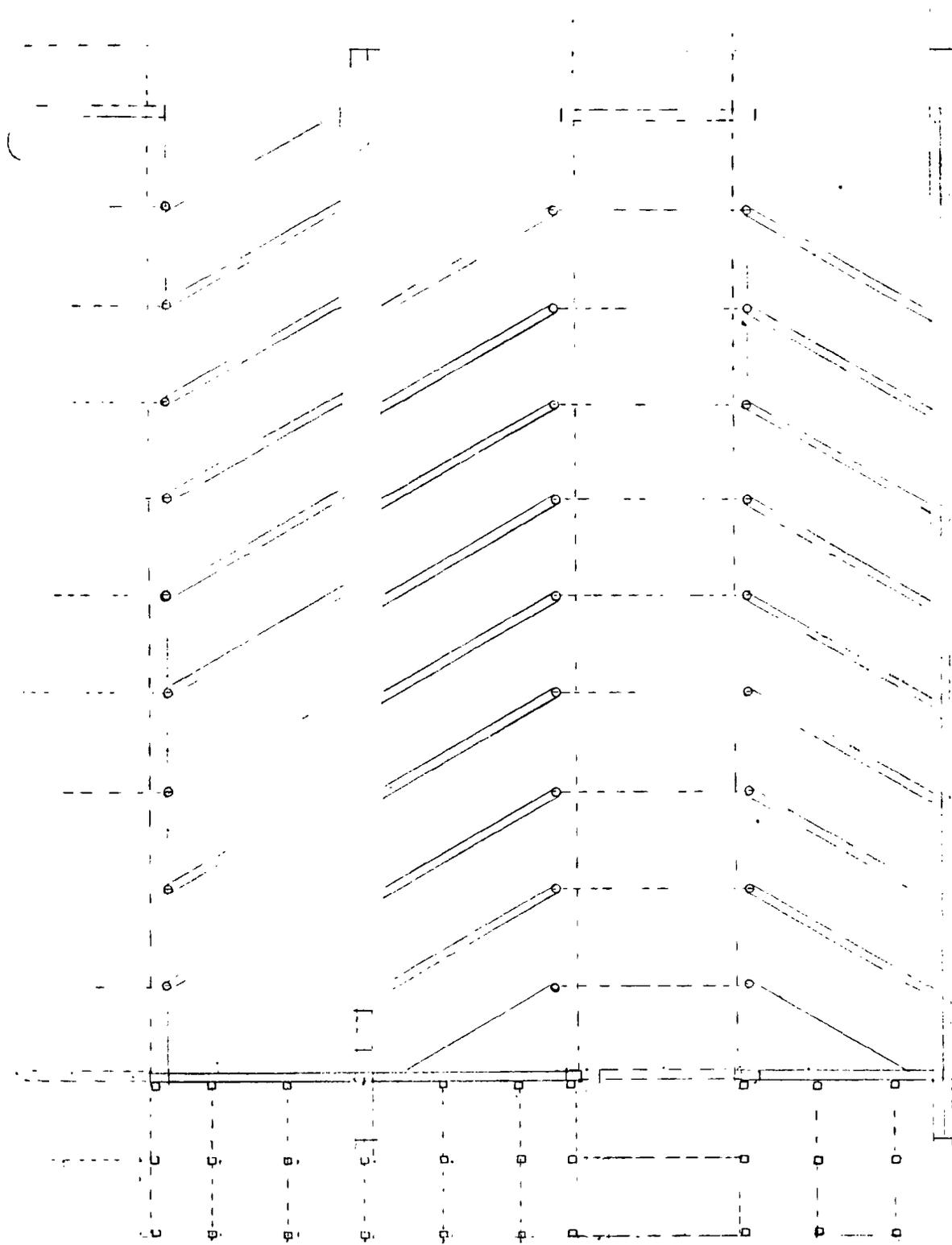


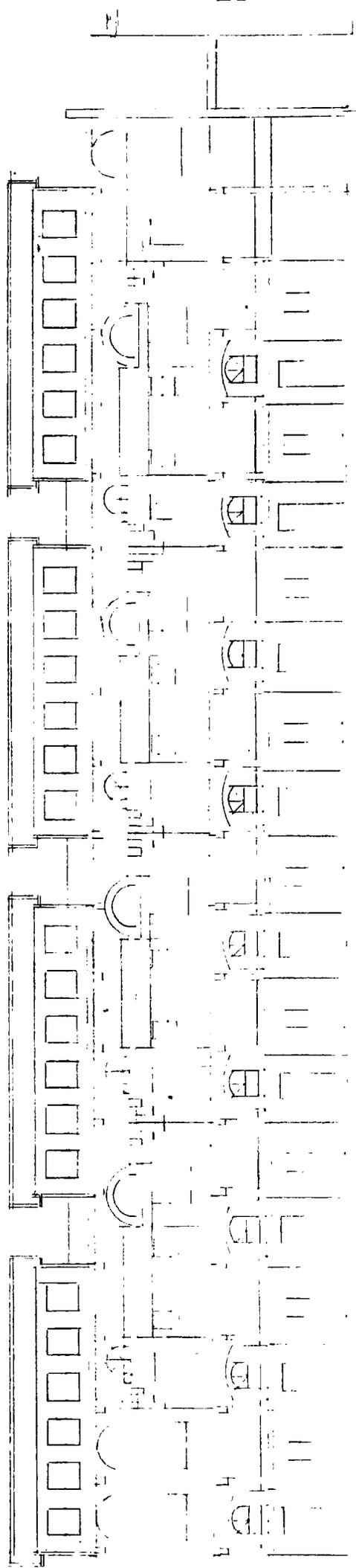
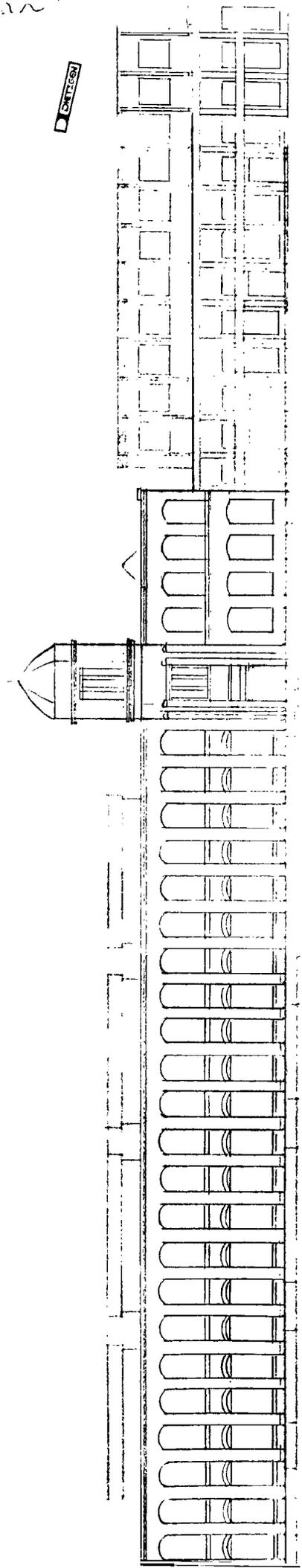
10-13-90
J.R.H.



