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Additions, Extensions, Transformations:
New Architecture to Old

by

Robert Peabody Brown, Jr.

B.A. University of Mass./Boston 1970

Submitted in Partial Fulfillment
of the requirements for the
Degree of

Master of Architecture
at the

Massachusetts Institute of Technology

June 1981

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Signature of Author.
Department of Architecture
May 15, 1981

Certified by.
Maurice K. Smith
Professor of Architecture

Accepted by.
Associate Professor Sandra Howell, chairperson
Departmental Committee for Graduate Students

ROTC
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

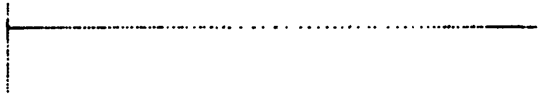
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FRONTISPIECE

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ABSTRACT

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ABSTRACT

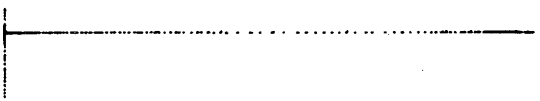
Architectural preservation in America has led to an increase in imitative architecture in many sectors of the profession and, as one architectural historian has pointed out, there is no historical precedent for imitative architecture. Fortunately, buildings can only rarely be preserved in a static form: they grow, evolve, and change in response to many circumstances.

Too often the form of an addition or extension is determined by aligning cornice lines, using the same building materials, the same window and doors, and a similar roof structure. Essential formal issues are often not addressed.

Four case studies are made, each being either an addition, an extension, or a transformation. Differing sizes and scales are explored. Accesses and circulation options are studied, as well as room sizes design decisions. Mostly drawings comprise the work, and they are additive form studies.

Thesis Supervisor: Maurice K. Smith
Title: Professor of Architecture

6

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ACKNOWLEDGEMENTS

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I gratefully acknowledge:

Professor Maurice Smith
for his special teaching

and

Mr. Frank Adams, of Perry, Dean, Stahl
and Rogers, for providing drawings of
his office's addition to the Peabody
Museum.

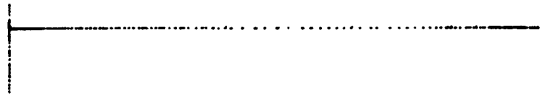
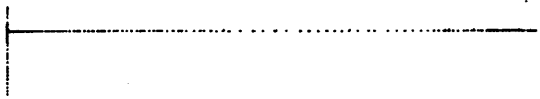


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FOREWORD

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Altering existing buildings is currently accounting for more than half of the work of the architectural profession; more alterations to older, existing buildings is being done than new work. The work is called renovation, restoration, rehabilitation, additions, extensions, transformations. Renovations, restorations, and rehabilitations are preservationist, in that they restore the existing building to a useful state. Additions, extensions and transformations can be defined as three different qualitative levels of intervention wherein the original building receives new pieces. Additions and extensions are interventions in the manner of the original building; transformations are also, but differ in that they introduce a new major element in addition to those in the manner of the original building. Additions, extensions, and transformations are the subject of this thesis.

Four designs comprise this thesis: a roof to protect a drive-in window

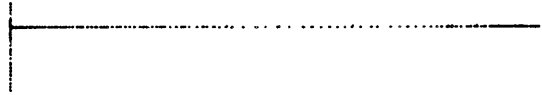


Figure 2.

at a bank in Hardwick, Vermont; an entry and additional space for a farmhouse in Sheffield, Vermont; the conversion into housing of a mill building in N.Billerica, Massachusetts; the design and implementation of a program of expansion for a unique museum in Salem, Massachusetts. The first three designs were to inform the fourth and major design. In fact, the second, the farmhouse addition, although smaller in scale, is the most developed of the four. Similar issues run through all four and, although one design may not address all the issues, 'collage', for example, the other three designs will. A list and key to the issues follows. Symbols appear on the drawings, and cross reference with the key.

The four projects were chosen for their differing and similar qualities. The sizes of the original buildings, the sizes of the new pieces, and the square footage ratios of new to old are as follows:

- A. Hardwick Bank: ± 5000 SF. New ± 300 SF. Ratio $\pm 0.5\%$.
- B. N.Billerica Mill. ± 25000 SF. New ± 5000 SF. Ratio $\pm 20\%$.



The Merchants Bank
Hardwick, Vermont

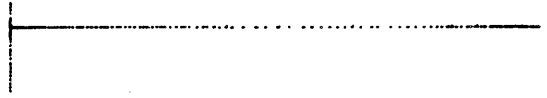


Figure 3.

Figure 4.

C. Sheffield Farmhouse: ± 3500 SF. New ± 800 SF. Ratio $\pm 23\%$.

D. Salem Museum: $\pm 85,000$ SF. New $\pm 60,000$ SF. Ratio $\pm 77\%$.

The Hardwick bank project is a minimal intervention. The building is masonry and of similar construction to those found in Salem. The building is of some historical interest, with some character of its own.

The farmhouse project was chosen for its residential scale. Although it is of little or no historical interest, it does have "character", qualities which should become more evident, not less, in any alteration. It is built of wood and framed in a post and beam system. It is situated in a rural setting.

The mill building is a large, masonry building which, for the purposes of the task, is currently unoccupied. Also, for the purposes of the exploration, the many "out-buildings" surrounding the oldest original buildings have been razed. The three original buildings are of similar construction type to the buildings found on the Salem site. The main mill building is of great-



The Holbrooke Farm
Sheffield, Vermont



The Faulkner Mills
N. Billerica, Mass.

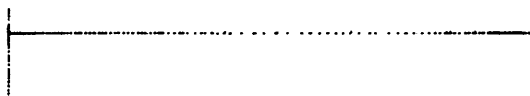


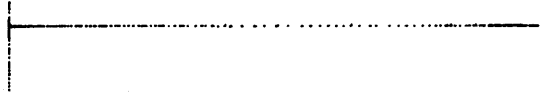
Figure 5.

er mass and volume than either the bank building or the Salem buildings. The program of allocating living space in such a building was treated as one of defining zones of territoriality, useage, and of maximizing physical association with the building's various elements; its walls, its window and door openings and, as in the farmhouse project, its overall relationship to the landscape.

The Salem project, the Peabody Museum of Salem, was chosen for sundry reasons. The primary reason is that its major piece, a brick and granite, gable roofed building, is of historical interest, especially for a museum. Over the years a series of appendages had been attached to the building, having the effect of "suffocating" the building, of obscuring its character by covering it in layers of additions. Before the program of expansion could proceed, some archeology had to take place; some uncovering of the original building in order to arrange access to and around it in order to maximize association with it.



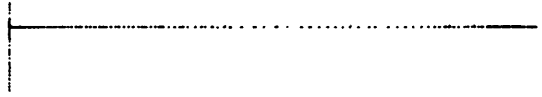
The Peabody Museum
Salem, Mass.



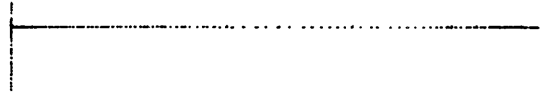
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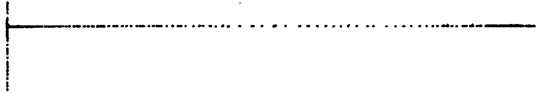
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SYMBOLS

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KEY TO SYMBOLS:

a) SIZES

..... 


- 1** SITE
- 2** ACCESS
- 3** ROOM
- 4** ARM'S LENGTH

b) '4 Cs'

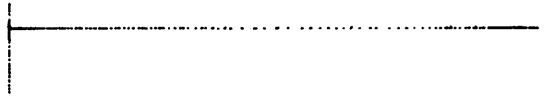
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- 1** CONTINUITY
- 2** CONTAINMENT
- 3** COMPLETION
- 4** COLLAGE

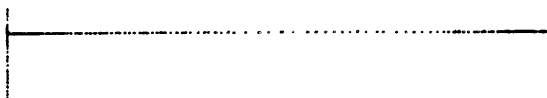
c) ATTRIBUTES

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- | | |
|-------------------------|-------------------------|
| 1 territoriality | |
| 2 direction | |
| 3 change/option | |
| 4 slack | |
| 5 growth | |
| 6 definition | |
| | 7 registration |
| | 8 edge |
| | 9 public/private |



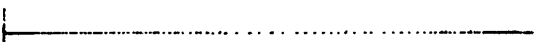
THE FOUR DESIGNS



SALEM

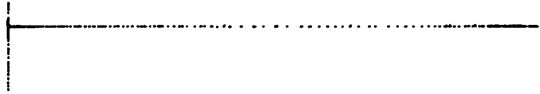
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The Peabody Museum for many years has been primarily a museum of ethnological artifacts. As such, its appeal to the general public was limited: mostly it was a resource for academicians. As Salem changed, grew in population and became more of a bedroom community of Boston, so too did one of its major commercial streets, Essex Street, change. Essex Street became a pedestrian way from Liberty Street (at the corner where the museum is situated) to Washington Street 3 blocks to the west. The many visitors to the area had an impact on the museum, rendering its isolated, cloistered nature obsolete in the midst of such local activity. It was decided to make the museum more accessible to the public.

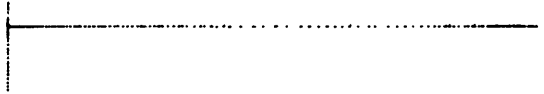
Although its ethnological collections were still of importance, the museum's Natural History and Marine Departments had a wider appeal both to the weekend visitor and to groups of school children during the week. Accommodations had to



be made for busloads of school children to see the exhibits and to hear talks and presentations. A spatial program was developed which included:

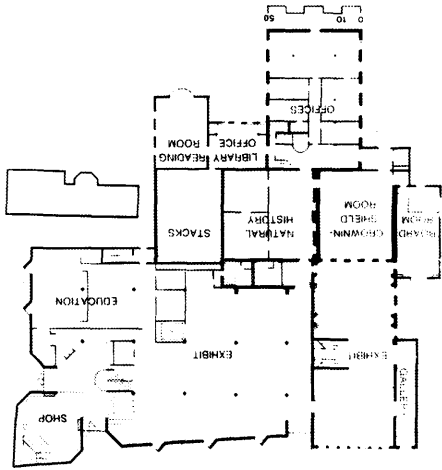
<u>Facility</u>	<u>Approximate Square Footage</u>
A museum store.	2000 SF
Educational facilities.	2000 SF
A main lobby/ entrance.	3000 SF
A board room, with kitchen.	2000 SF
An audio-visual department.	2000 SF
Space to exhibit dioramas.	14,000 SF
Additional space for the Natural History Department.	3000 SF
Additional space to accomodate temporary exhibits.	10,000 SF
Space for future expansion of office and administration.	5000 SF
Additional space for the Ethnology Department.	4000 SF
Additional storage facilities.	10,000 SF
A workroom for repairing exhibits.	400 SF
A graphics/layout room.	300 SF
Expansion of the boiler plant.	300 SF
Restrooms.	2000 SF
	<u>60,000 SF Total</u>

In addition to the program above, the south edge of the site, along Charter Street, is to remain residential in scale, with the possibility of future conversion for further expansion.



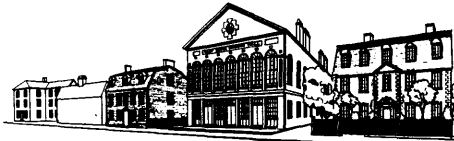
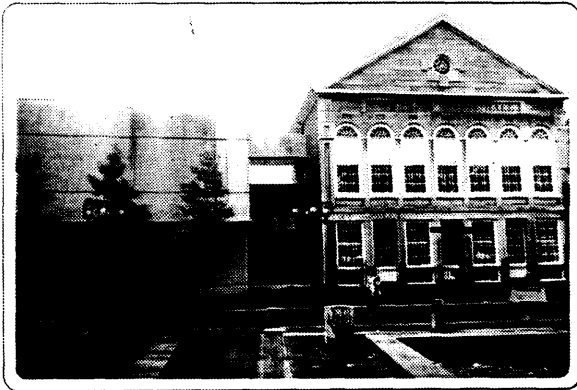
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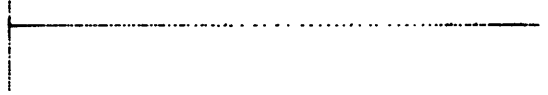
Clockwise from below:
 Evolution of Essex St.,
 Salem. 1825-1975.
 Marine Hall and
 Stahl Addition.
 Plan of above.



PERRY, DEAN, STAHL & ROGERS, INC.
 ARCHITECTS
 177 MILK STREET
 BOSTON, MASSACHUSETTS 02108

PEABODY MUSEUM				
1st FLOOR KEY PLAN				
SCALE	BY	DATE	PROJECT	
				<input type="checkbox"/>



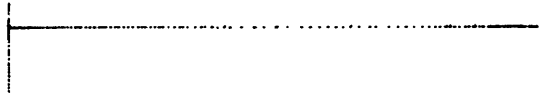


HISTORY

The Peabody Museum has a history which goes back almost two centuries. It has undergone several changes throughout that time. The goals as stated in the 1799 charter were

"To assist the widows and children of deceased members, to collect such facts and observations as may tend to the improvement of navigation and to form a museum of Natural and Artificial curiosities, particularly such as are to be found beyond the Cape of Good Hope and Cape Horn..."

For almost seventy years the goals of this charter were upheld, but by 1867 the maritime activity in Salem had decreased, along with membership (which required a captain to have rounded either Cape) in the Society. Hence, support was lacking. George Peabody, in order to save the collections, donated \$140,000 in 1867 to purchase East India Marine Hall and place the collections of the East India Marine Society and the Natural History collections of the Essex Institute on permanent display. The new society was to be called the Peabody Academy of Science.



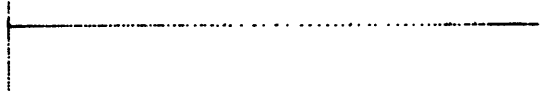
From 1867 to 1942 the museum went through what its present director calls its 'adolescence', a tumultuous time of identity searching. During that time it was recommended that the museum, rather than compete with others in Natural History, instead "endeavor to perfect those departments which already give it preeminence above all other museums in the country". The ethnological collections were expanded during the years 1880 to the present. These collections are the most unique. The author recently saw an exhibit of 'netsuke', the small decorative Japanese sculptures from which are suspended pouches and storage boxes from the sash of the kimono.

It was not until the 20th C that the Marine collection experienced its tremendous growth. And

"In 1921 John Robinson published The Marine Room of the Peabody Museum of Salem but it was not until 1942 that the Natural History collection and cases were removed and the Hall restored to its former elegance."

Since 1942 the museum has been in

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its 'mature' phase of development. The departments have all grown and developed since then. The area surrounding the museum, particularly Essex Street, has changed substantially. In 1974 the Board of Directors, with the help of Mr. Tad Stahl, a Boston architect, designed and had built an addition to answer a need for increased space to accommodate increasingly larger groups of visitors.

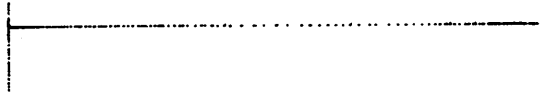
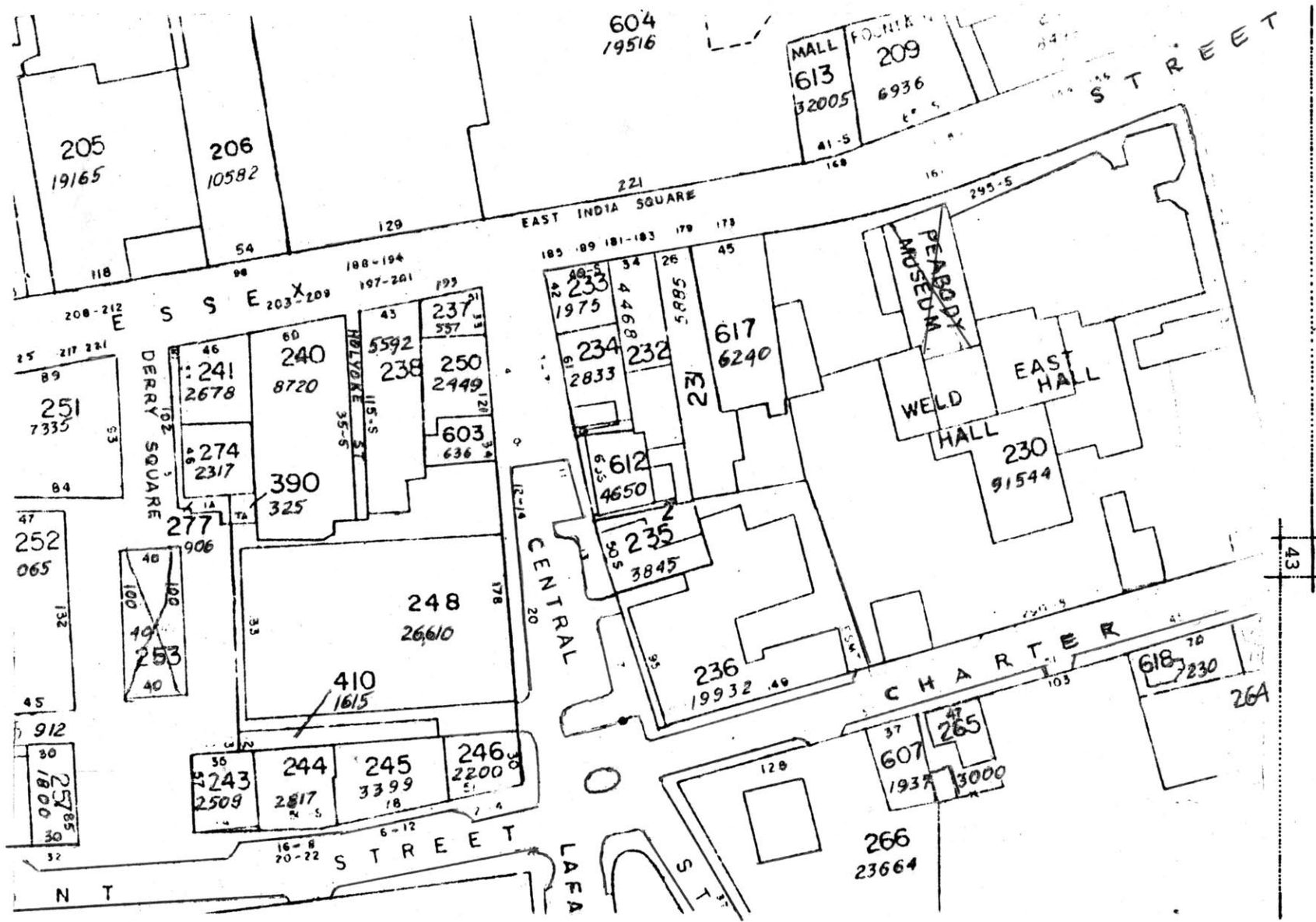


Figure 9. Context plan. Salem.
The Peabody Museum is in the
upper left.