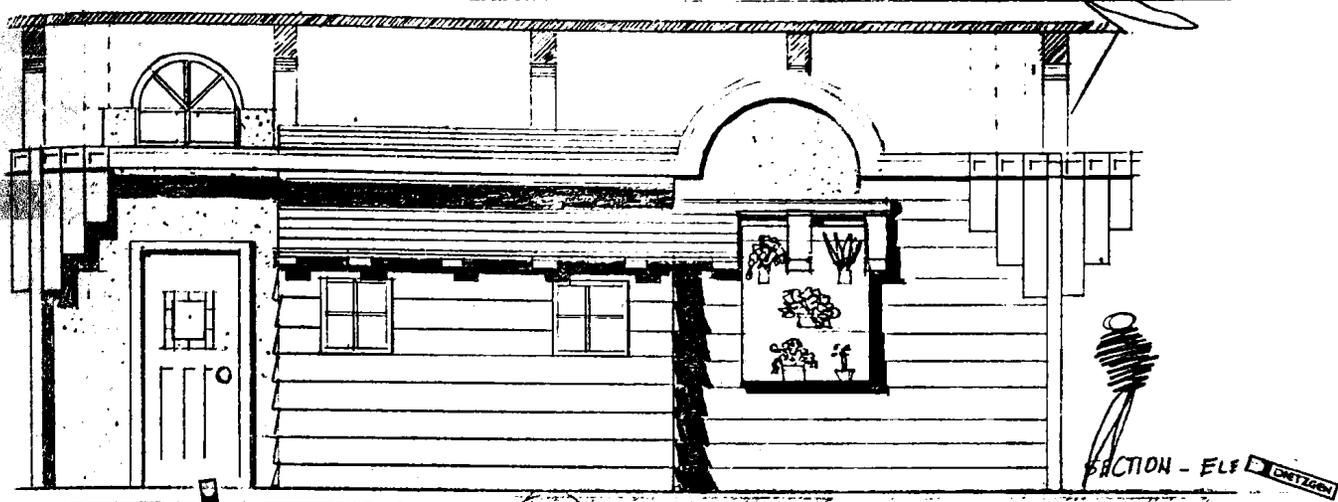








FLOOR PLAN



SECTION - ELEVATION

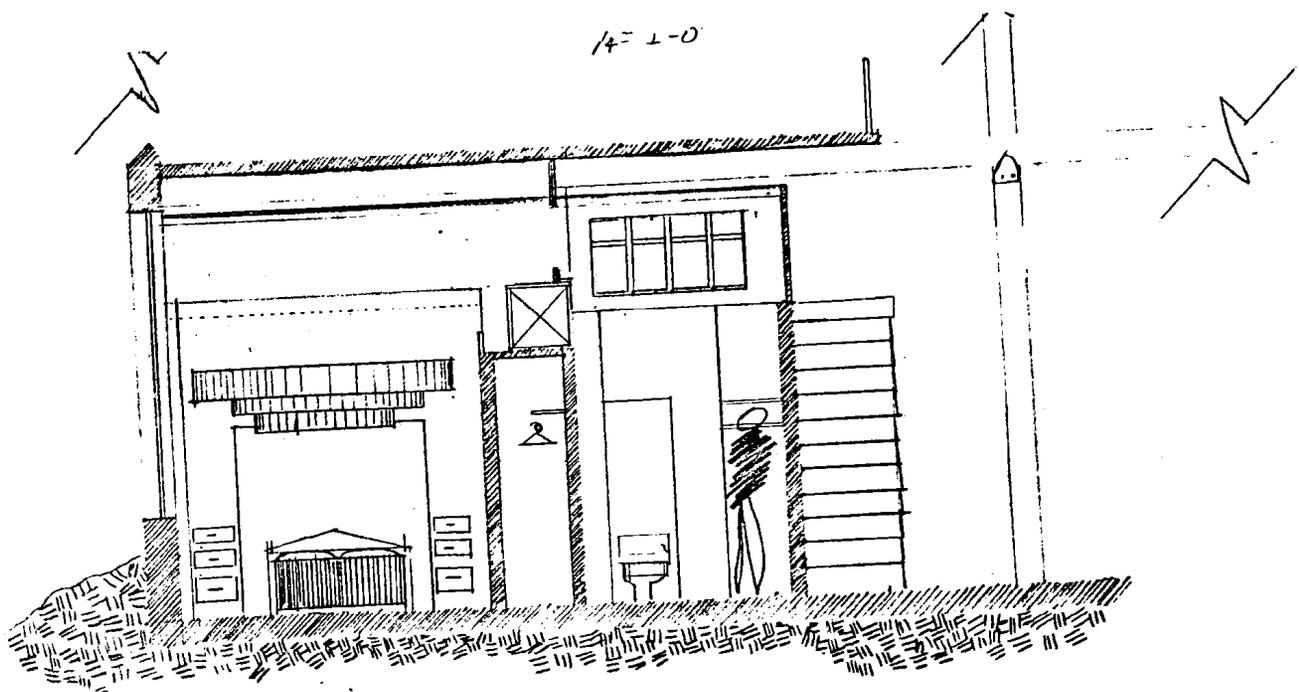


SECTION - ELEVATION

$\frac{1}{4}'' = 1'-0''$

CRITZEN

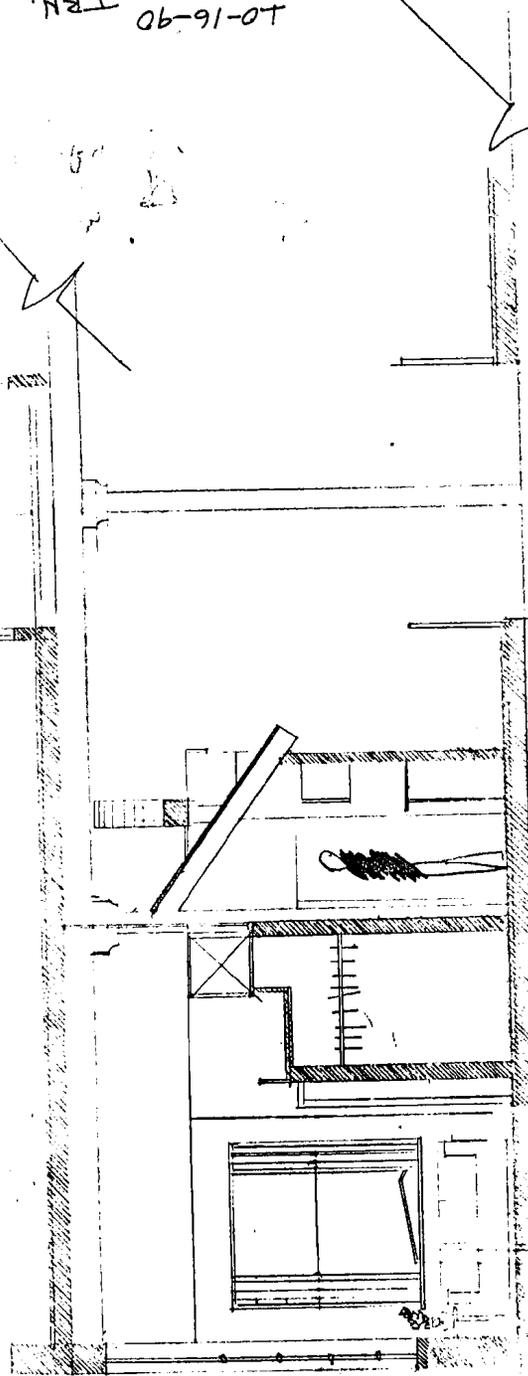
$\frac{1}{4}'' = 1'-0''$



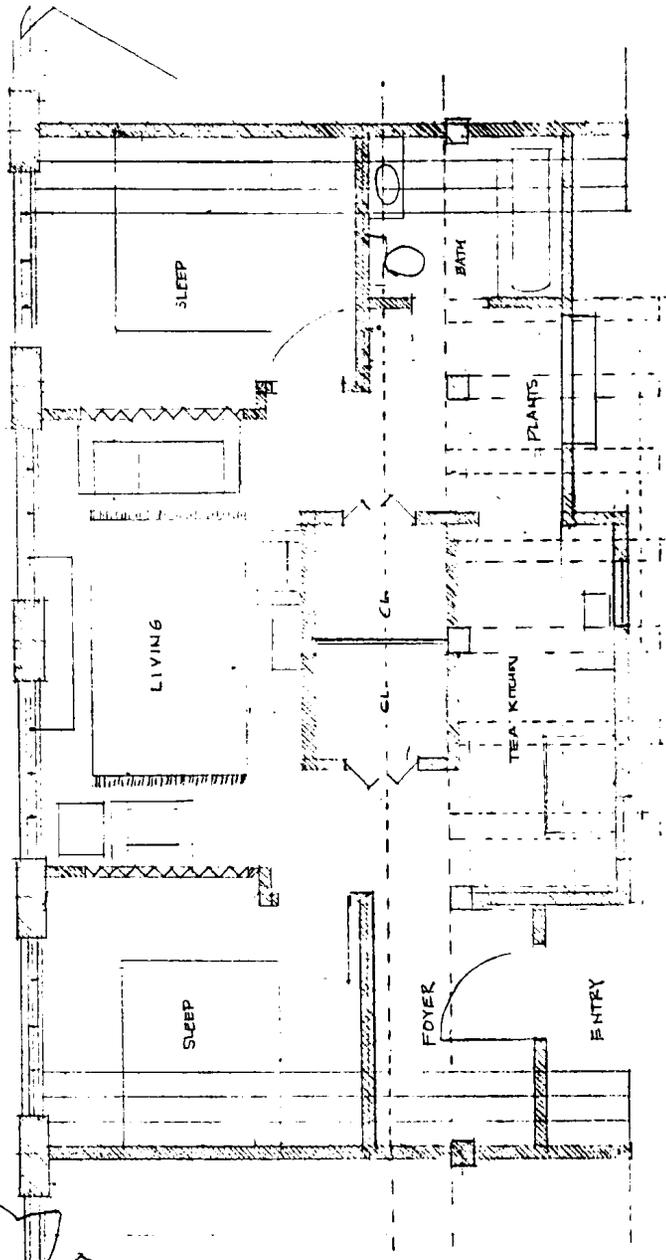
SECTION

$\frac{1}{4}'' = 1'-0''$

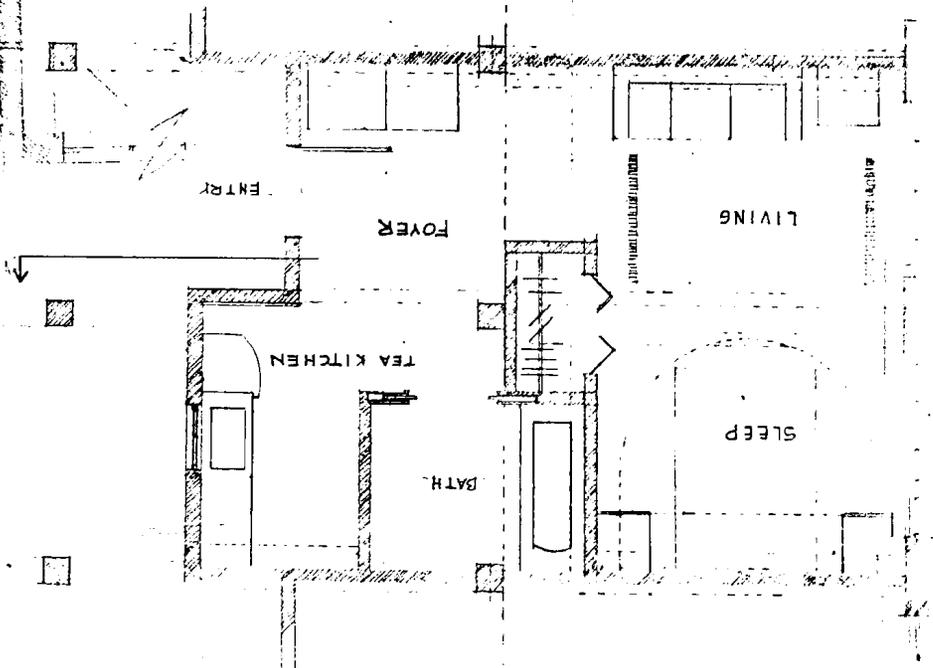
T-16-90 TRN
ALL DRAWINGS ARE 1/4"=1'-0"