604
19516

MALL
613
32005

FOURTH
209
6936

STREET

EAST INDIA SQUARE

DERRY SQUARE

CENTRAL

CHARTER

STREET

LAEA

PEARSON
ARSENAL

WELD
HALL

EAST
HALL

43

264

266
23664

618
230

205
19165

206
10582

251
7335

252
065

253

255
1800

243
2509

244
2817

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3399

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26610

390
325

274
2317

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2678

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8720

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2449

250
2449

603
636

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3845

612
4650

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5885

617
6240

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91544

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1937

265
3000

618
230

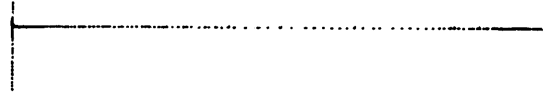
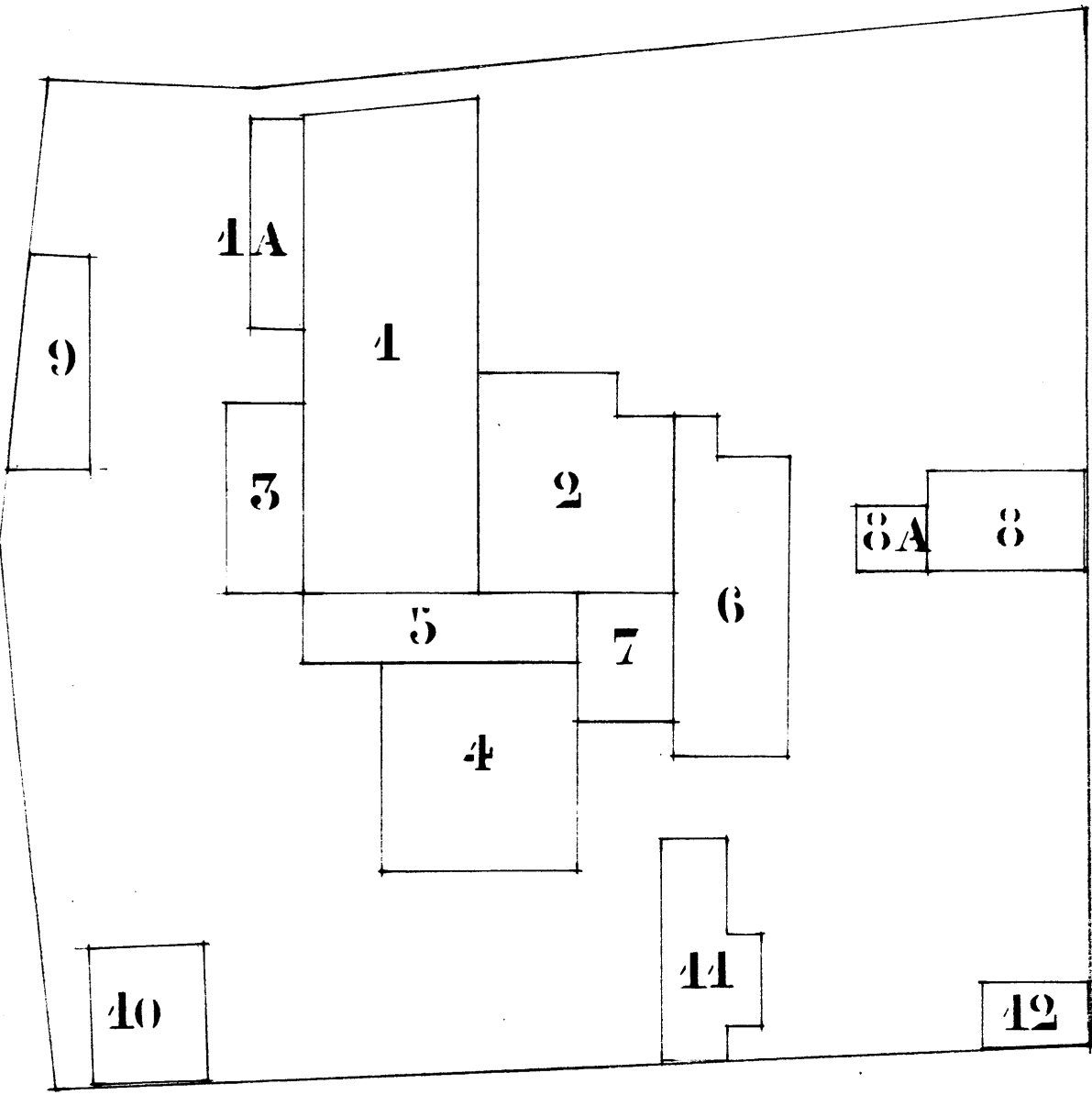


Figure 10. Catalogue of existing buildings. Salem site.



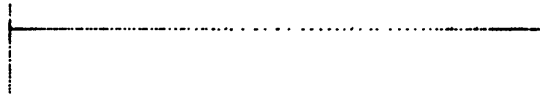
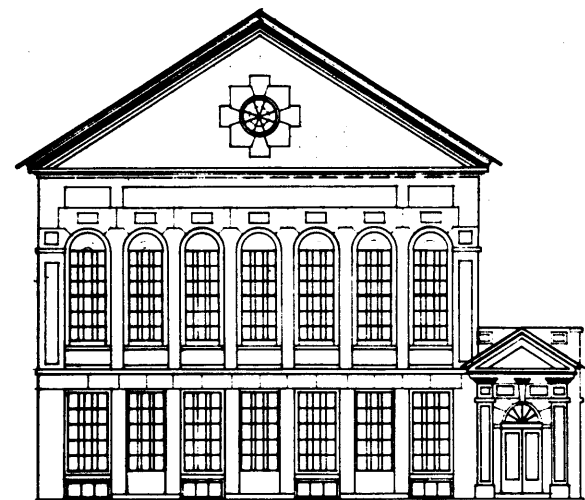
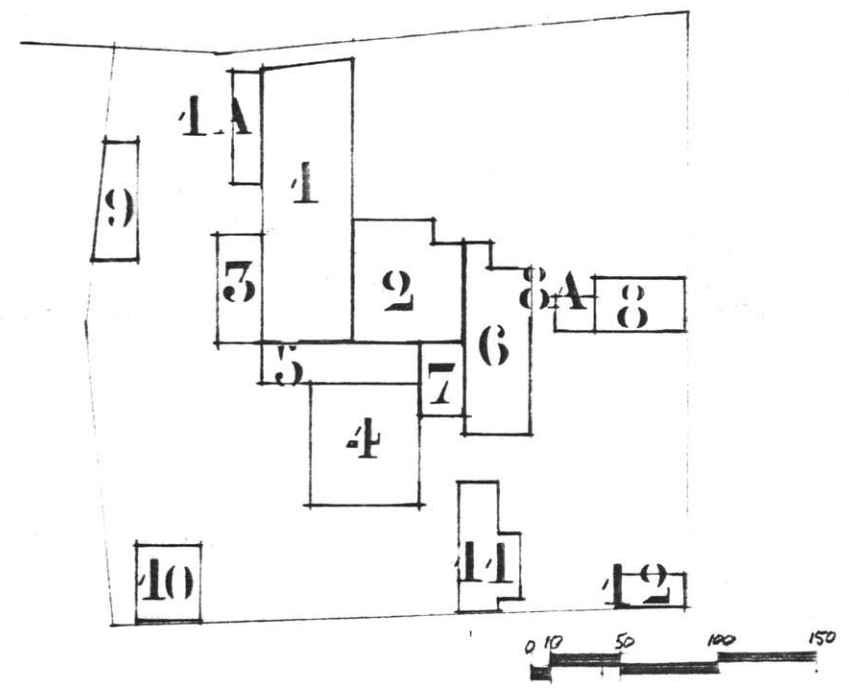


Figure 11. Elevation.
The site extends from the west
wall of the tallest building
 $\pm 300'$ west, encompassing the
Marine Hall on the left.

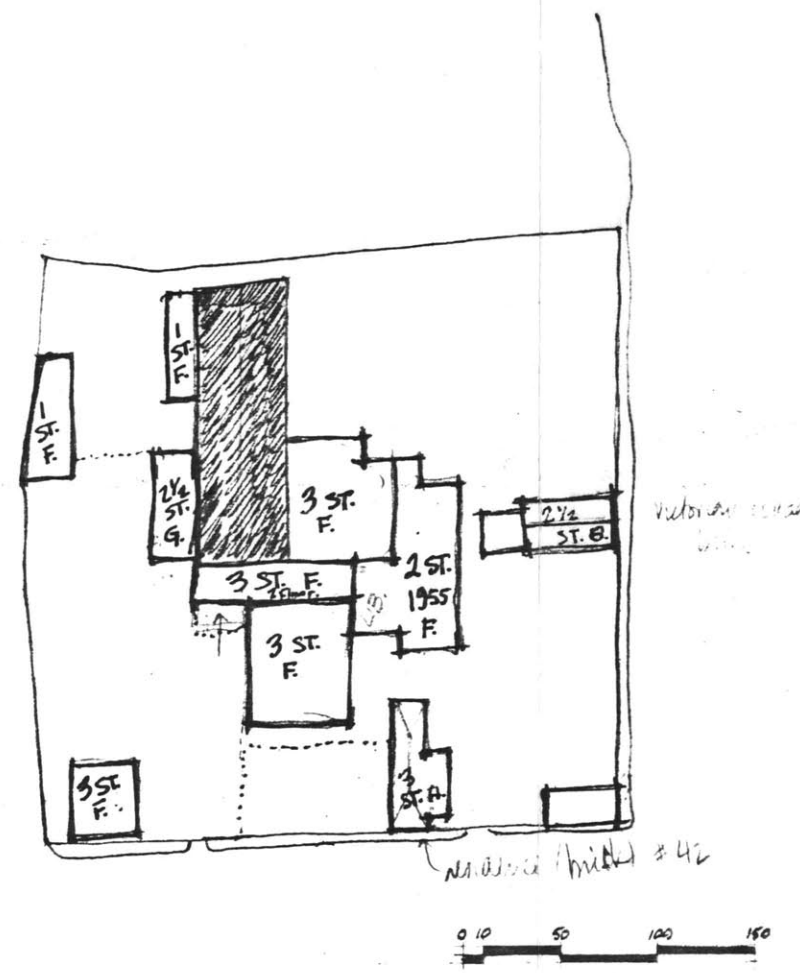


Figures 12, 13. As is. Heights
of buildings noted on right.



(S) ①

JAN 27 1981



(S) ①

JAN 27 1981

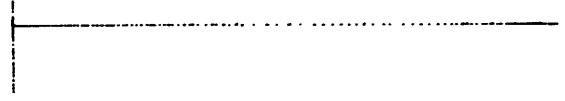


Figure 14. Site plan. Access Study.
Built up street edge, connecting
existing outbuildings. 'P'=Parking.



DISCREET ELEMENTS

Existing "outbuildings"



1/2" = 1'-0"

(S) (1) (2)

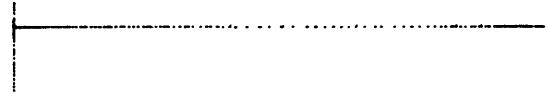
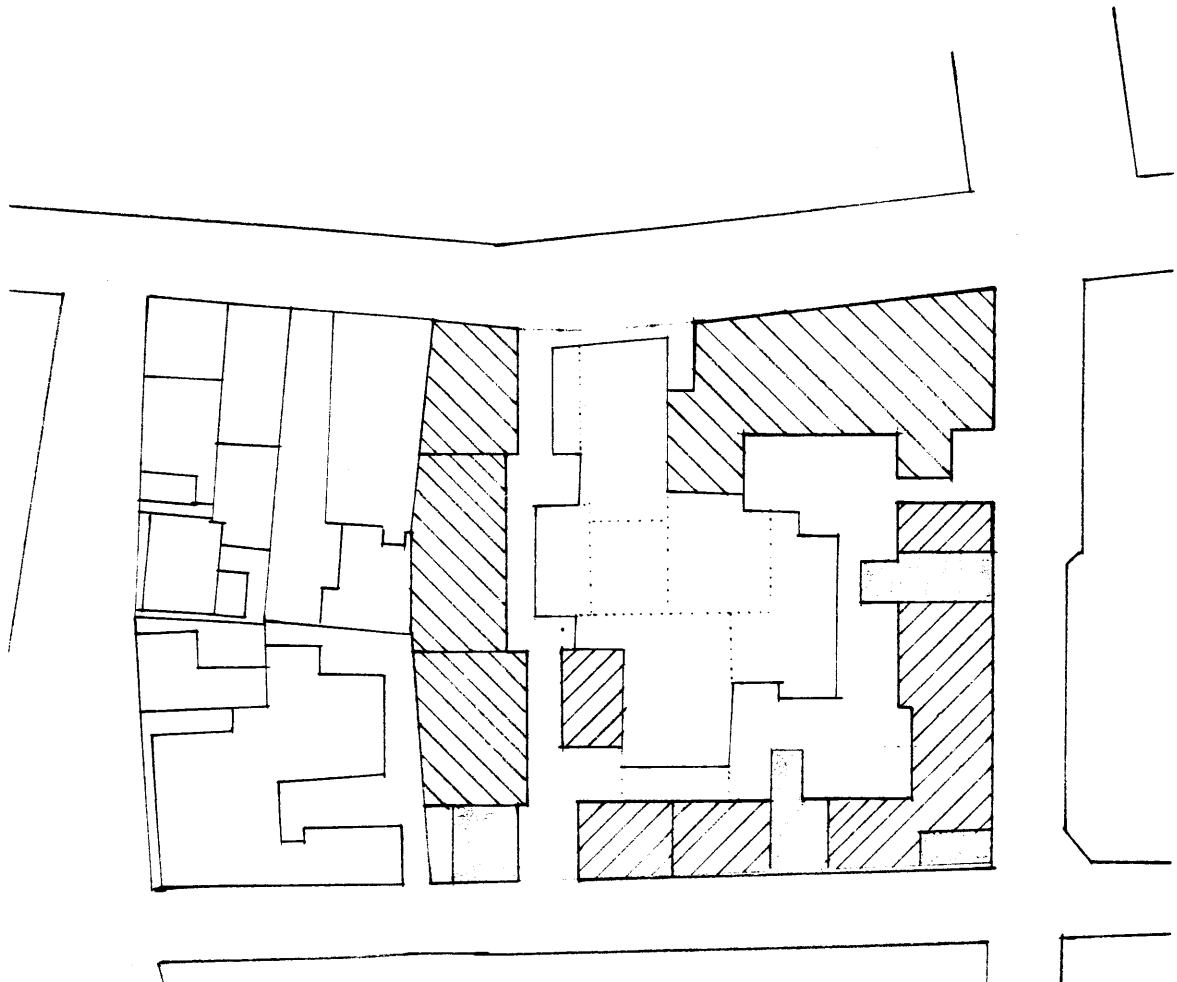


Figure 15. Site Plan. Access Study.
Building up east edge of site by
putting back 'Ingram's Way', an
18C north/south connecting street.
Making an inner street between the
Museum buildings and a new built up
street edge.



CREATION OF INNER STREET



S ②

JAN 29 1981



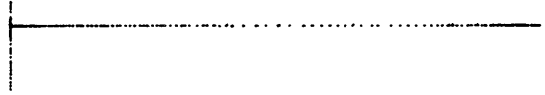
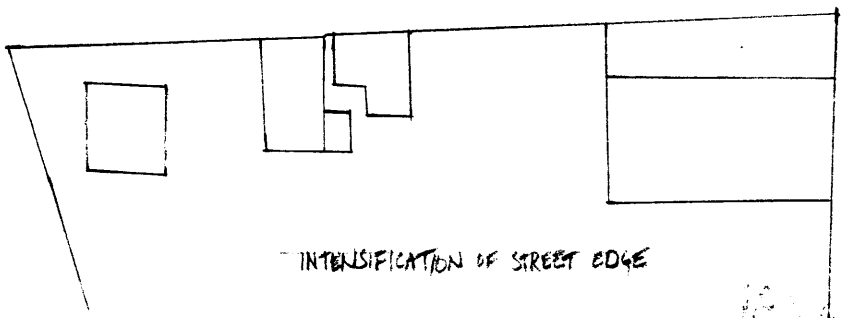
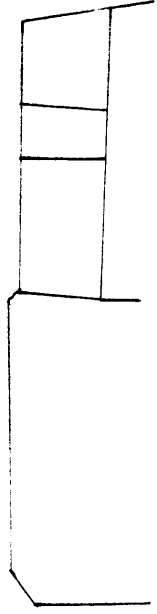
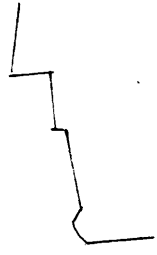
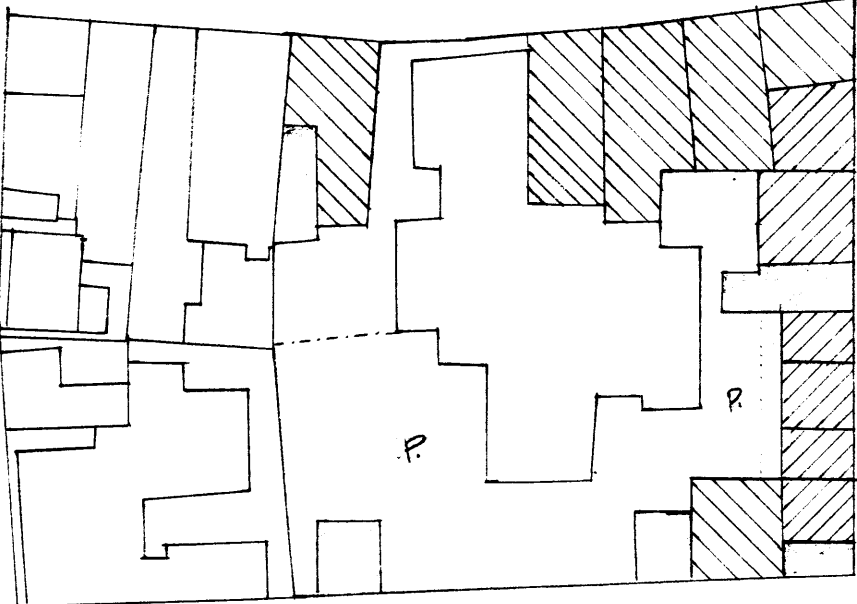
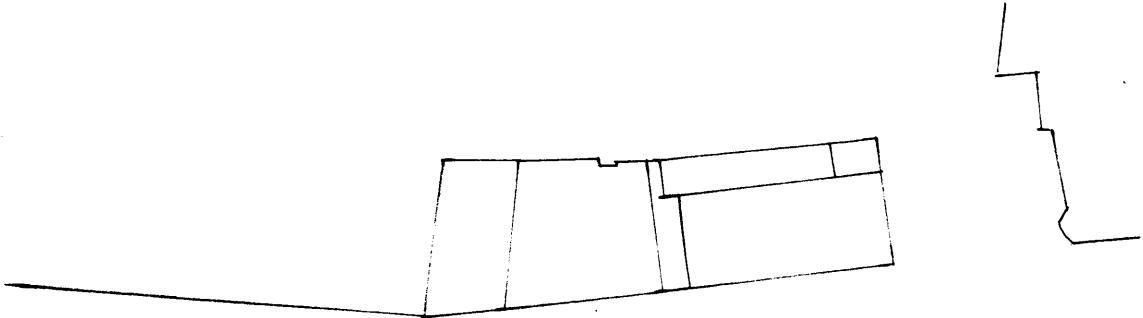


Figure 16. Site plan. Access study.
Build up Liberty St. into commercial
area, like Essex St.

55



INTENSIFICATION OF STREET EDGE



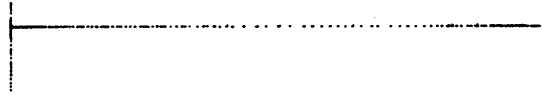
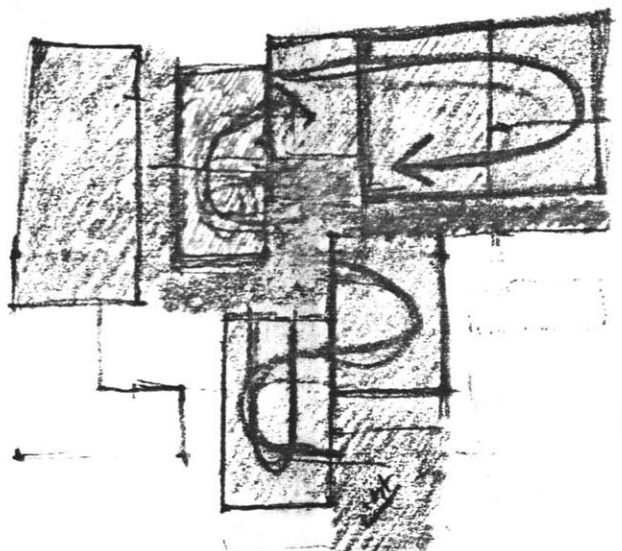


Figure 17. '1'. Site plan. Access Study. Circulation 'loops'.
Figure 18. '2'. Early massing sketch separating 'private', more academic exhibition space from exhibitions with 'general audience' appeal.



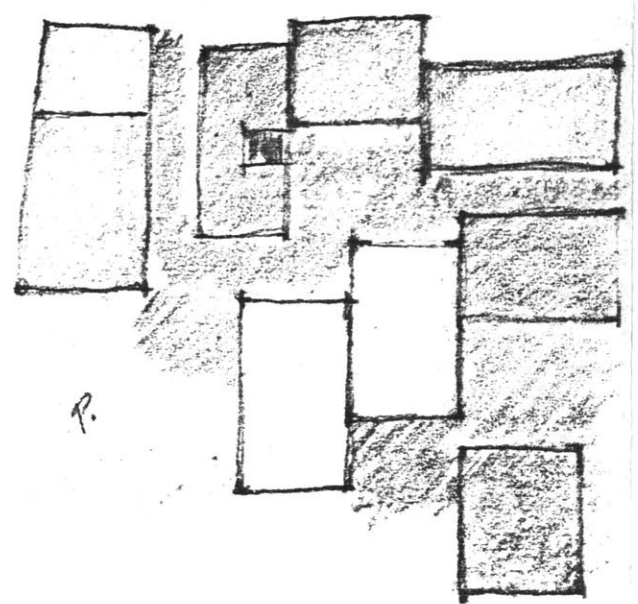
0 10 50 100 150

S 2
C 1 2

1

JAN 30 1981

Community
contains new
completion
collage



0 10 50 100 150

Education
Japan-Eastern goods
national history
maritime
special exhibits
gardens
board room/admin.

apartments
store
special exhibits(?)
library/reading room

JAN 30 1981

S 2
C 2

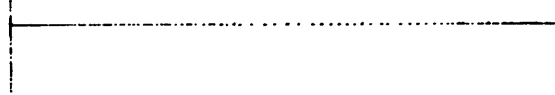
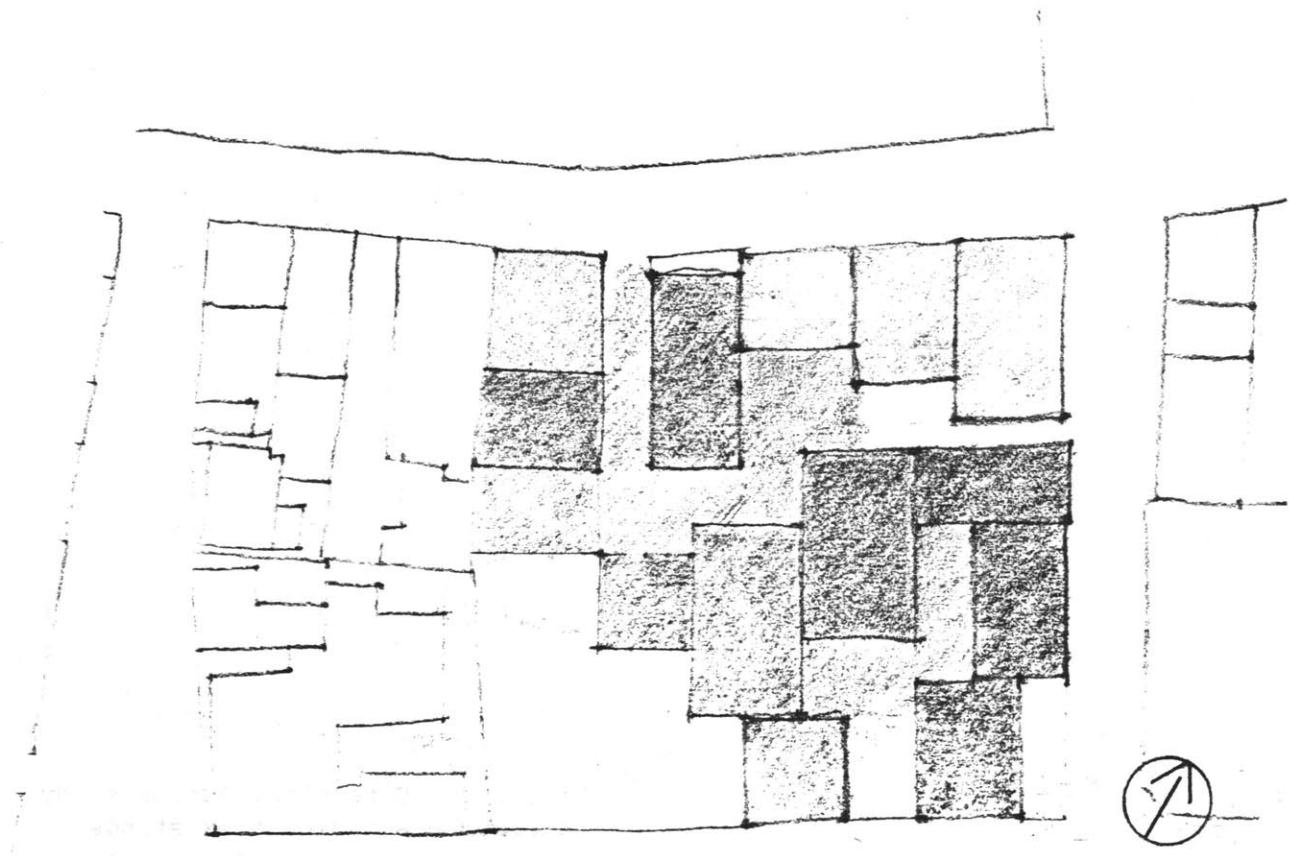


Figure 19. '3'. Site plan. Access study. Massing. Retaining Ethnology building but removing connecting building between. Access around Marine Building.

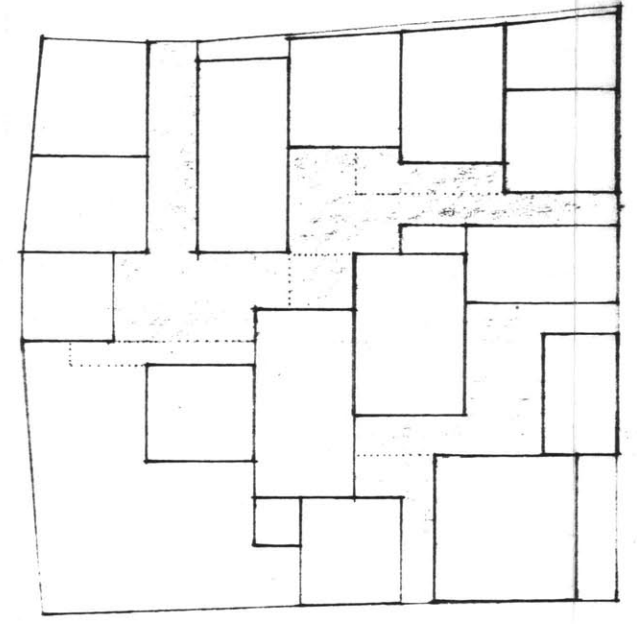
Figure 20. '3A'. Site plan. Access study. Opening of cul de sac in '3'.

50



5
 S 2
 C 1 2

JAN 30 1981



5 A
 S 2
 C 1 2 4

JAN 30 1981

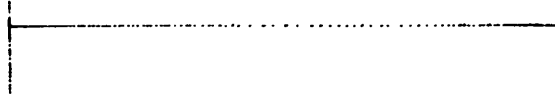
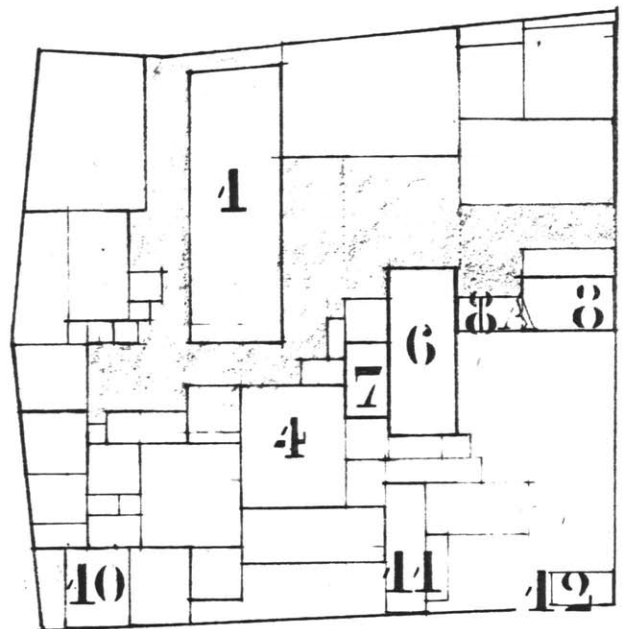


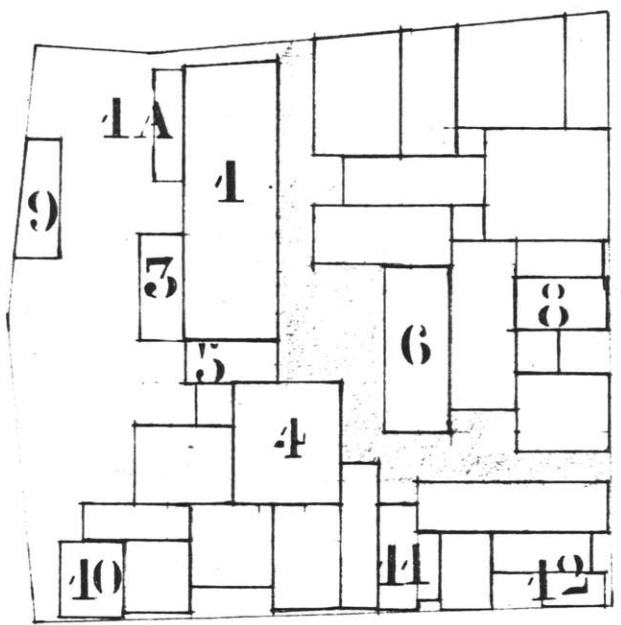
Figure 21. Site plan. Access study. '4'. Numbers indicate existings buildings as in 'Catalogue...' (Fig.10). Partial replacement of 'Ingram's Way'. Access through to Liberty Street.

Figure 22. Access along east side of Marine Hall. Open space to west remains as is.



- (S) ②
- (C) 1 4
- (A) 3

JAN 31 1981



- (S) ②
- (C) 1 4
- (A) 7 3

JAN 31 1981

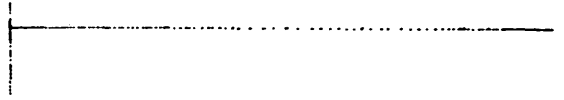
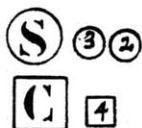
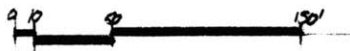
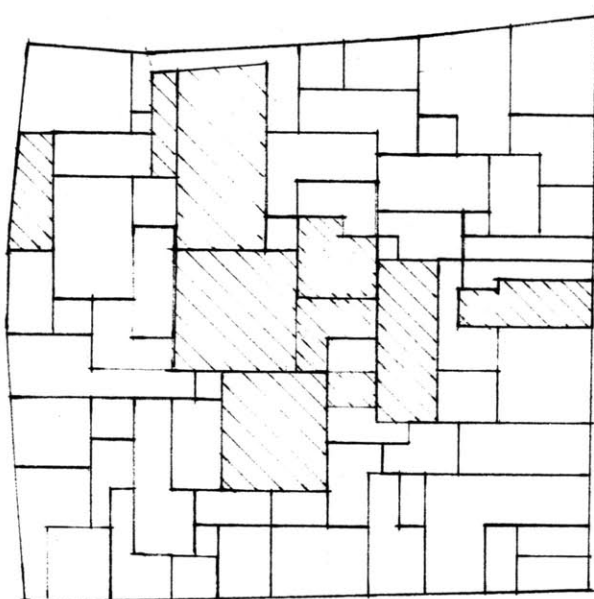
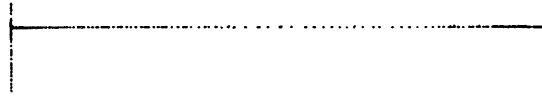


Figure 23. Site plan. Access Study.
A collage of rooms after Paul Klee.

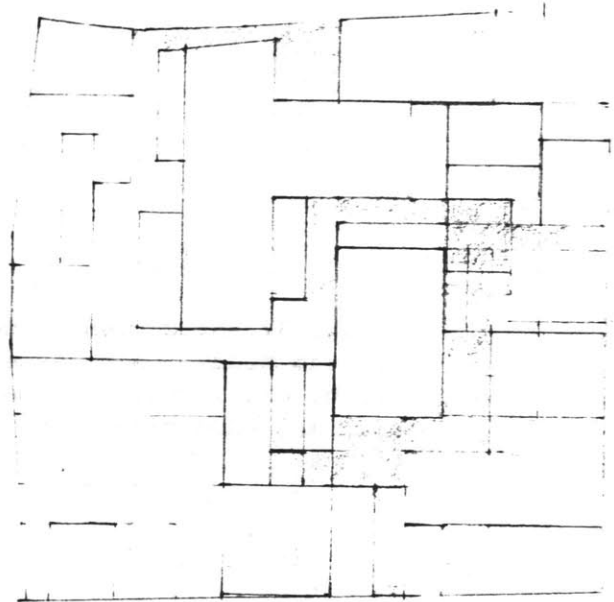


after Klees "Polyphony"

FEB 02 1981

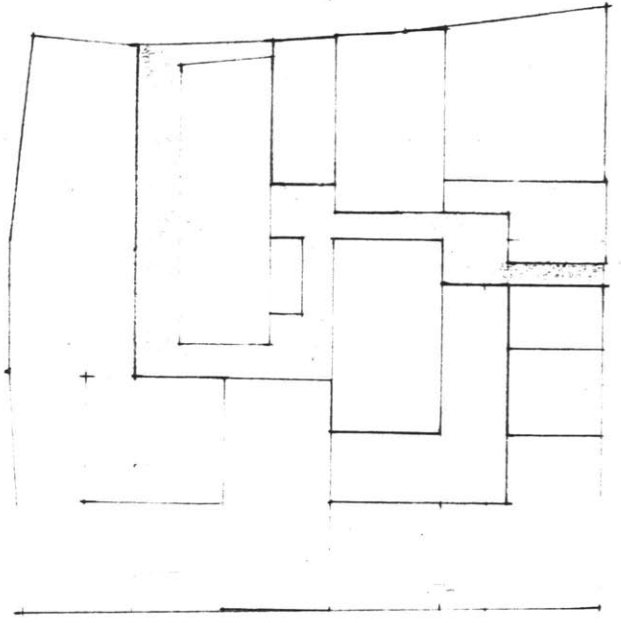


Figures 24-26. Site plan. Access study.
'2', '3', '4'. Establishing rules using
P.Klee's paintings, to build access
through rooms of differing sizes.



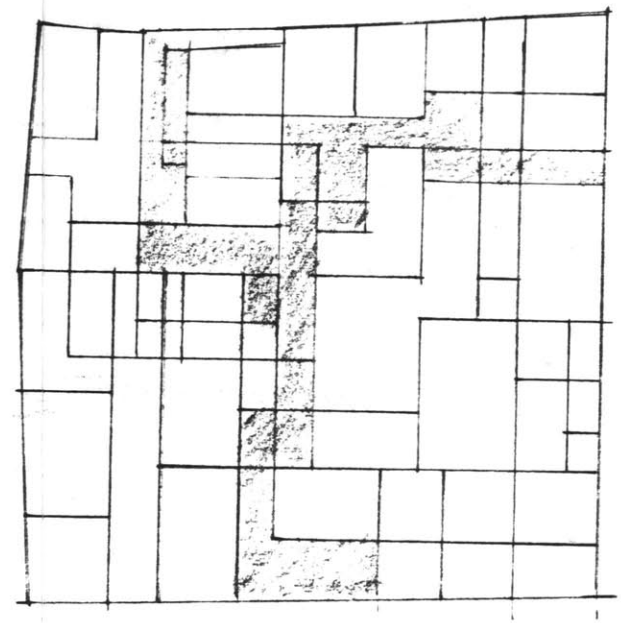
②
FEB 02 1981

- Ⓢ ②
- ⓐ ① ② ③
- Ⓐ ① ② ③ ④



③
FEB 02 1981

- Ⓢ ②
- ⓐ ① ②
- Ⓐ ③



④
FEB 02 1981

- Ⓢ ② ③
- ⓐ ① ② ③ ④
- Ⓐ ① ② ③ ④

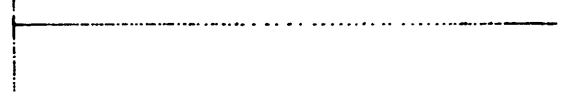
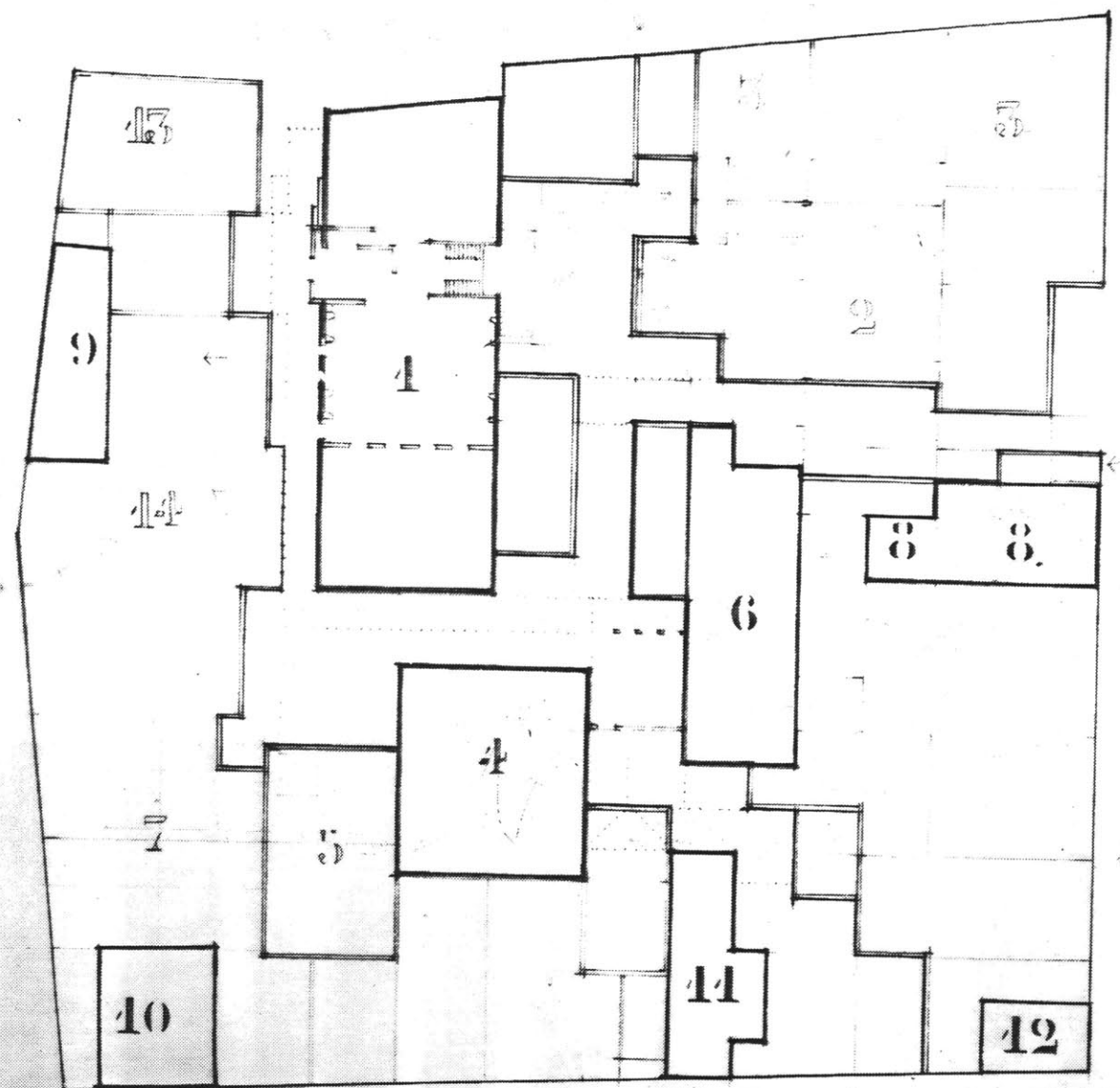


Figure 27. Site plan. Access.
Program study. 3 accesses;
north, east, south. Commer-
cial and education in northeast
corner.



- 1. natural history
- 2. anthropology
- 3. special exhibits
- 4. research
- 5. education
- 6. library
- 7. commercial
- 8. administrative
- 9. museum store
- 10. garden

1 INCH = 150 FEET

FEB 18 1981
FEB 18 1981



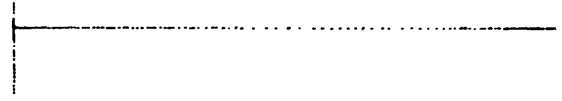


Figure 28. Site plan. Directional change/collector form for courtyard.