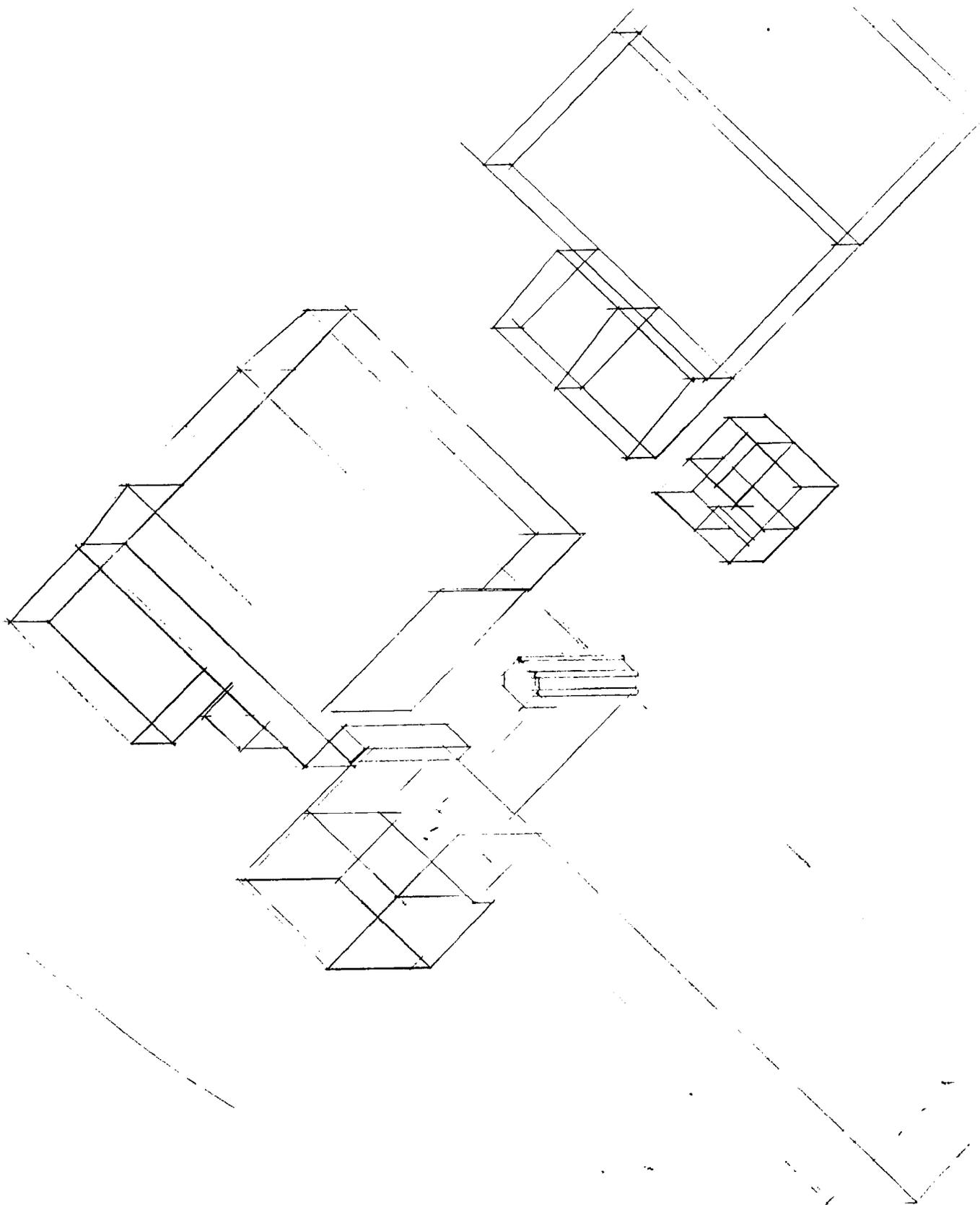


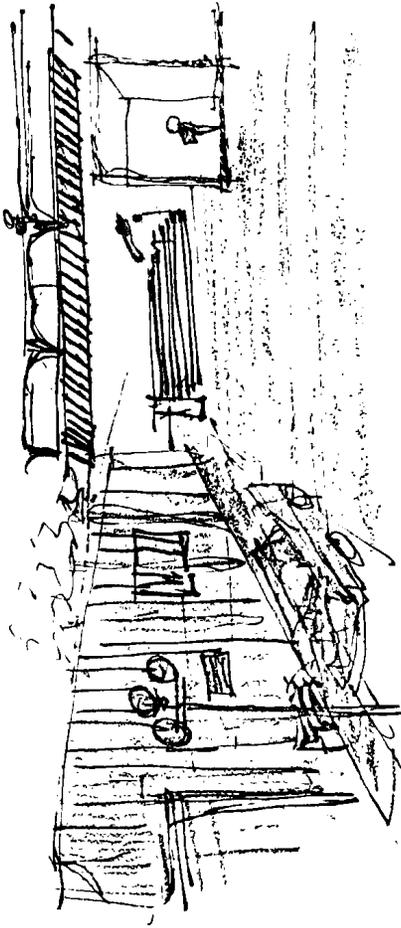
SECTION



FLOOR PLAN

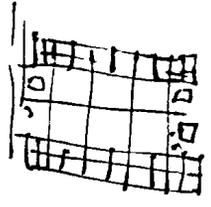




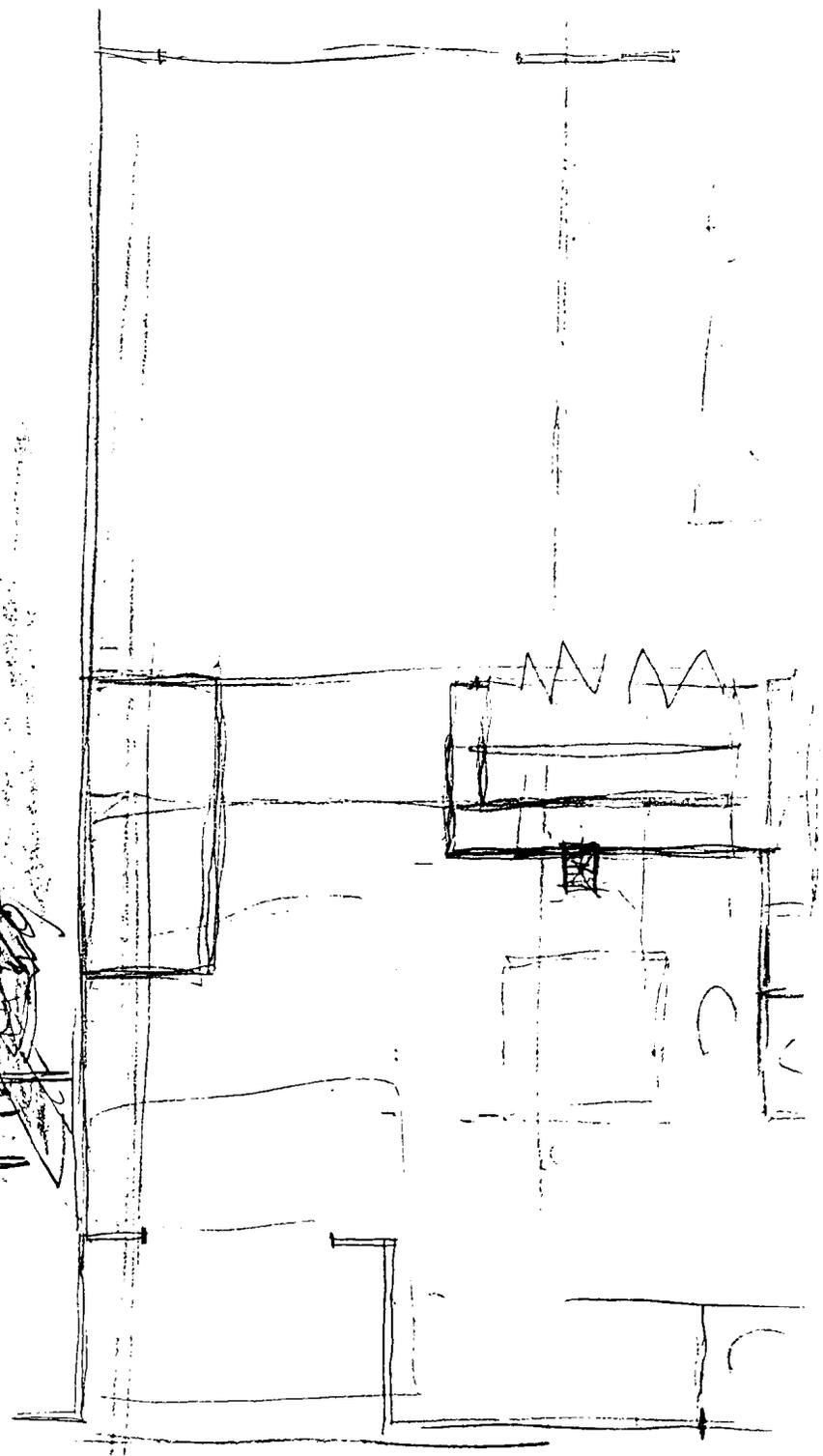


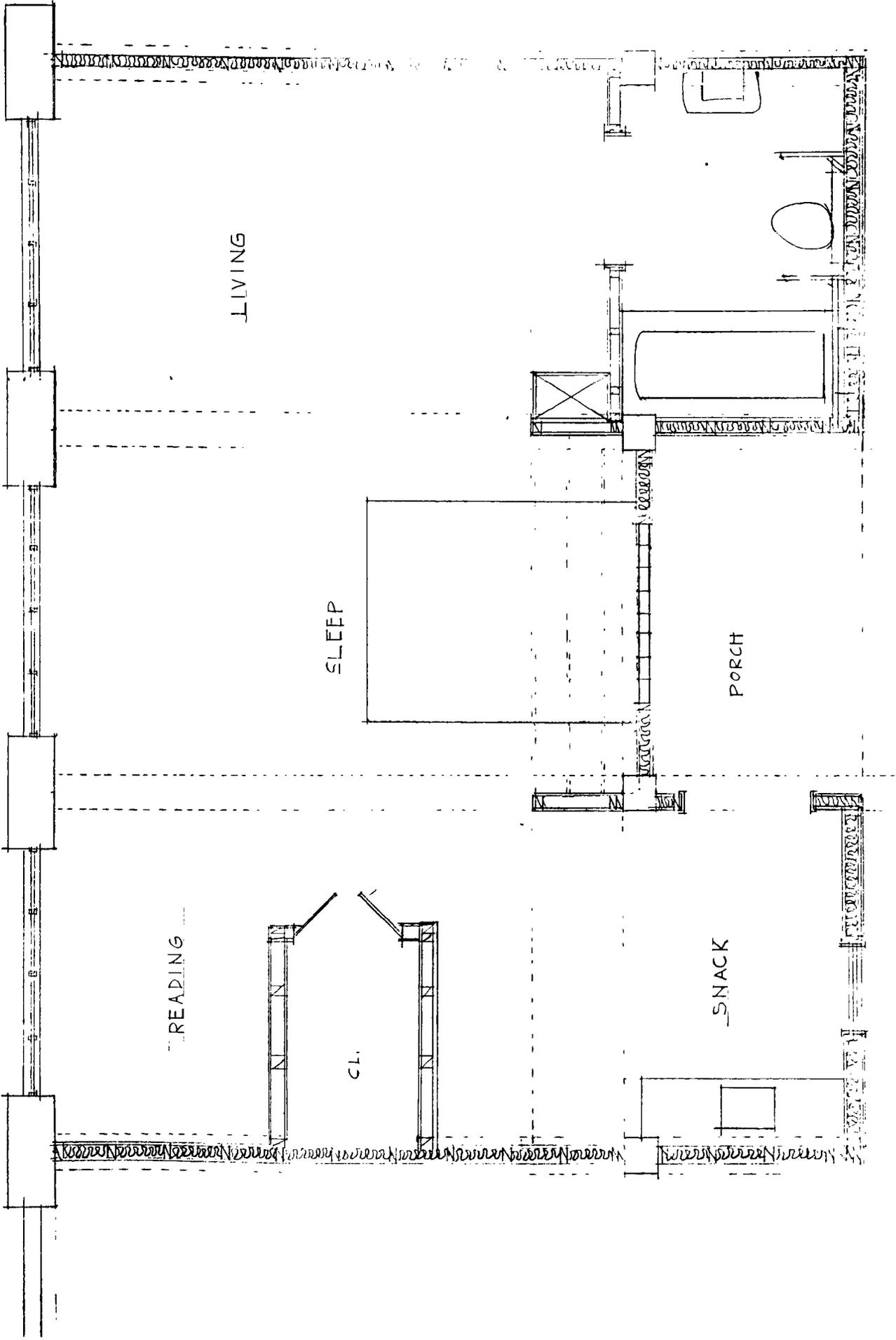
SECTION PERSPECTIVES

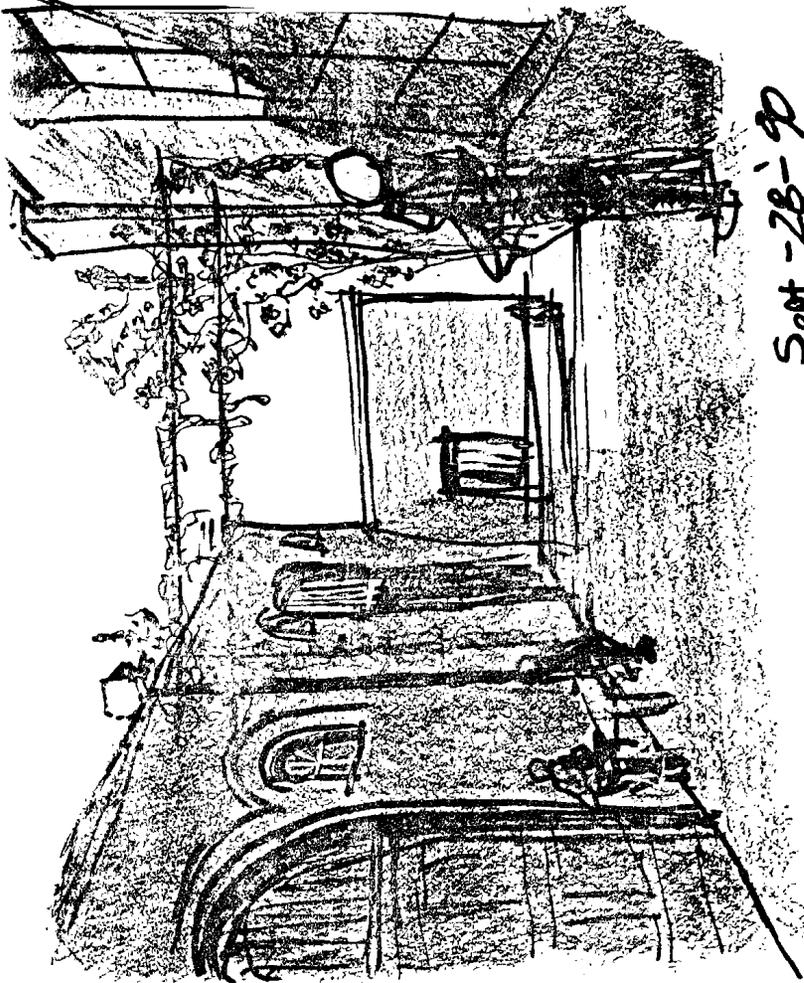