FEB 19 1981



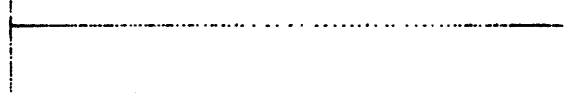
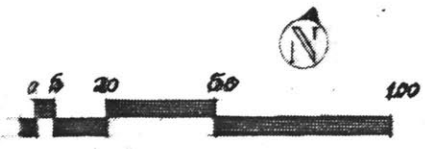
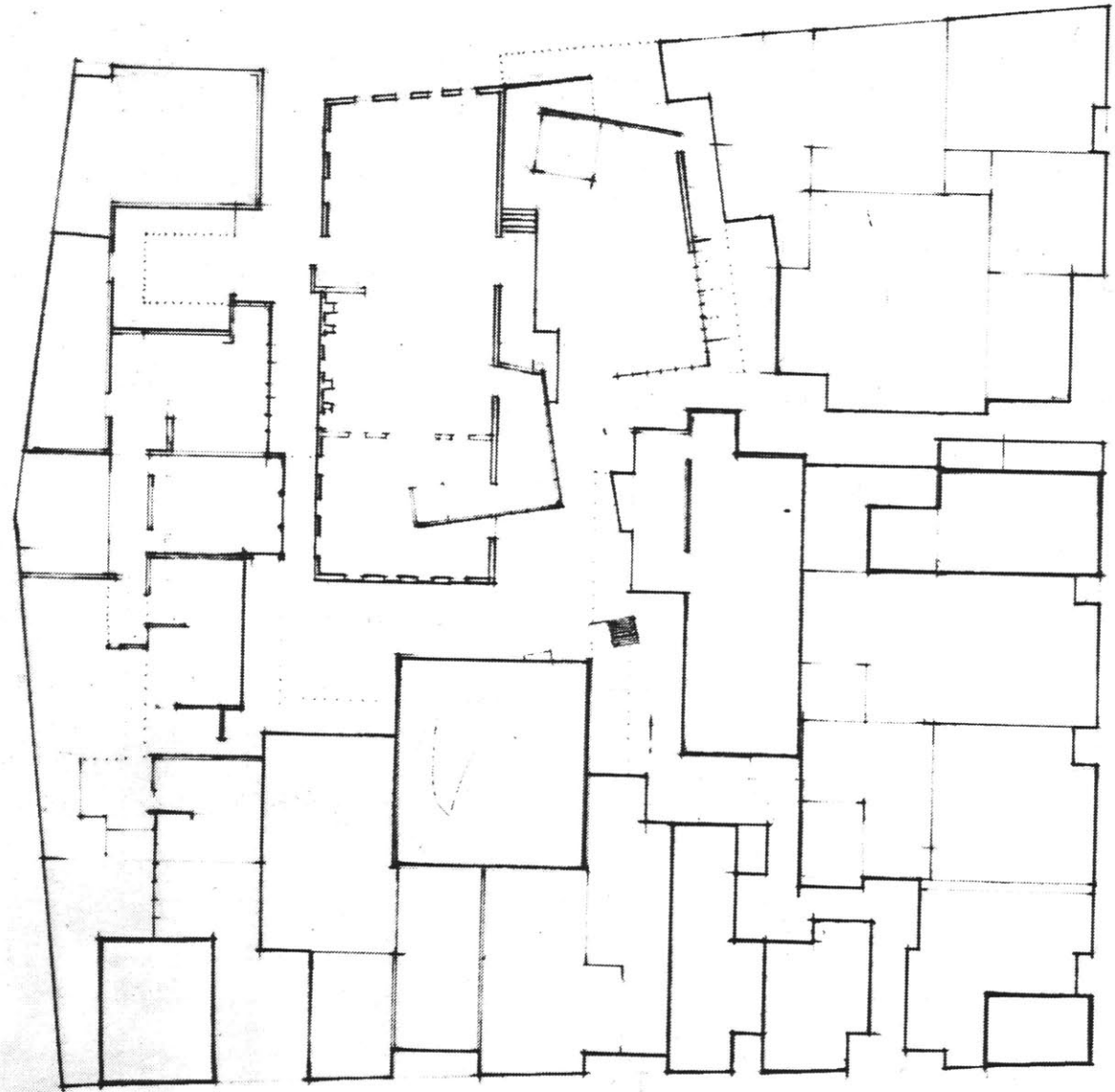


Figure 29. Courtyard studies. Inside/outside. Access.



FEB 21 1961

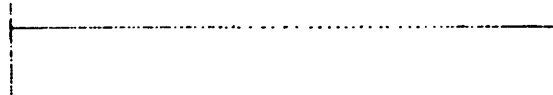
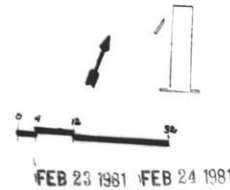
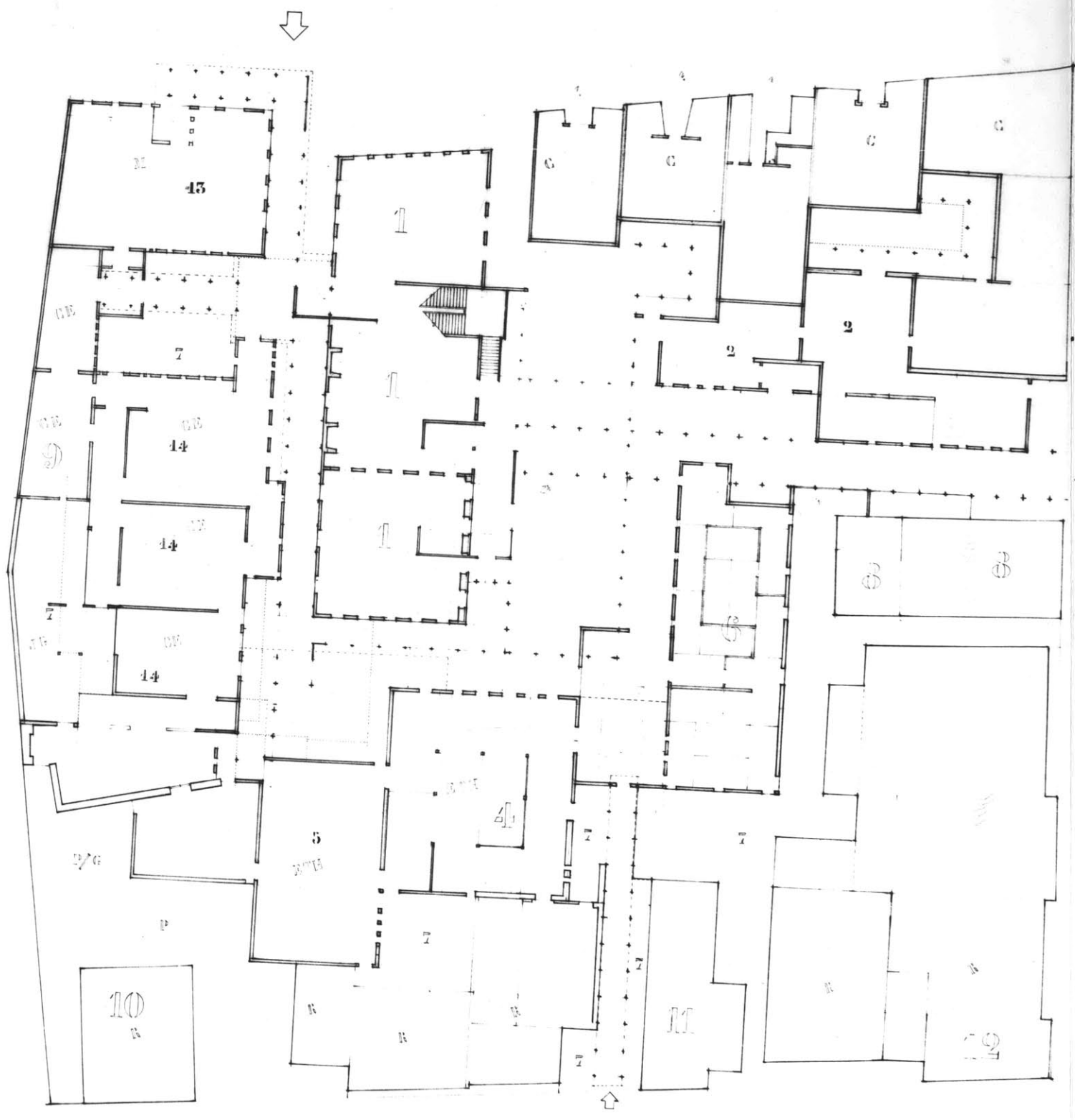


Figure 30. Ground Floor Plan #1.
'Current Exhibit' space along
east side of site. Ethnology
Department along south and west.
Education along northwest.
Separate entrance from south
for Ethnology.



FEB 23 1981 FEB 24 1981

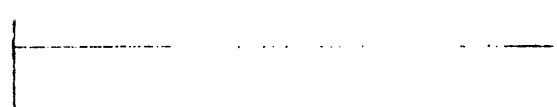
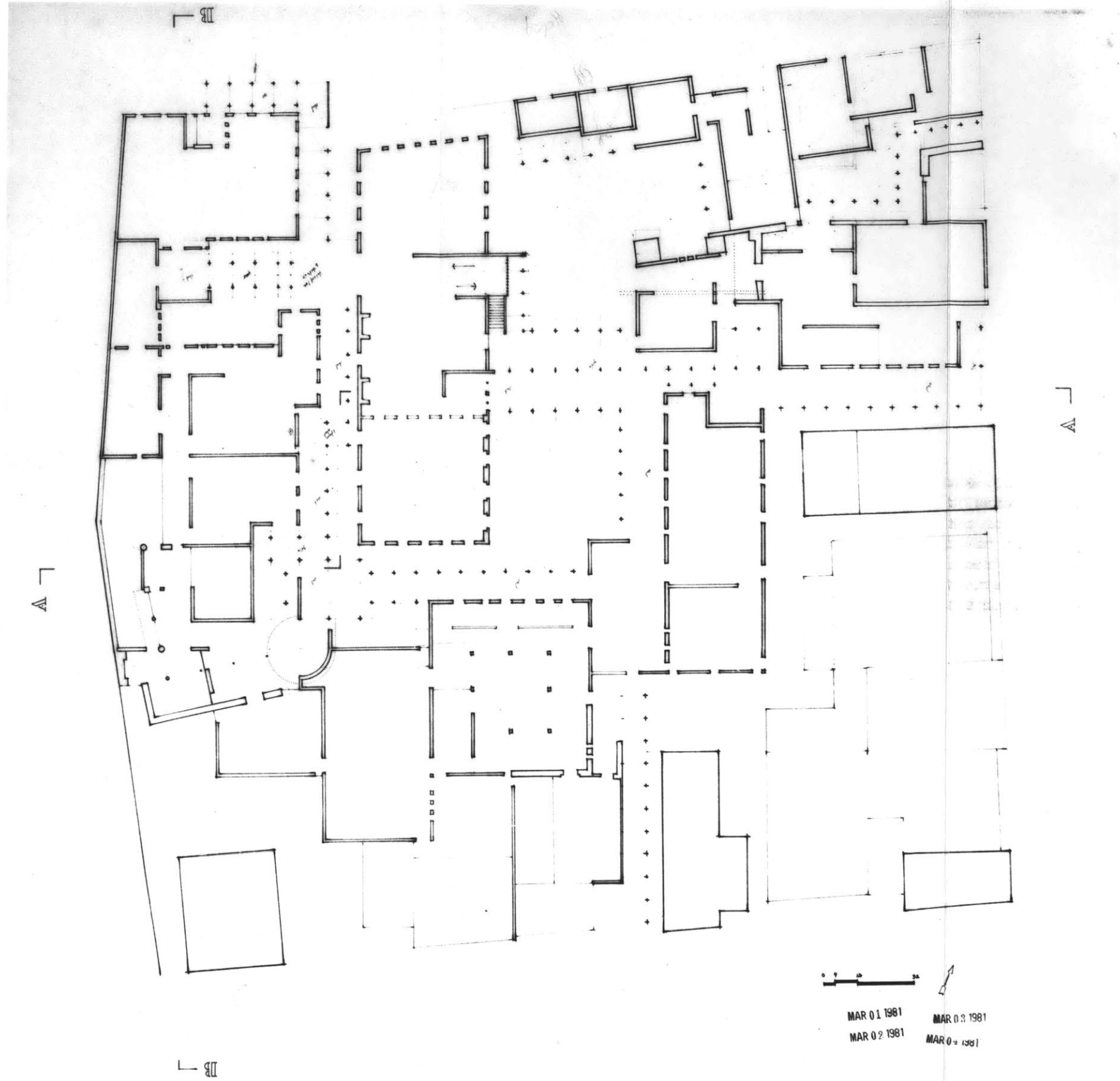


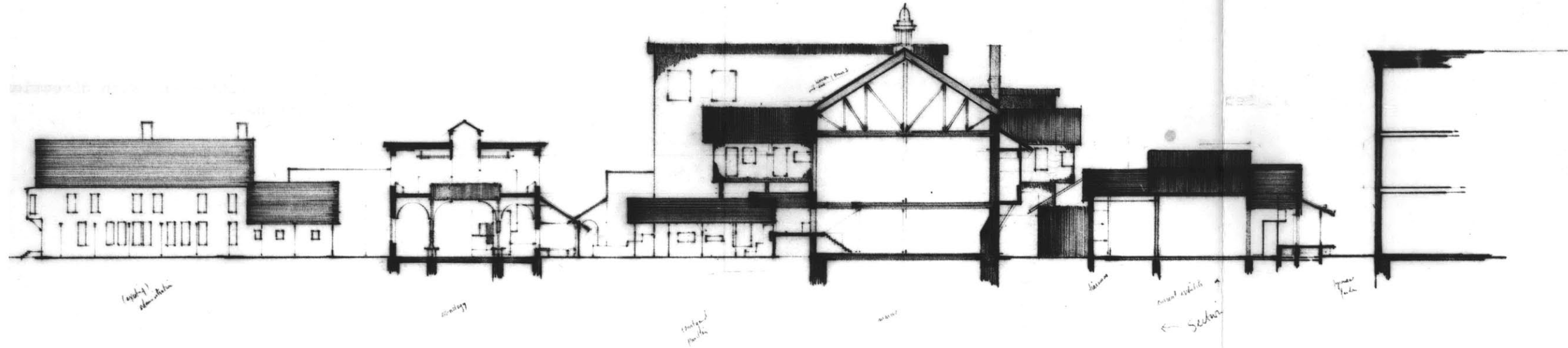
Figure 31. Ground floor plan #2. Diminuation of commercial side (north) of courtyard. Spatial junction of street direction and museum direction becoming small garden between commercial and education areas.



MAR 01 1981 MAR 03 1981
MAR 02 1981 MAR 04 1981

76 | — — — — —

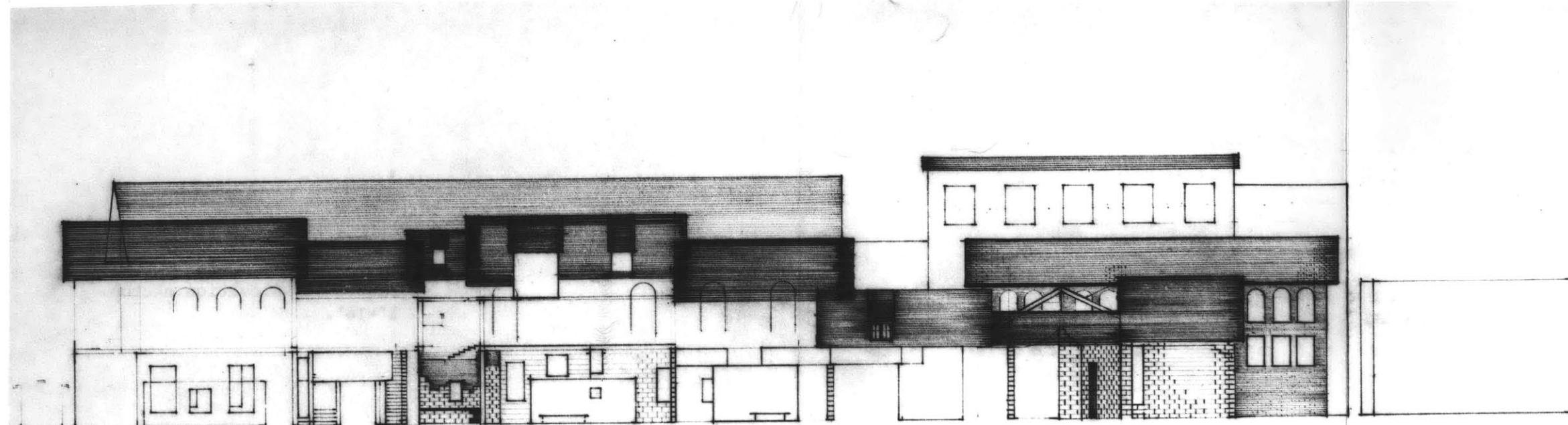
Figure 32. Section AA.



SAA

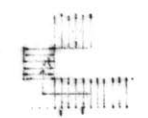
MAR 04 1981 MAR 11 1981
MAR 05 1981

Figure 33. Section BB. With direction
of Marine Hall.



main level

ground level →



*Japanese garden
courtyard*

main level



MAR 10 1981
MAR 11 1981

S B B

80

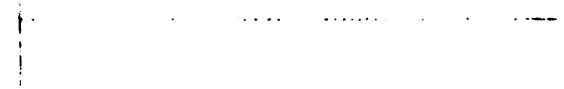
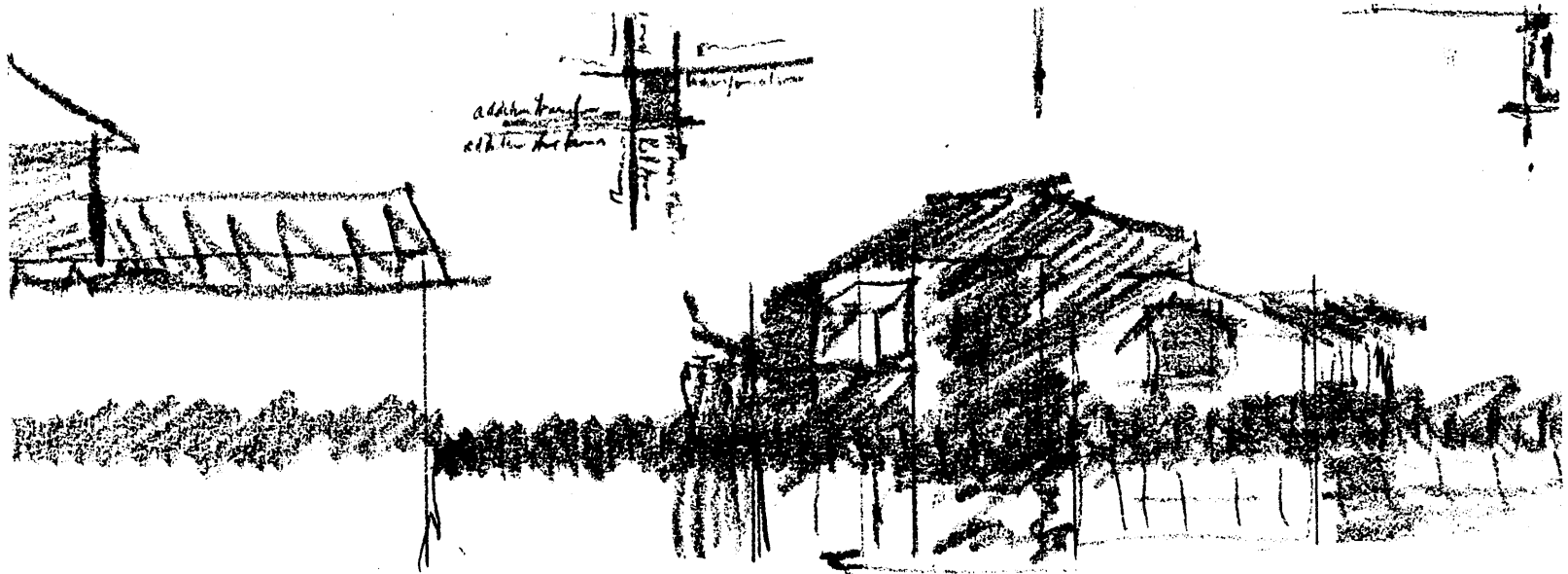


Figure 34. Elevation sketch.
1"=16'.



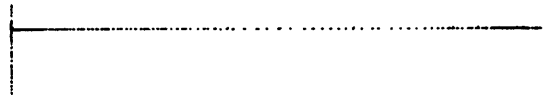
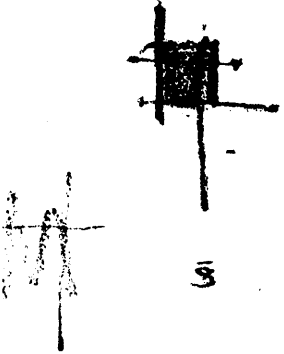


Figure 35. Elevation sketch.
Low wall along Essex St.



the wall
day in wall



5

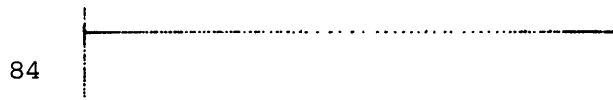
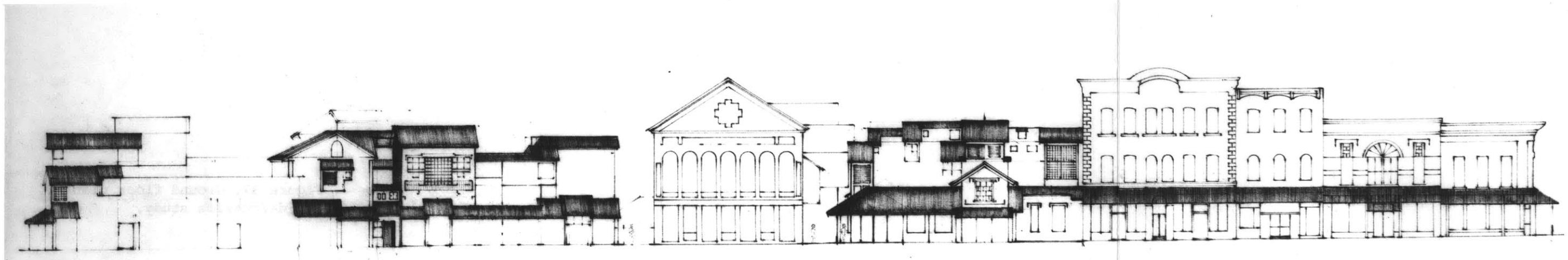


Figure 36. Elevation along Essex St.



*Administration and
Education Library*

*Public
Lecture*

Education Library

Commercial Bldg

*Admission to
Campus*

Market

*Store/
Terrace*

Market Bldg

Market Commercial



DE 1

RECEIVED
MAR 11 1981

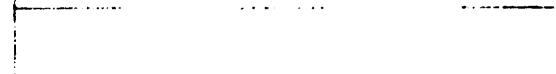
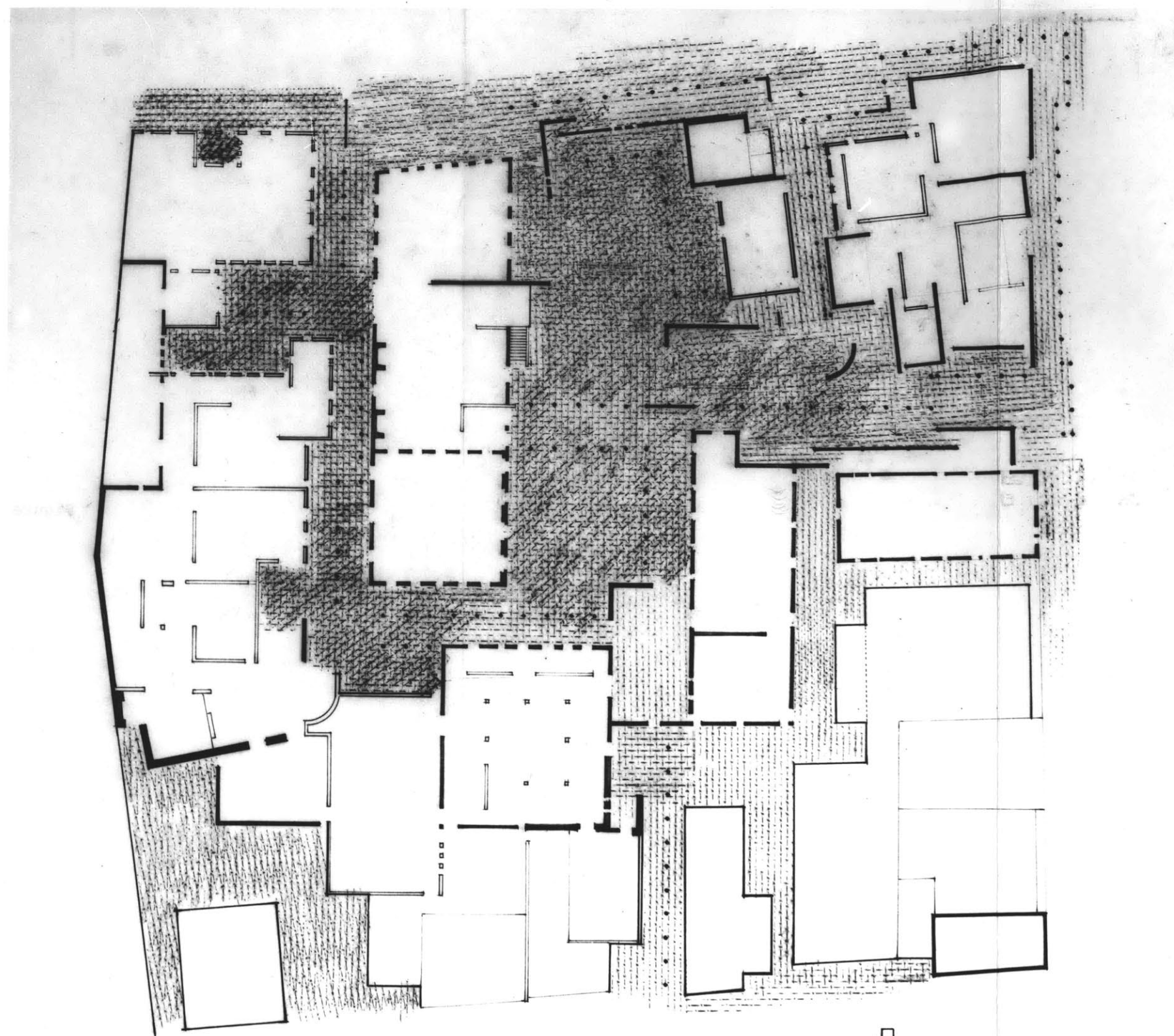


Figure 37. Ground floor plan #3.
Inside/outside study.



1
0 2 4 6
APR 01 1981
APR 06 1981

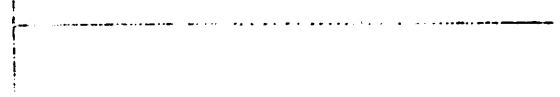
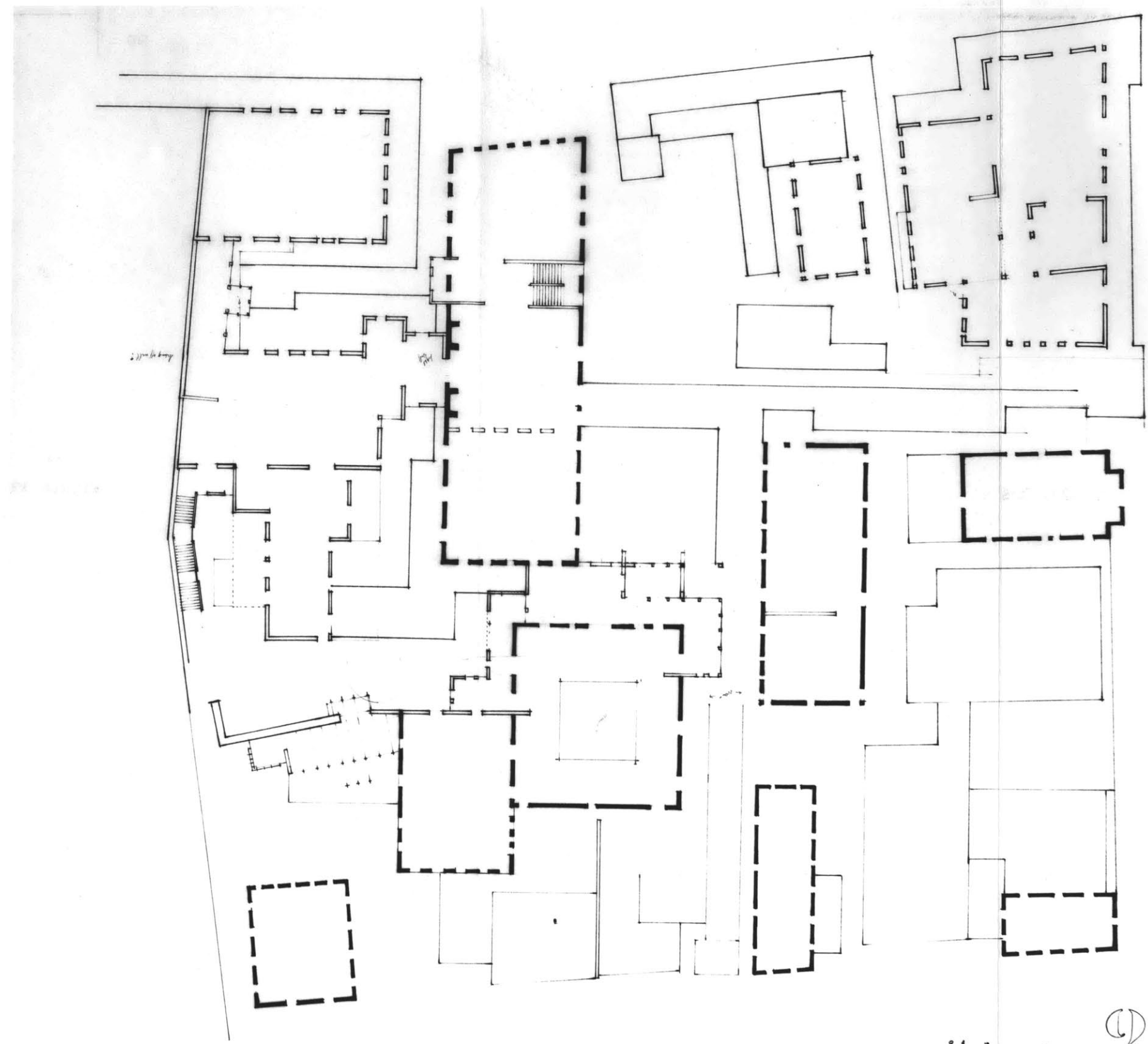
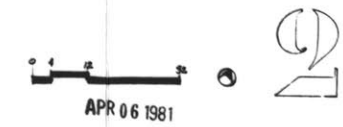


Figure 38. 2nd floor plan.



237-14-1000



APR 06 1981

90

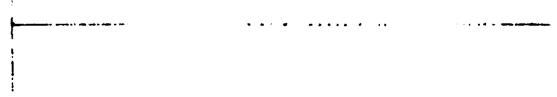
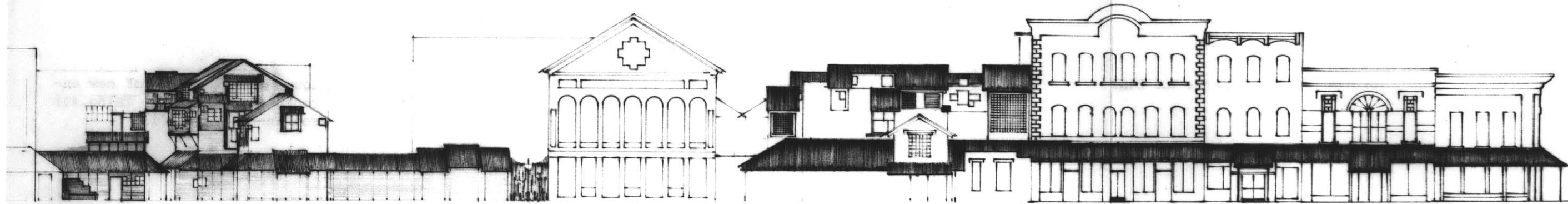


Figure 39. Essex St. Elevation.



Handwritten note or signature.



RECEIVED
APR 03 1981
APR 07 1981

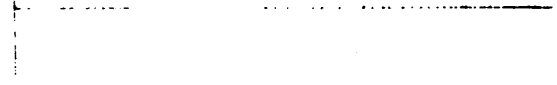
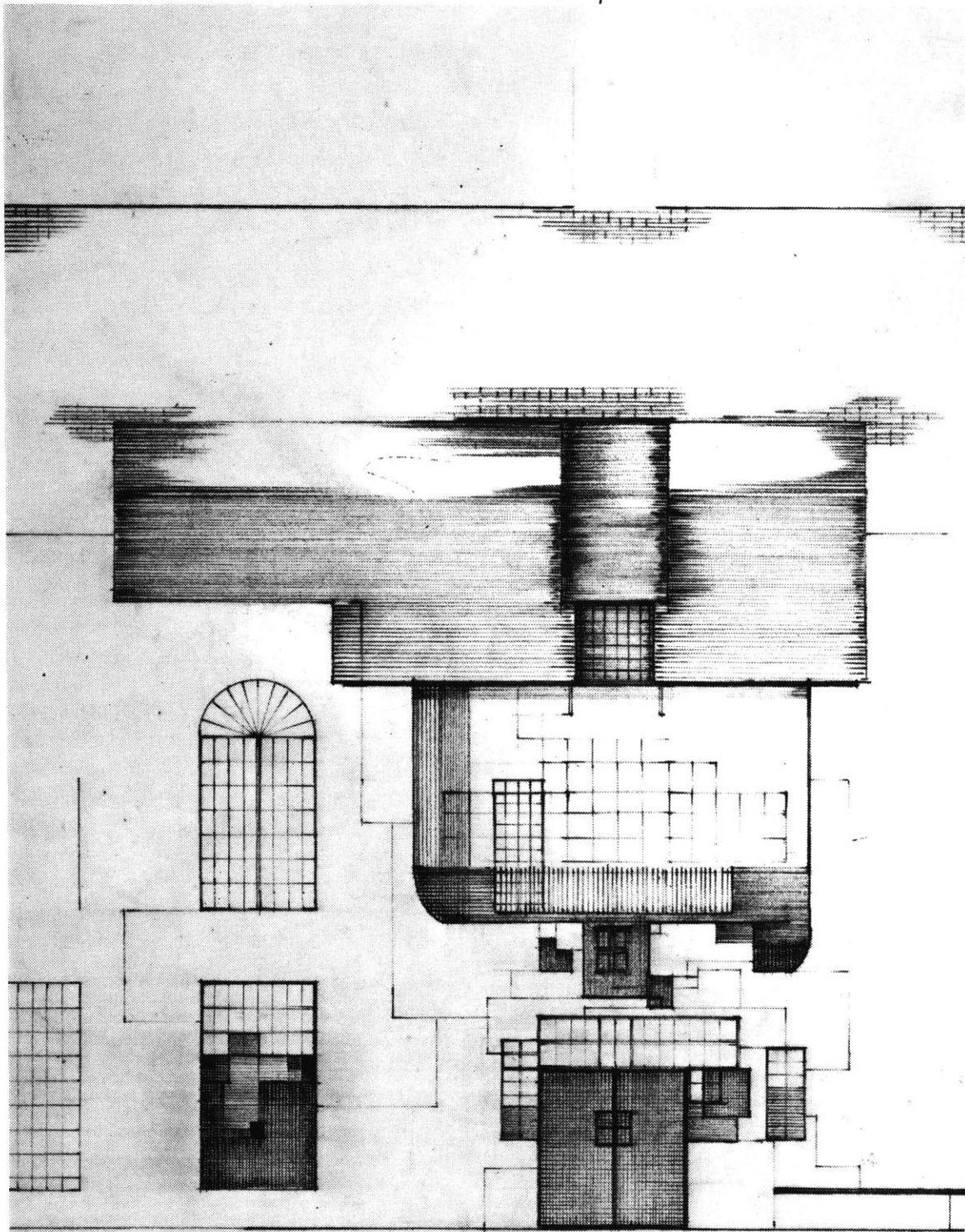


Figure 40. Elevation of new entrance to Marine Hall (Bldg.#1) from inner courtyard.



08 1981



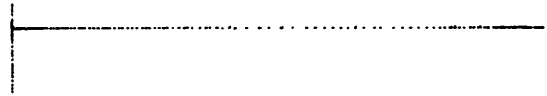
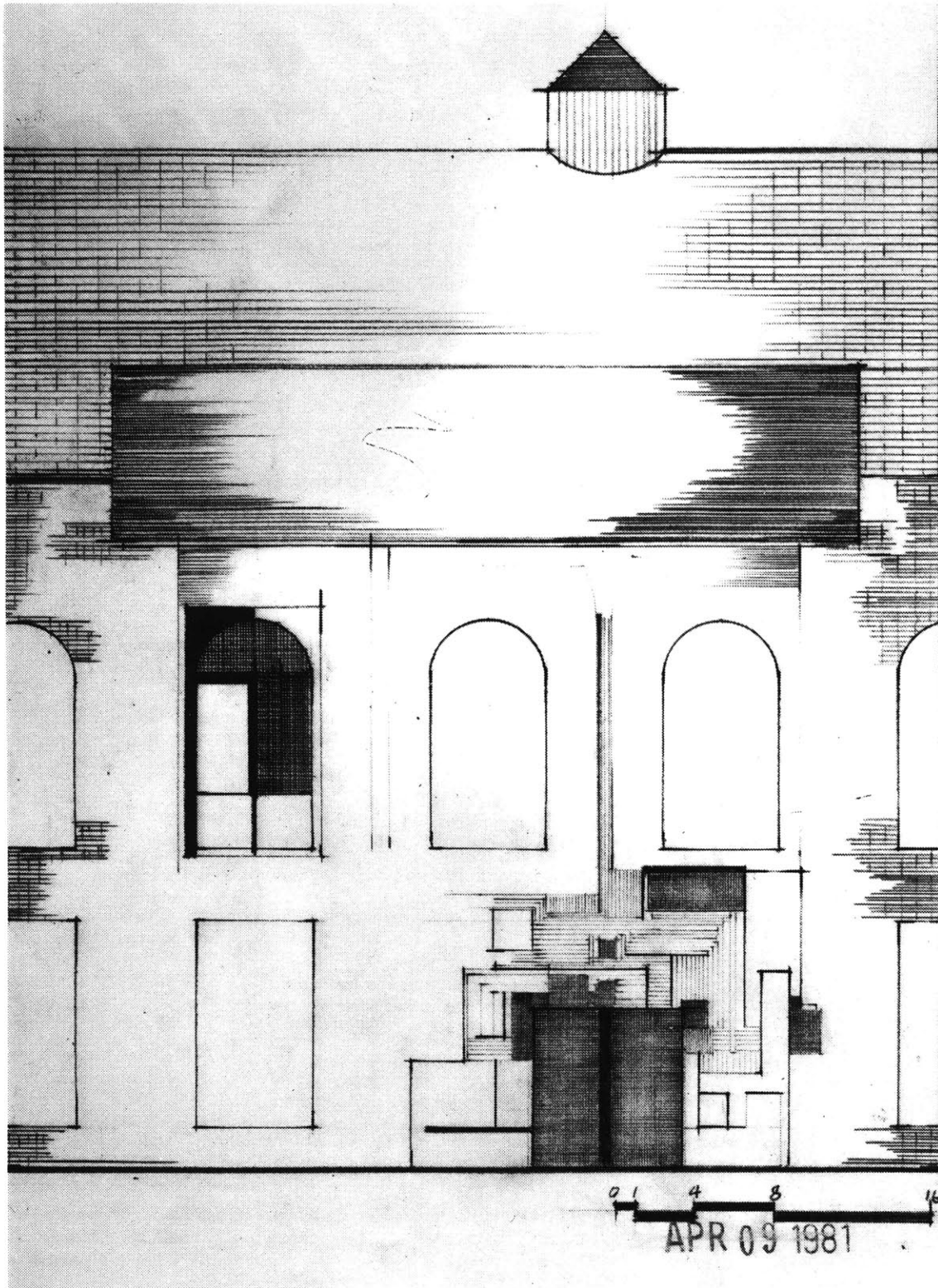


Figure 41. Elevation study of entrance to Marine Hall.