① concrete ramping



water color base
with colored
pencils



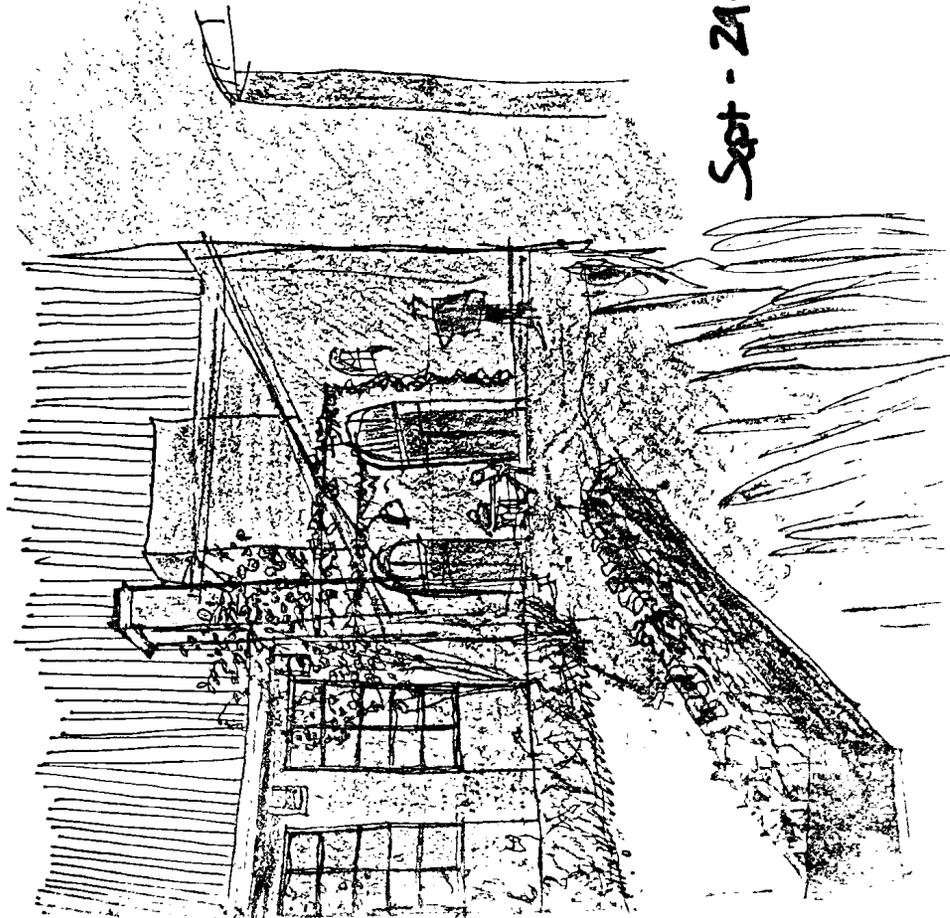




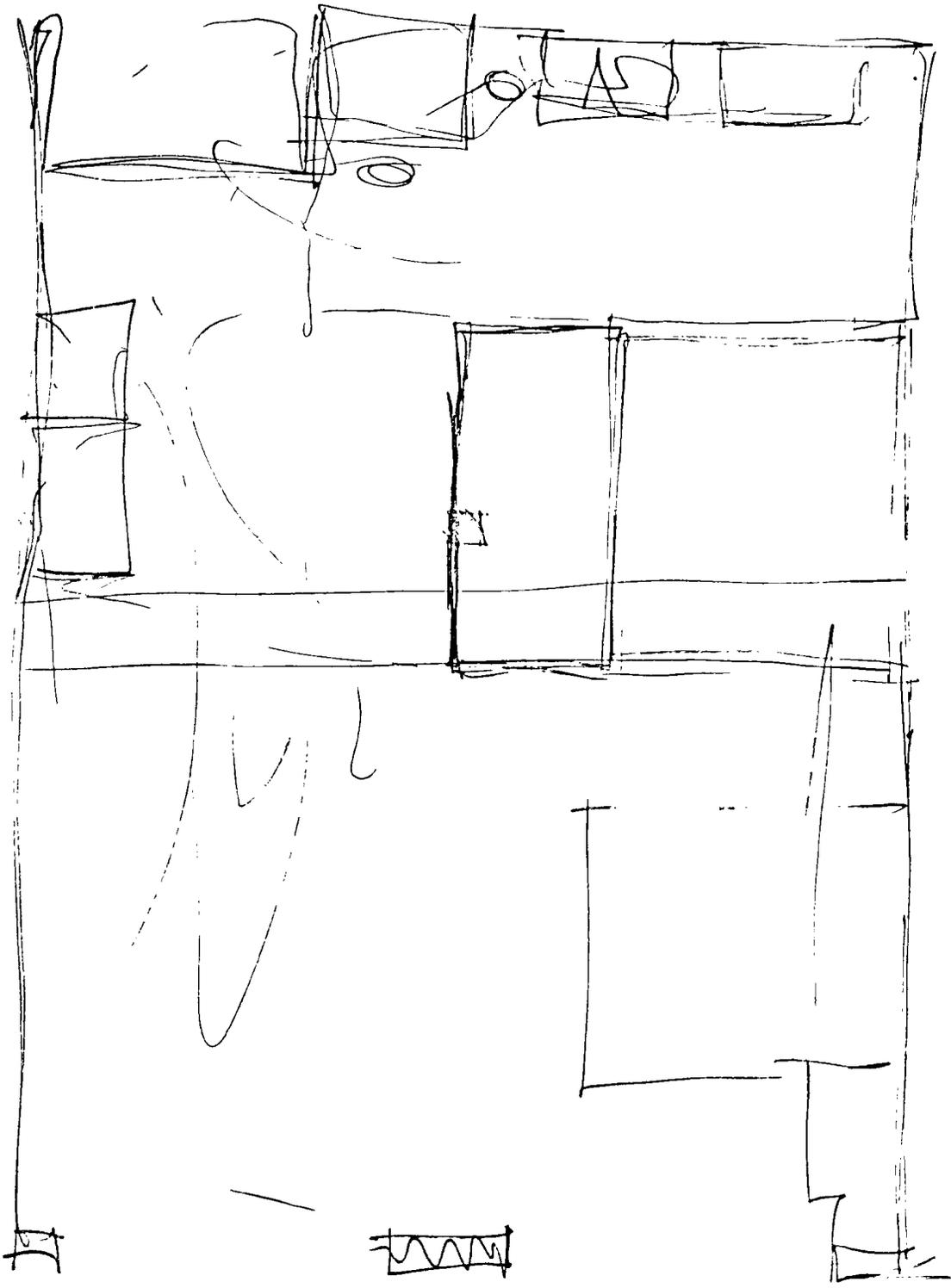
Sept - 28 - 90

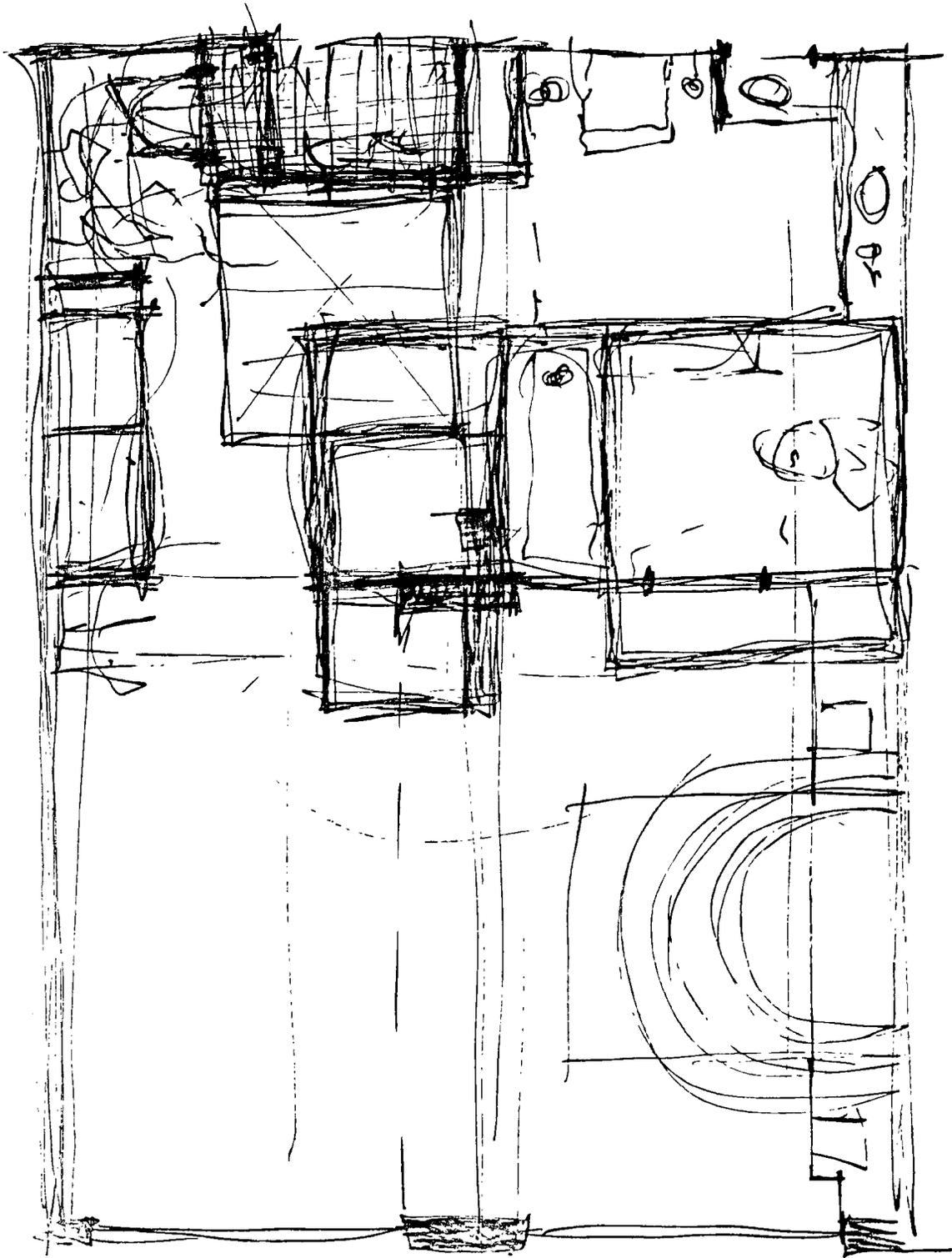
SHADED

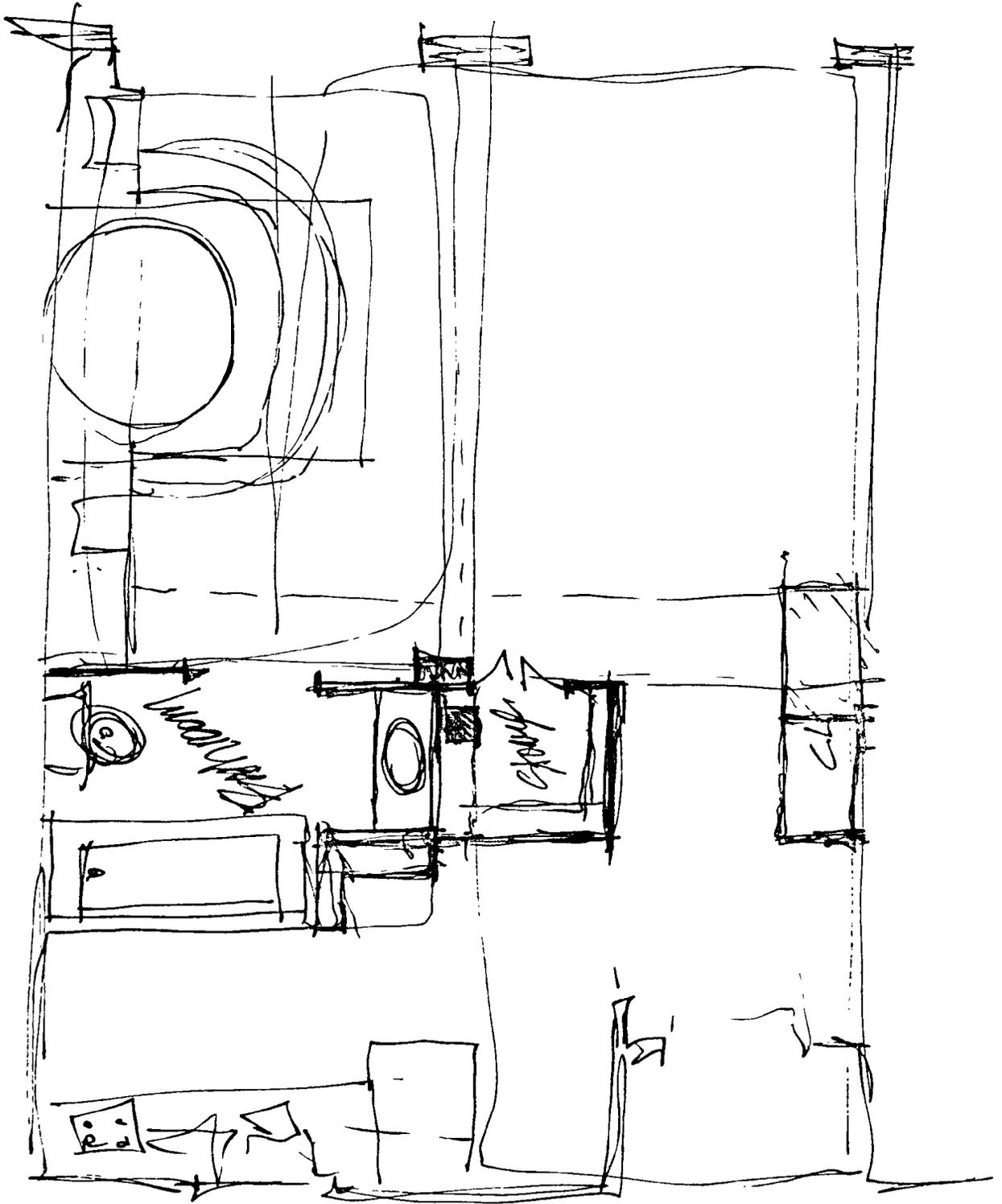
COURTYARD FOR HOT-HUMID
SUMMER DAYS

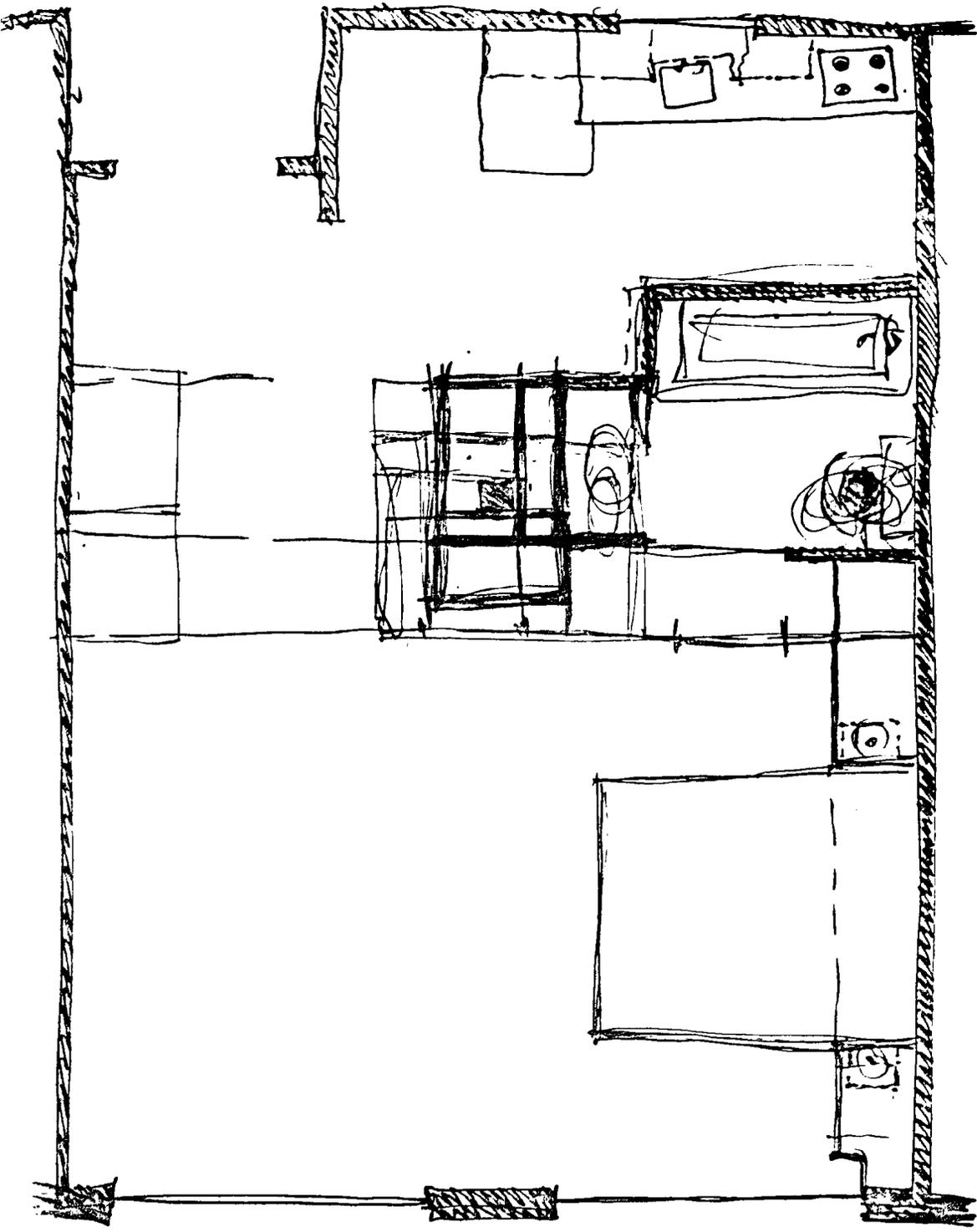