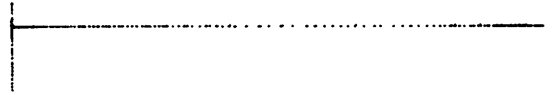
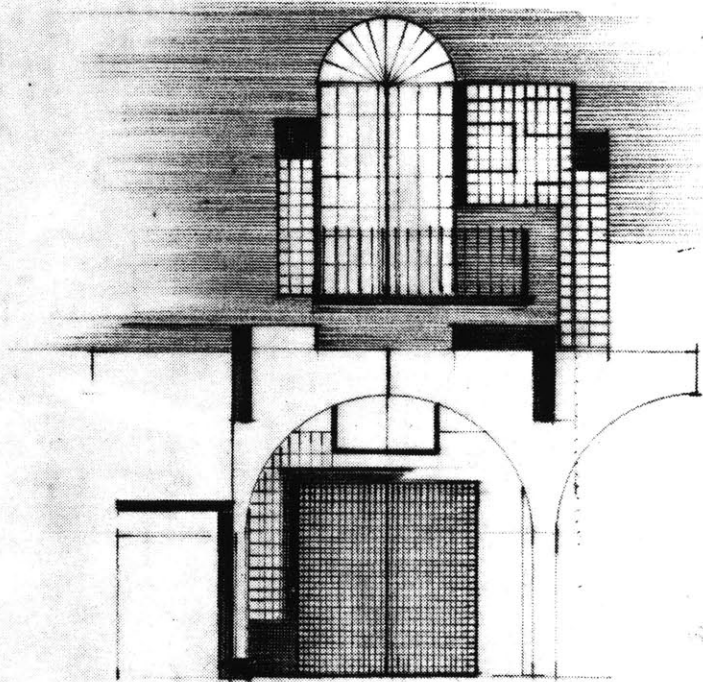


Figure 42. Elevation study of entrance to Marine Hall.



APR 10 1981



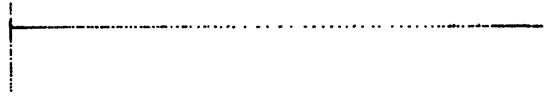


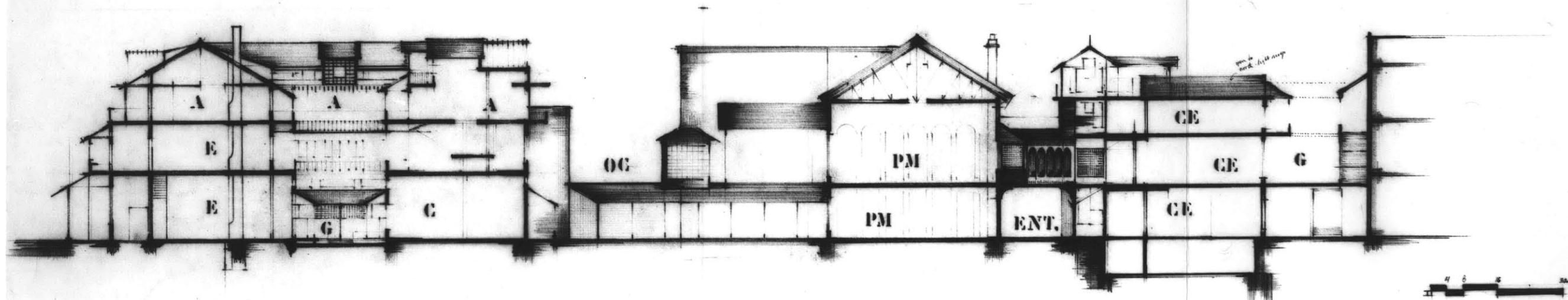
Figure 43. Ground floor plan #4.



APR 13 1981
APR 14 1981



Figure 44. Section CC.



airway

entrance

inner garden

entrance

entrance

porch (airway)

entrance

entrance

inner garden

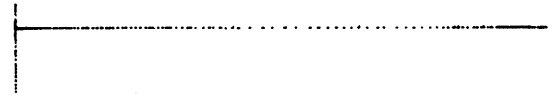


S CC

APR 14 1981
APR 20 1981

102





Figures 45-48. Merchants Bank,
Hardwick, Vermont

The bank project is simply to add a roof over the drive in window. Various types of additions were designed: minimal roofs hung from the walls to those which 'put feet down'.

The south facade of the building was used as a way to explore, at a scale larger than N.Billerica afforded, the type of wall extension which might work on the mill building. The program of the bank does not call for such an intervention.



South Facade



Approach from East



View from Northwest



View from Northeast

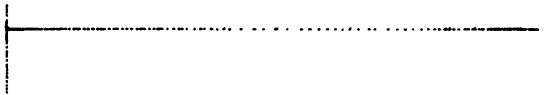
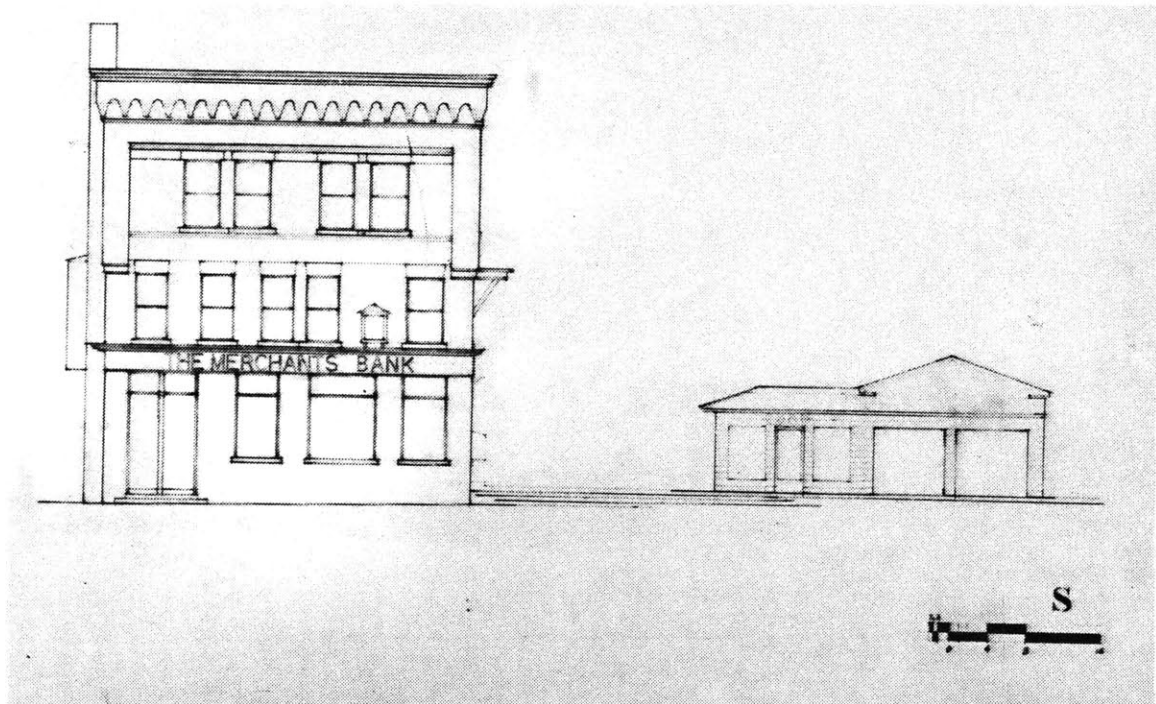
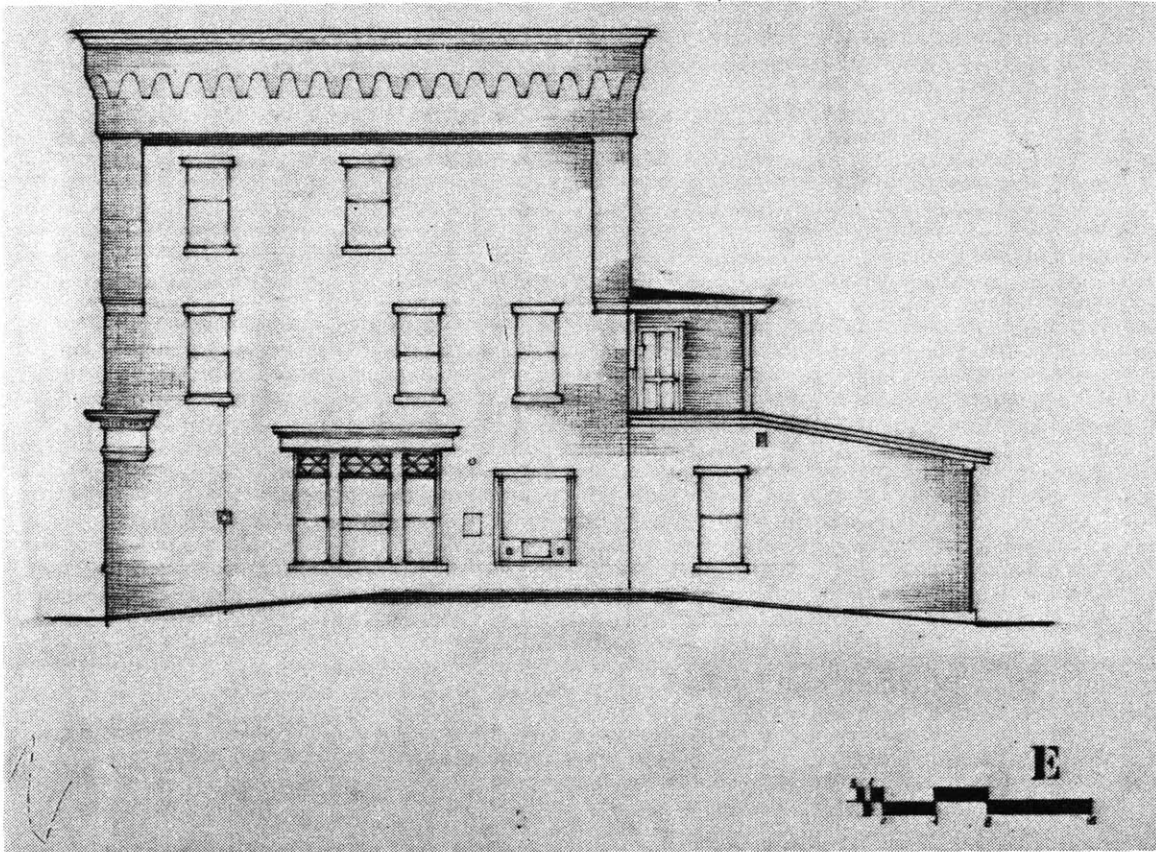


Figure 49. (top) East elevation.
As is.

Figure 50. (bottom) South elevation.
As is.



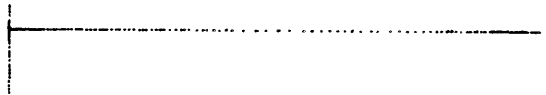
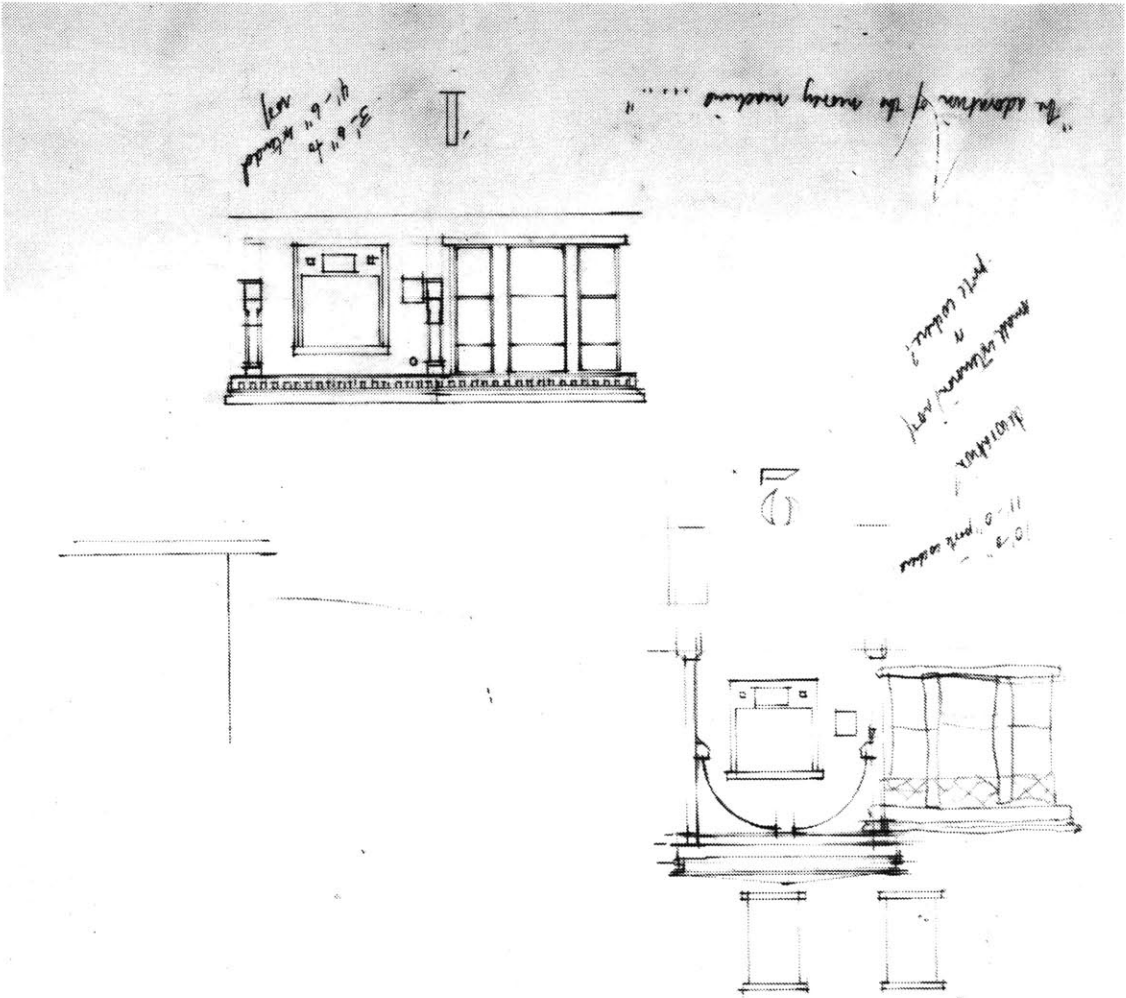


Figure 51. Elevation sketches.
'1': Continuation of same.
'2': Roof goes up. Both are to
show prevailing precedents.



110

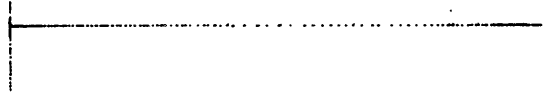
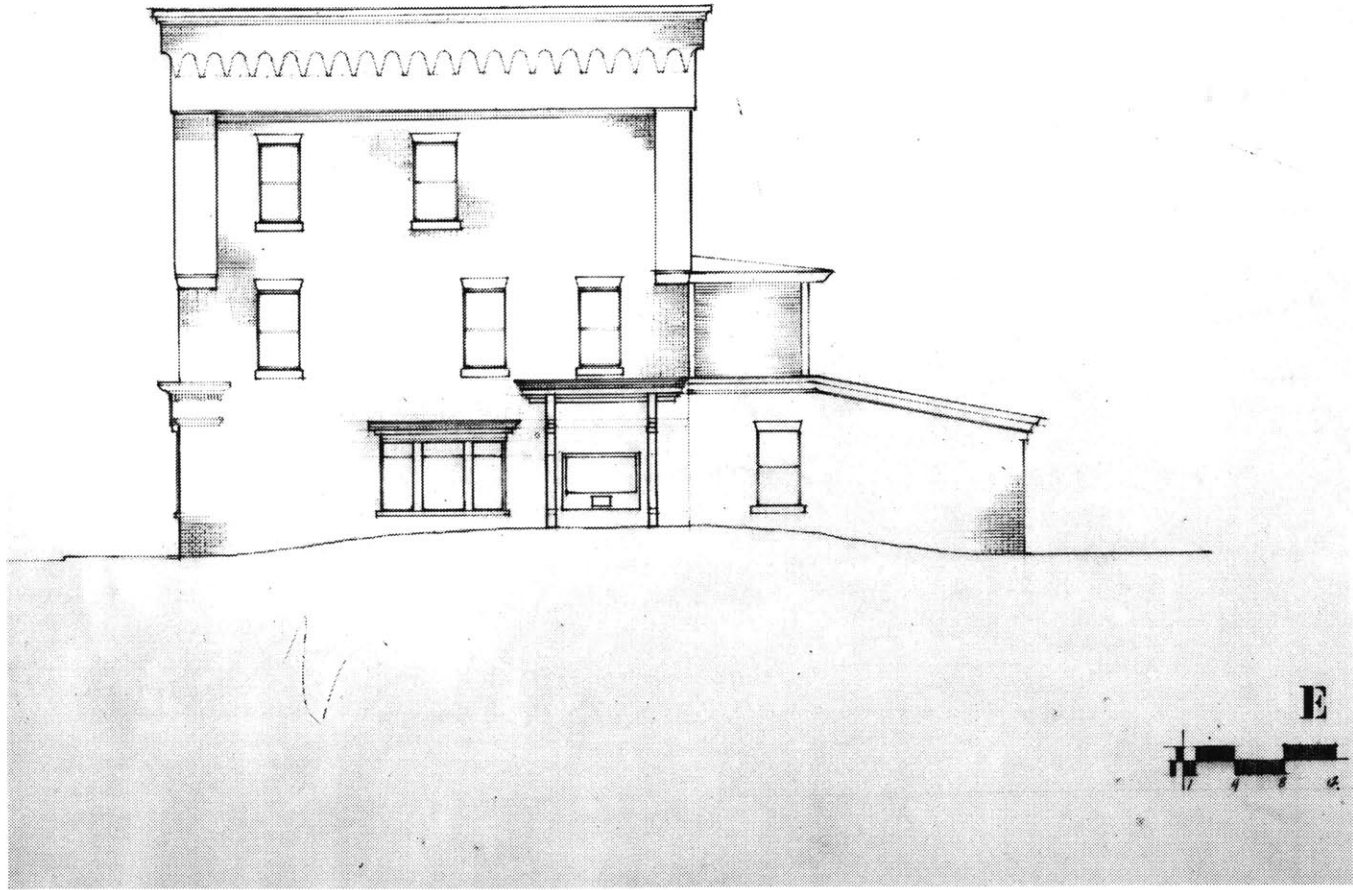


Figure 52. Elevation. 'E'. A minimal 'solution'.