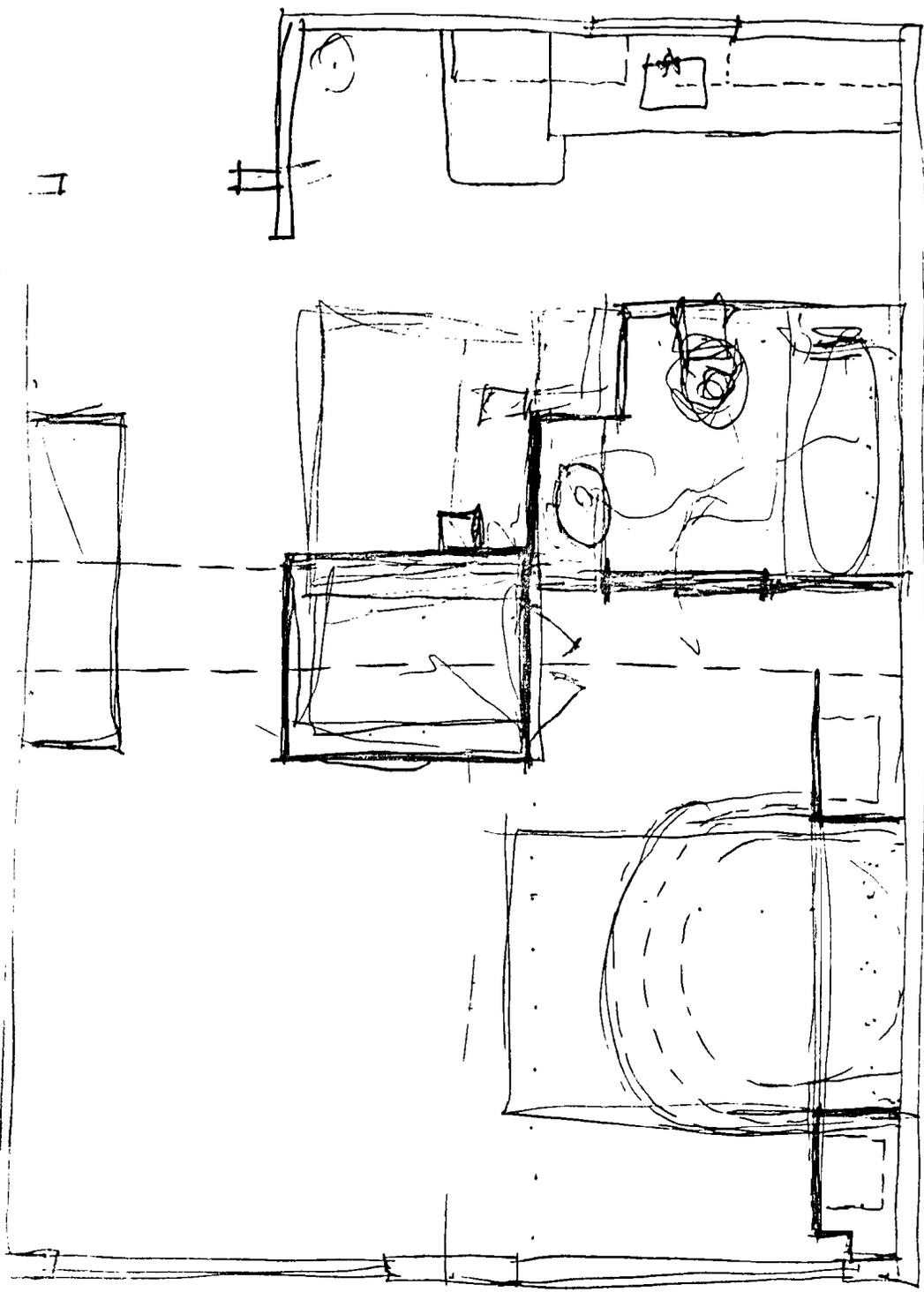
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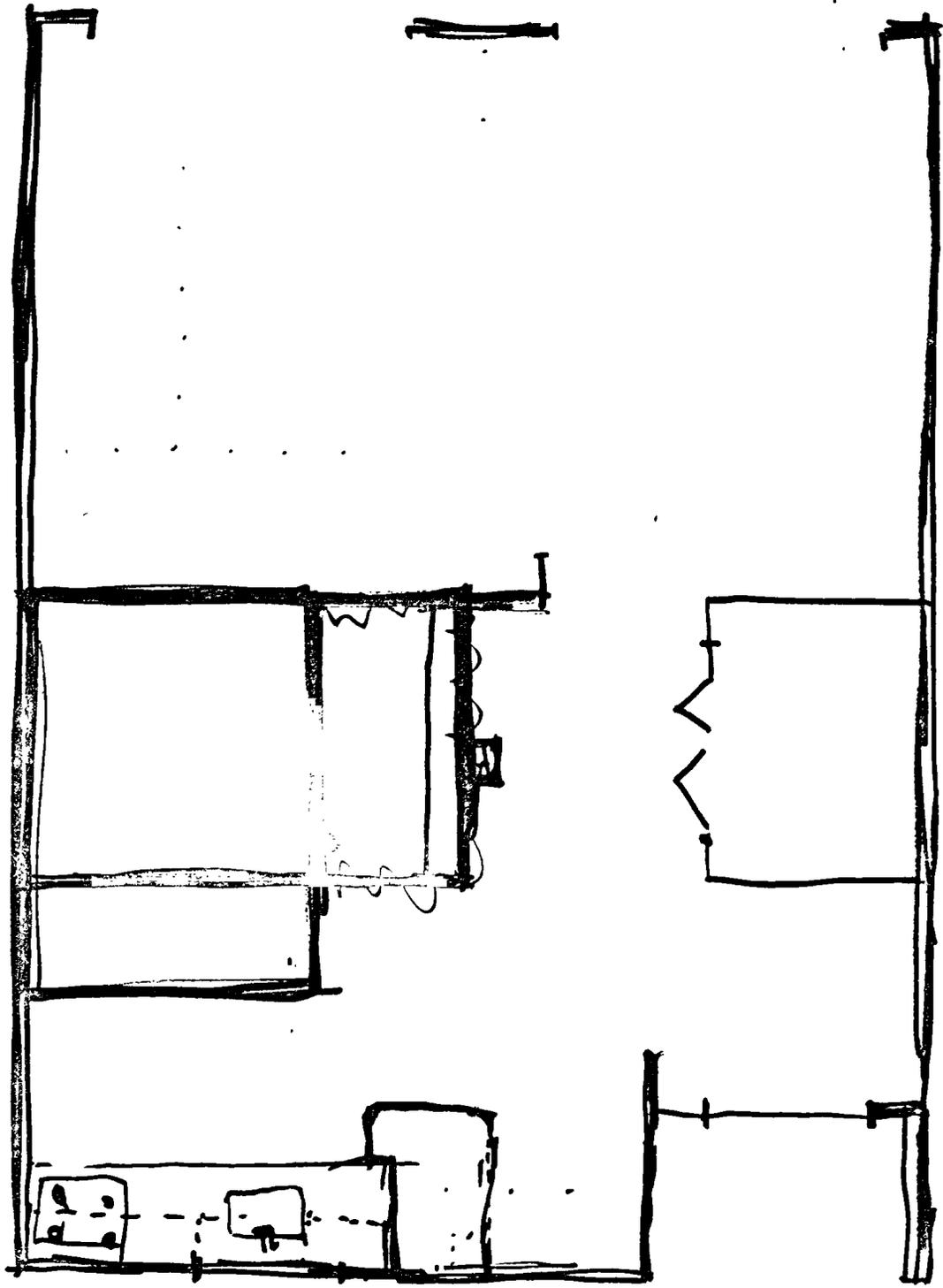