111

E

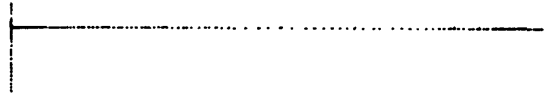
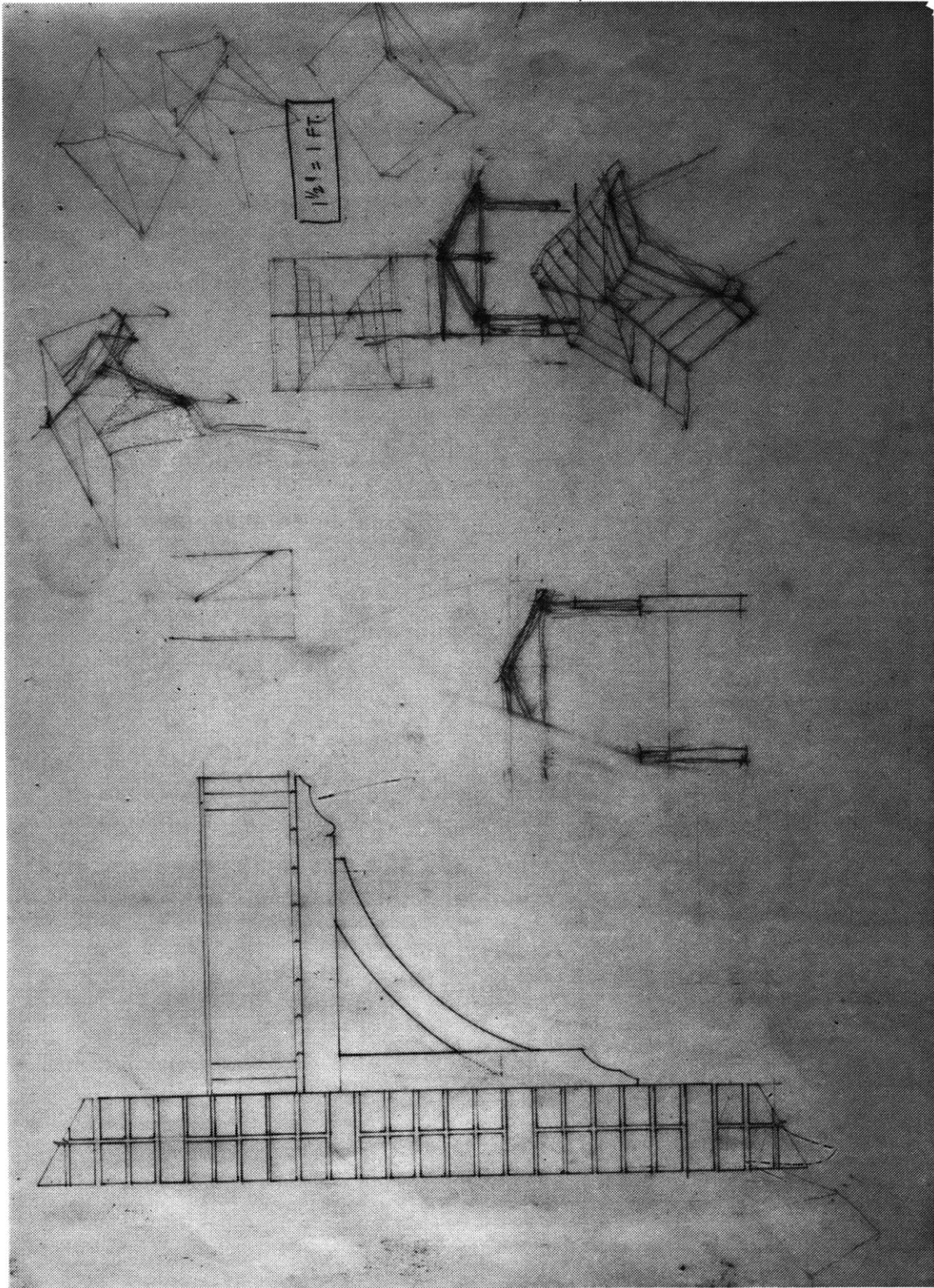
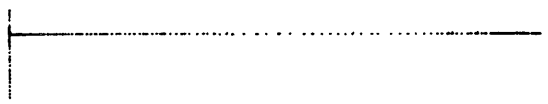
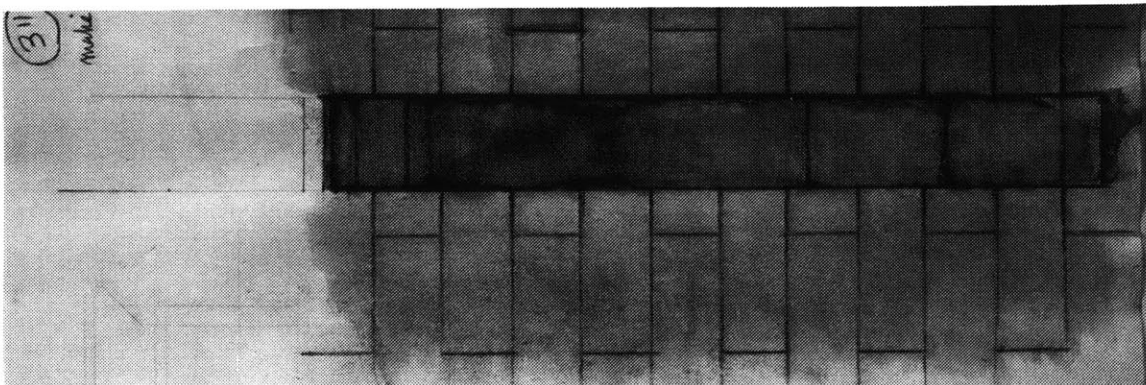
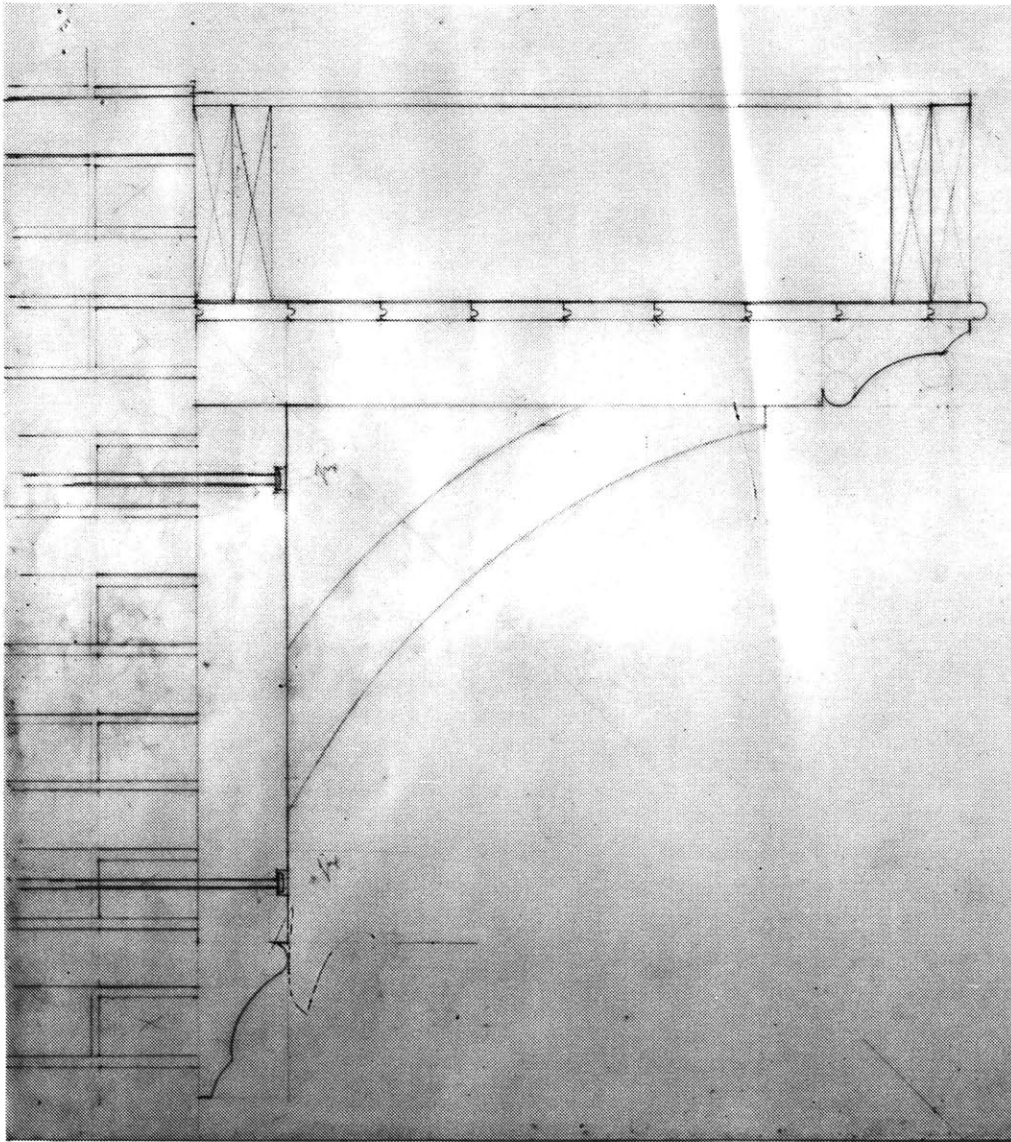


Figure 53. Section, sketches.





Figures 54 & 55. Section. elevation.



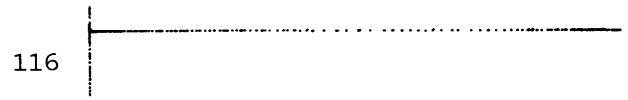
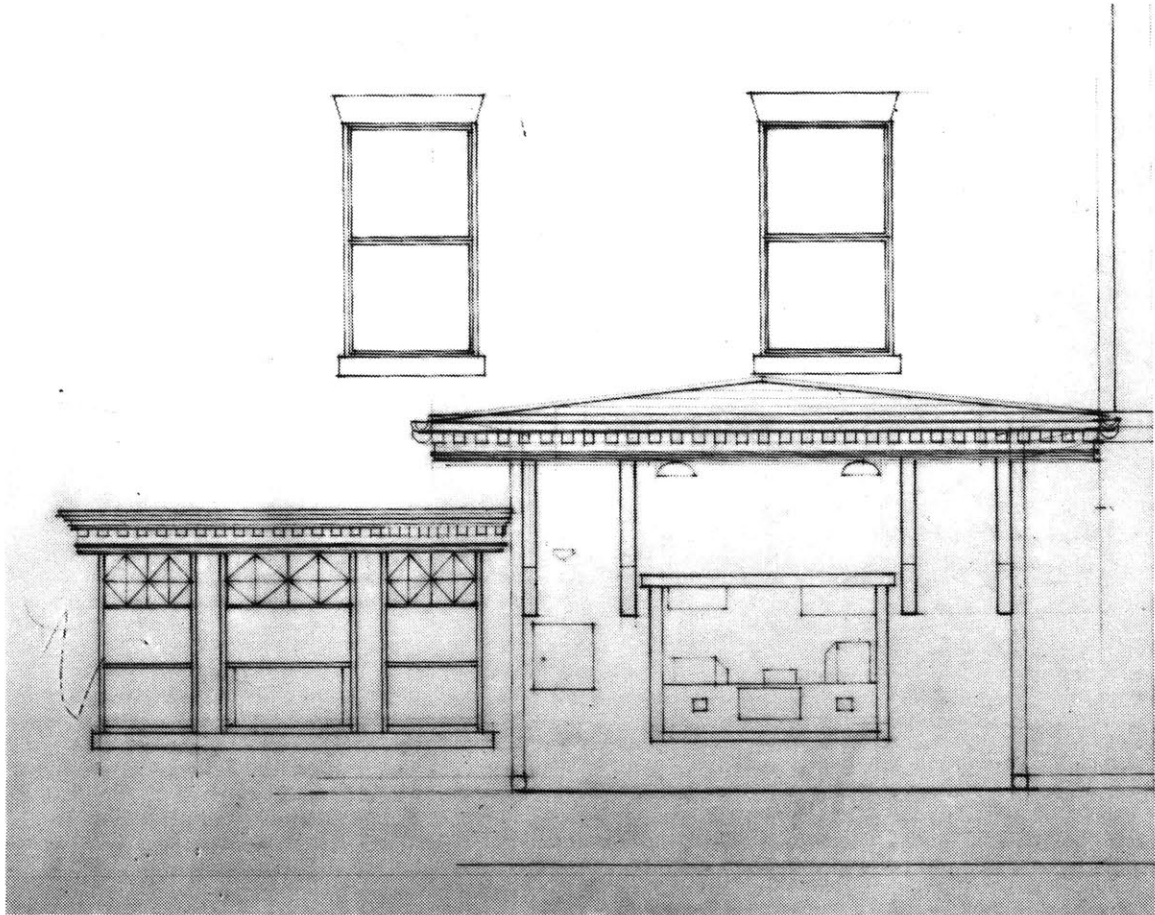


Figure 56. Elevation.



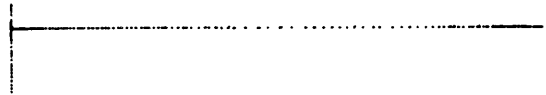
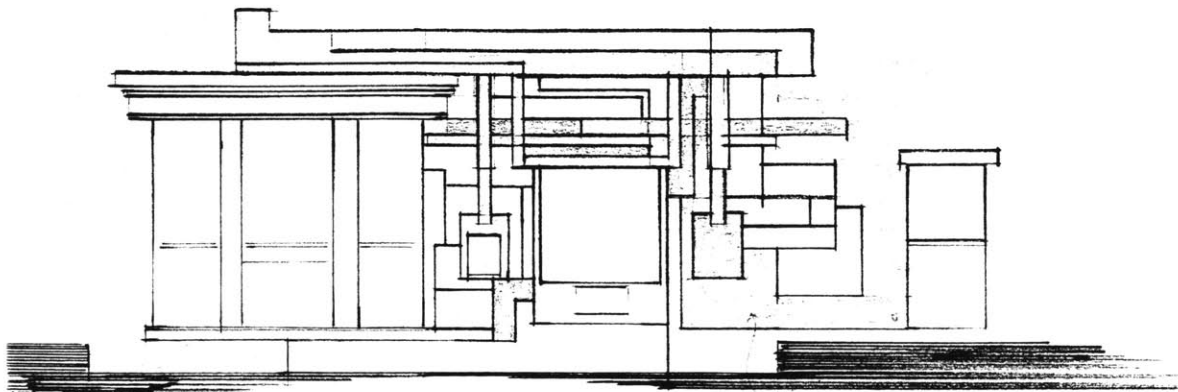


Figure 57. Elevation. East.
Collage of wood, stainless steel,
(or aluminum), and glass.

Figure 58. Elevation. East.
Collage using tiles.

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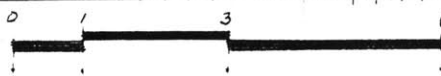
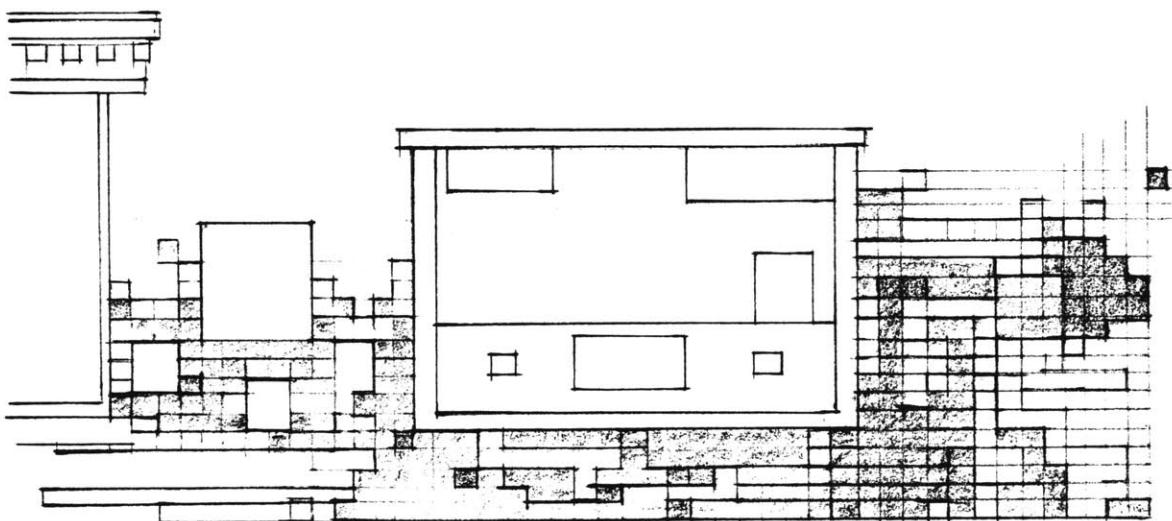


(S) 4

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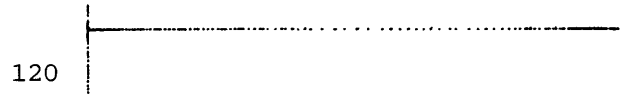


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(C) 4

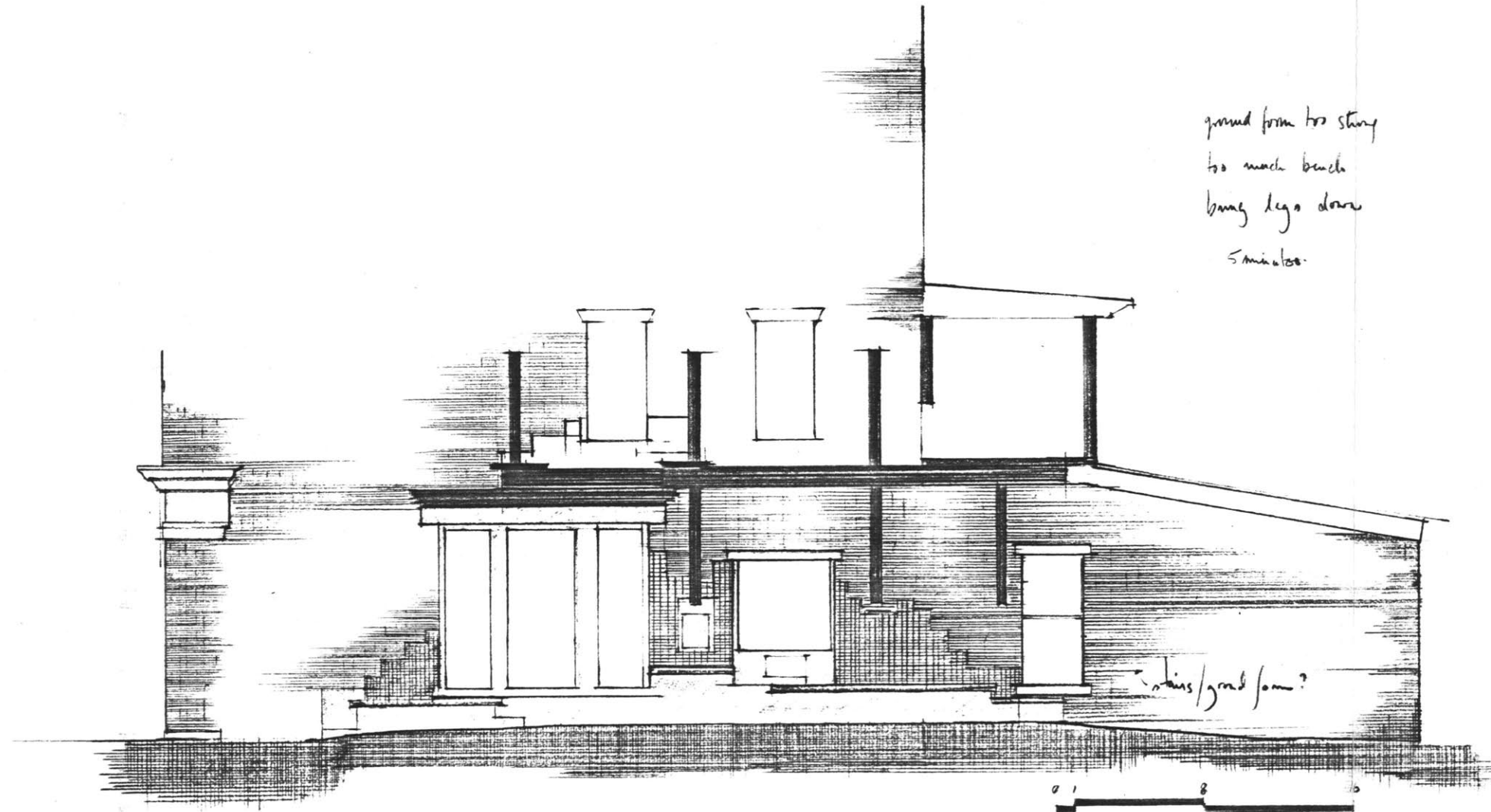
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Architectural, Inc.



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Figure 59. Elevation. Sketch.
1"=8'±. Roof hung from steel
cables attached to wall. Ground
form gets up for some enclosure
around openings.



ground form too strong
too much bench
bring legs down
5 minutes

stairs/ground form?