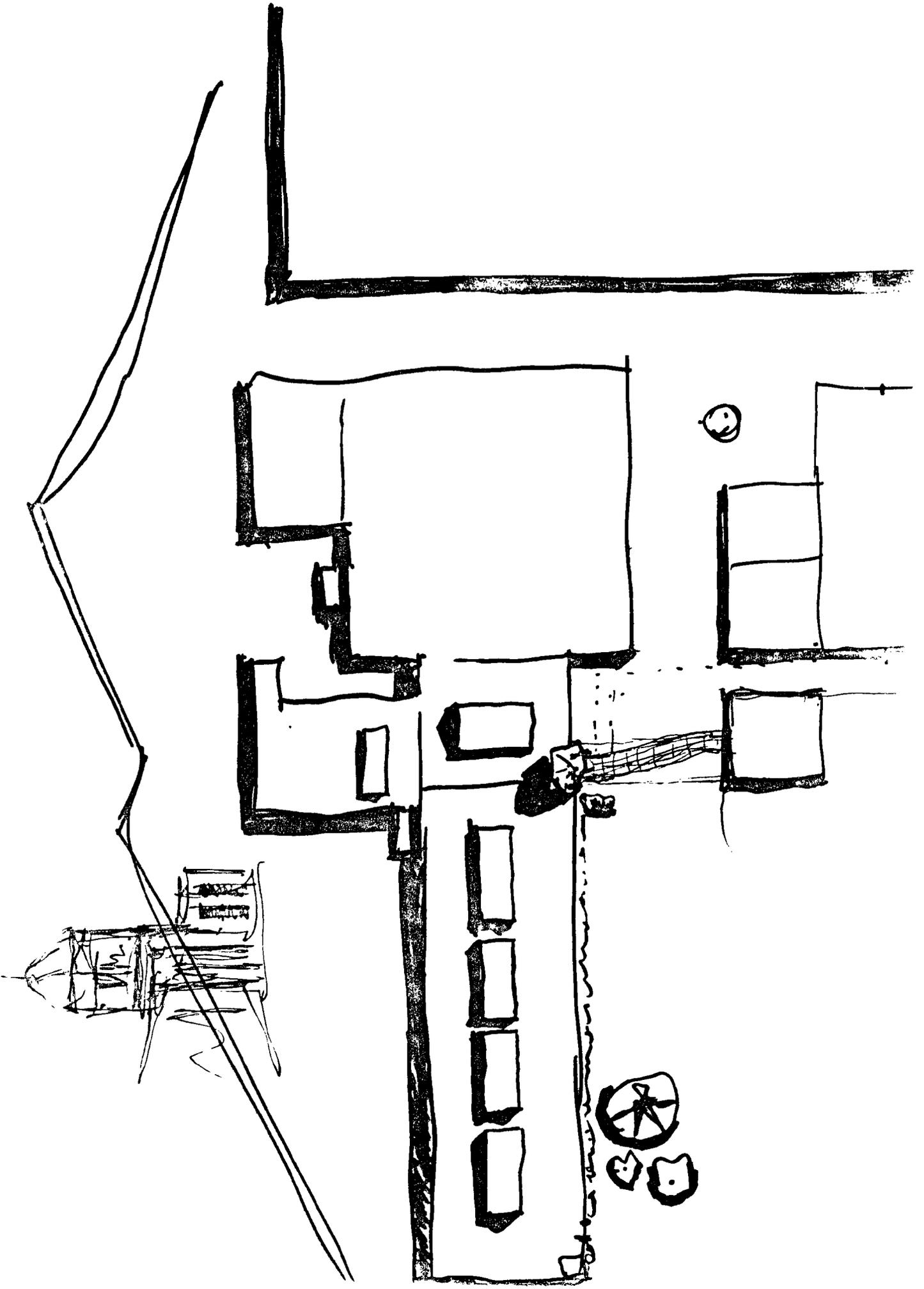


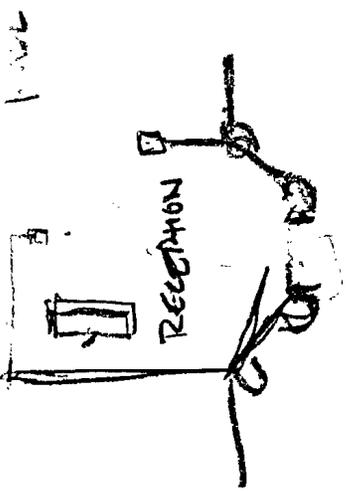
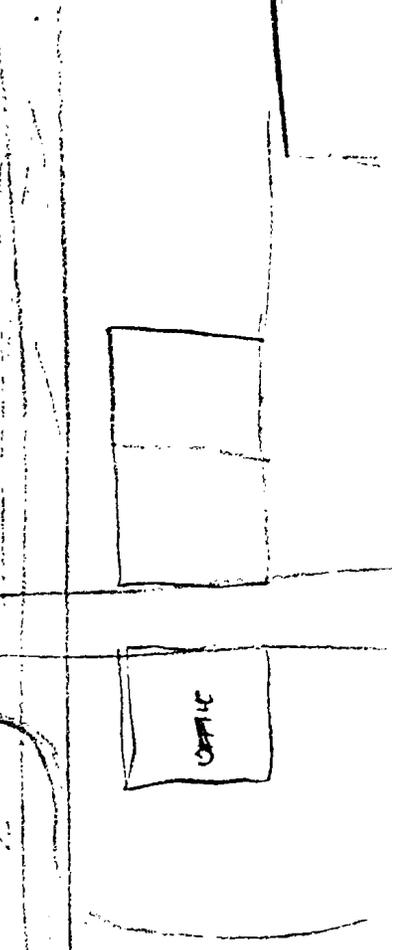
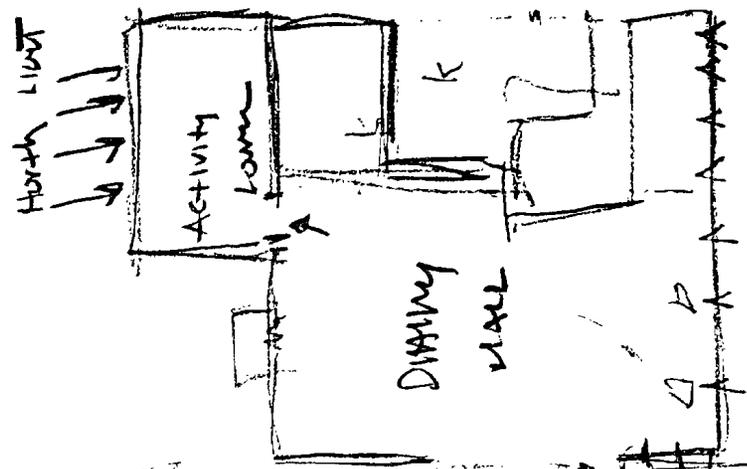
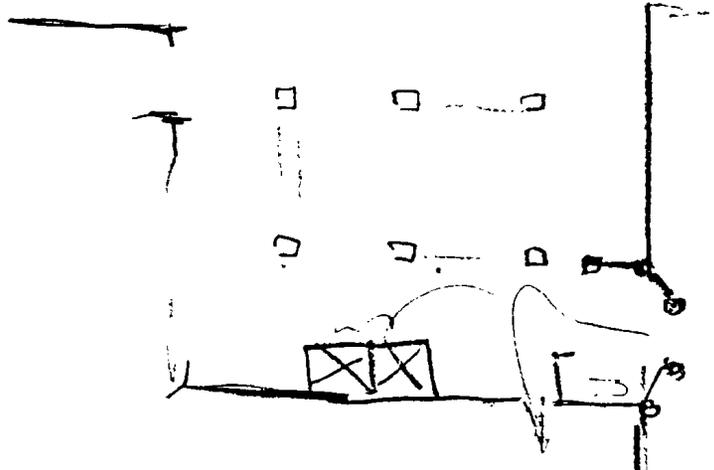
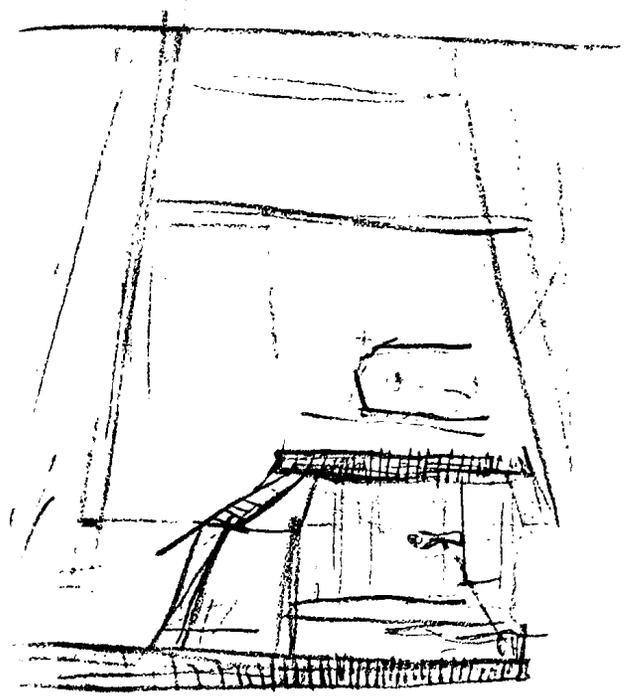












DWELLINGS
4540 SQFT