(S) 4 (C) 2

FEB 21 1981

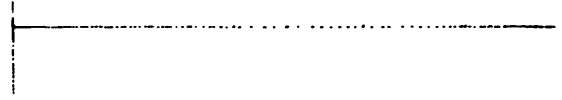
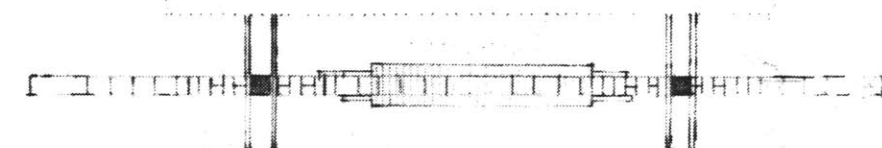
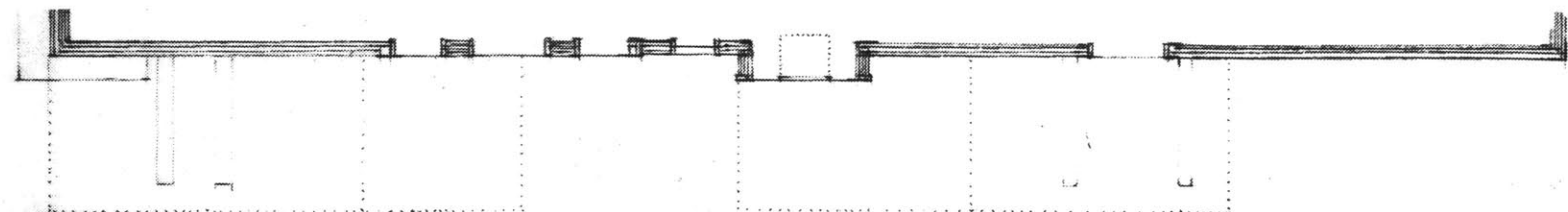
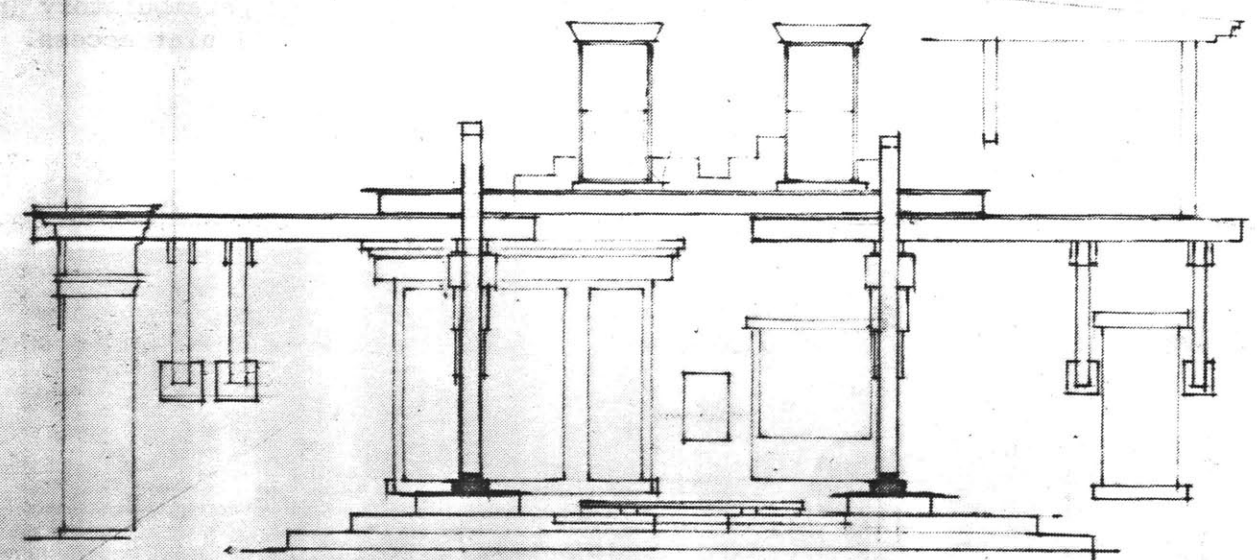


Figure 60. Plan (top), elevation (bottom). Supporting posts and ground form.

23



← plan



← elevation

FEB 20 1901



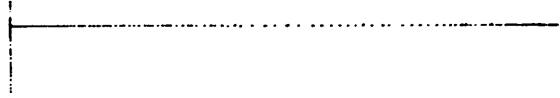
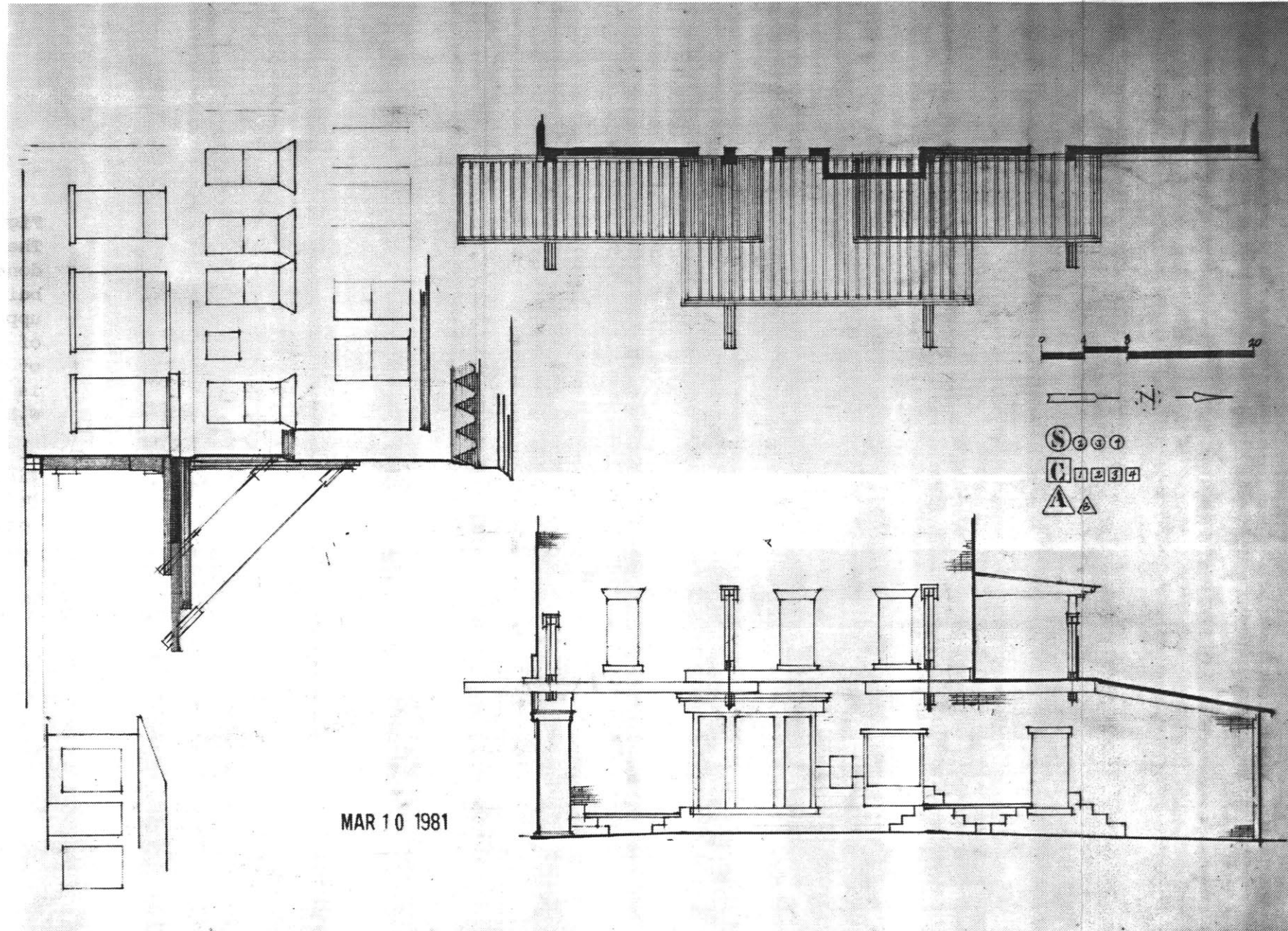


Figure 61. Plan and elevations.
Roof plan showing covering for
perambulatory (narrow) and veh-
icular access.



MAR 10 1981

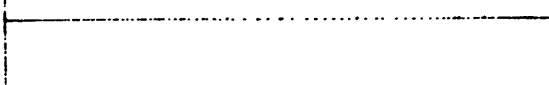
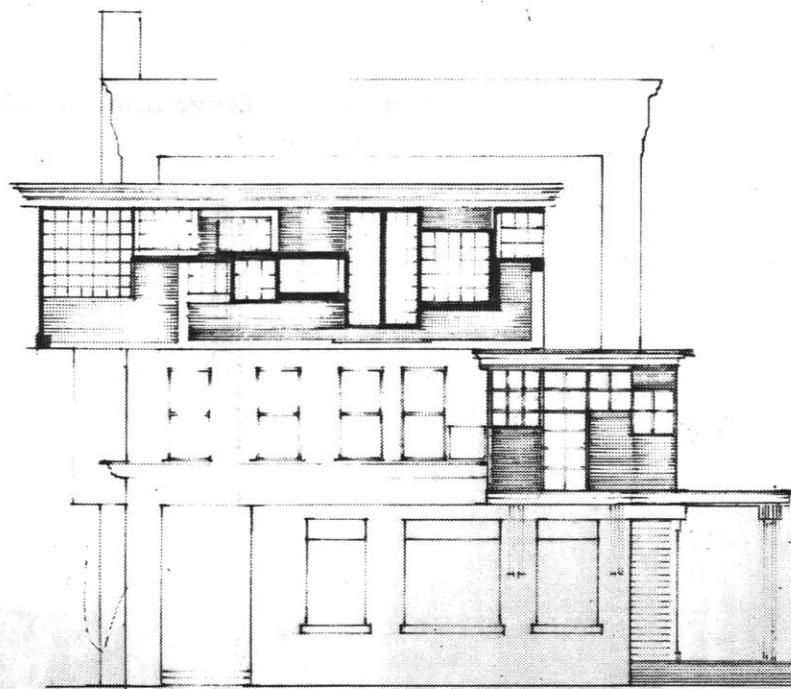


Figure 62. Elevation. South.
The following drawings were done to see how a masonry building might extend its upper floors, retaining most of the walls. (This is not part of the Hardwick program, but is part of the program following, N.Billerica.)

Figure 63. Elevation. South.
Using the glazing to create a continuity lacking in Fig.62.

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W S
APR 04 1981



W S
APR 04 1981
APR 05 1981

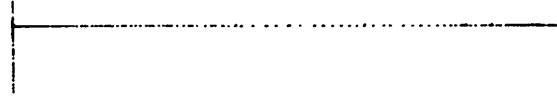
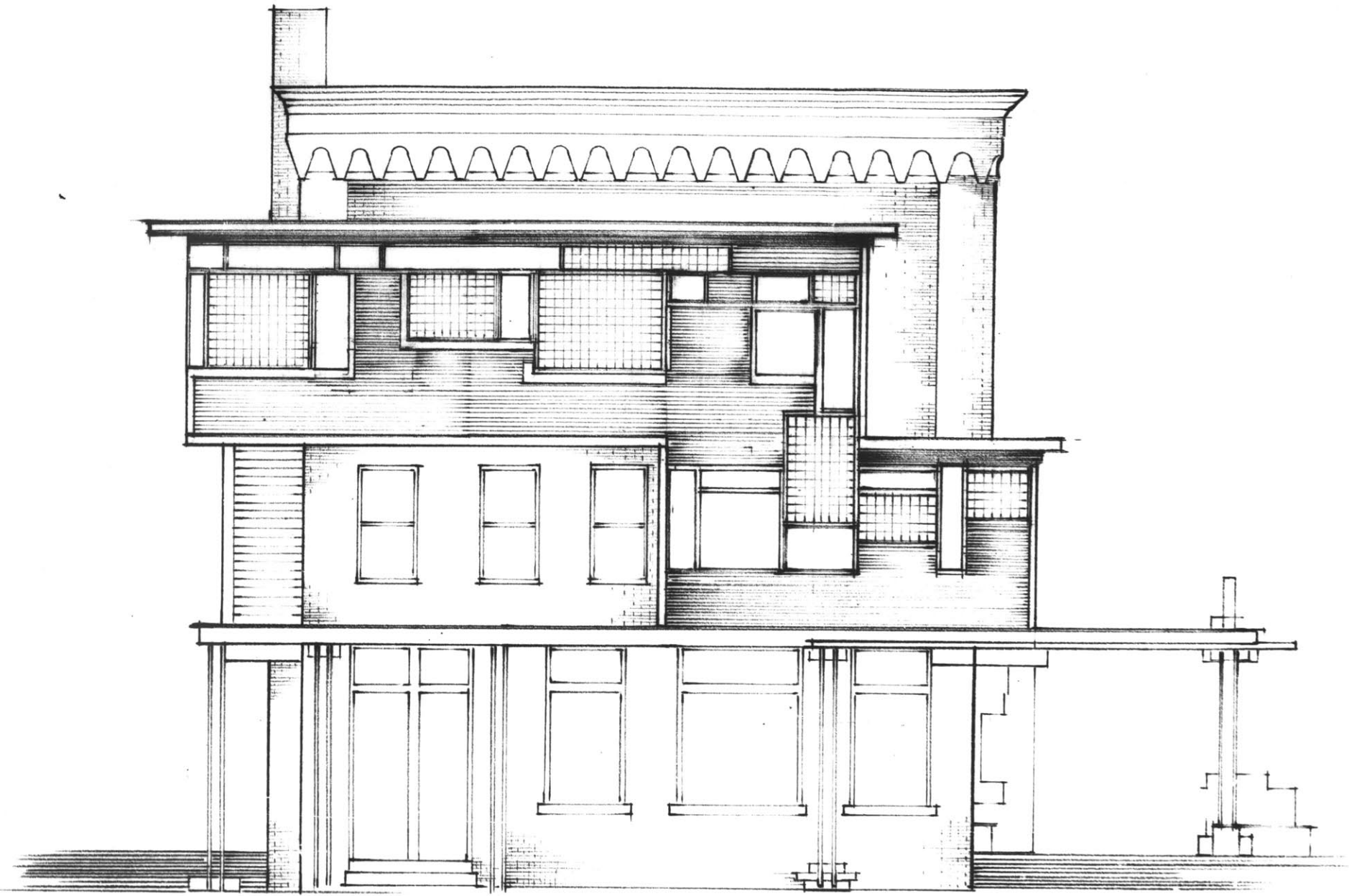
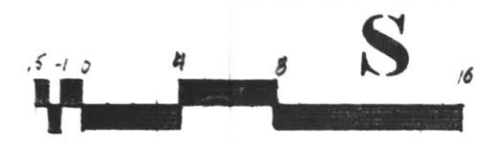


Figure 64. Elevation. South.
Final study.



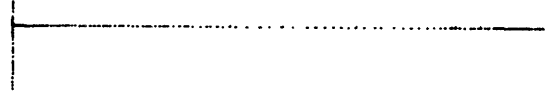
APR 10 1981





N BILLERICA

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Figures 65-67. The Faulkner Mills
N. Billerica, Mass.

The mill expansion incorporates a commercial greenhouse and private living space.

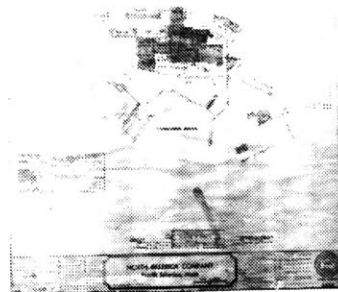
An exploration into the reuse of an old building must take into account the physical condition of the building, and make design decisions which are appropriate to the condition of the building. The Faulkner Mill in N. Billerica, like many mills of its vintage, has walls in need of repointing, while being structurally sound. The decision was made to extend the wall edge in order to cover the wall; to put an extra layer of protection over a major portion of the building. Examples of this were found in Western Spain, in Malta, and in Saudi Arabia.



Circa 1900



Circa 1935



Site Plan

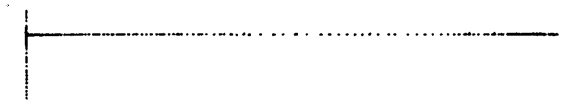
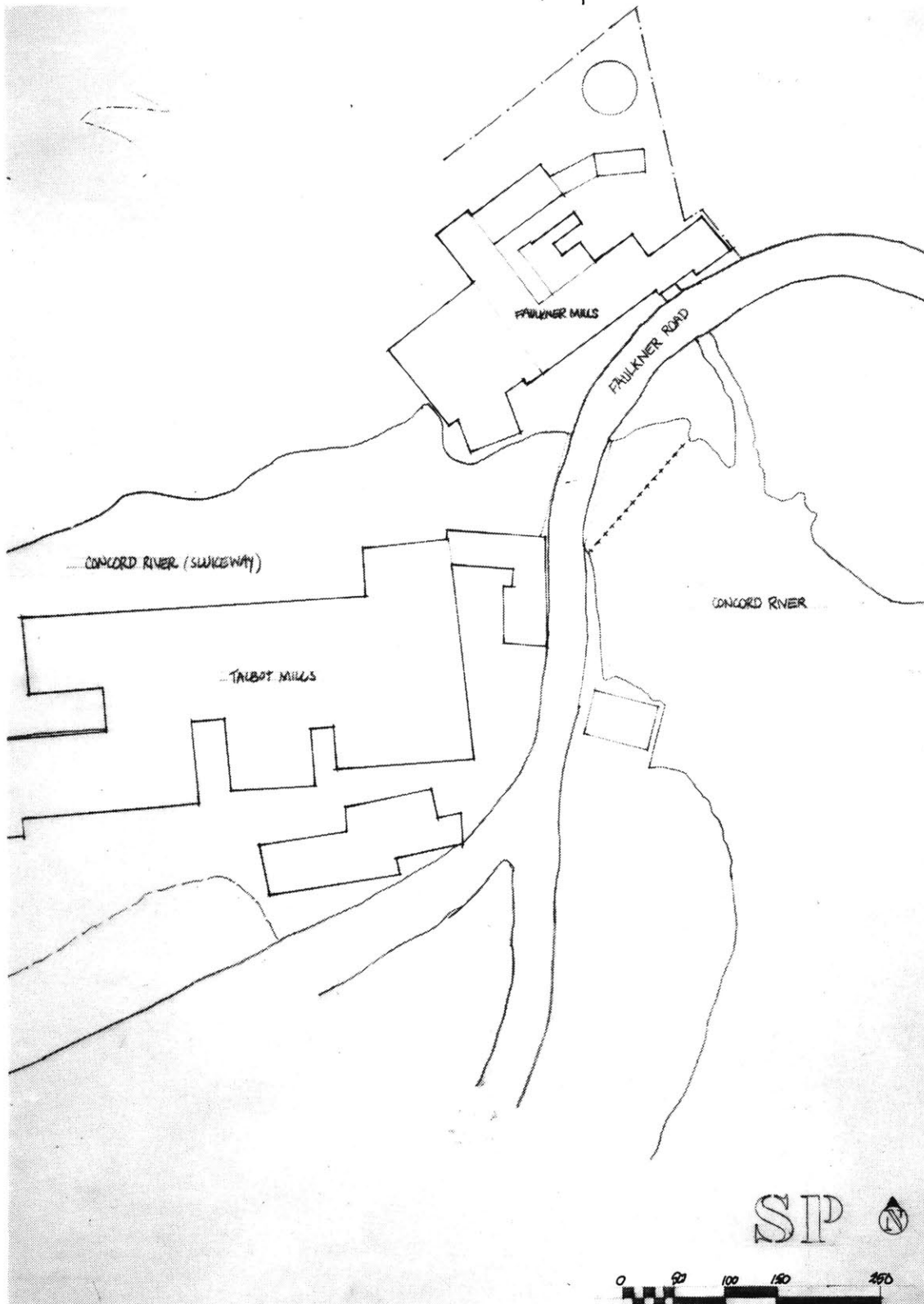


Figure 68. Site plan, N.Billerica.
As is, 1981.



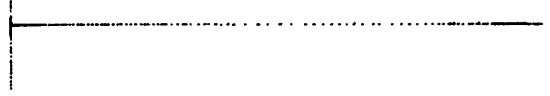
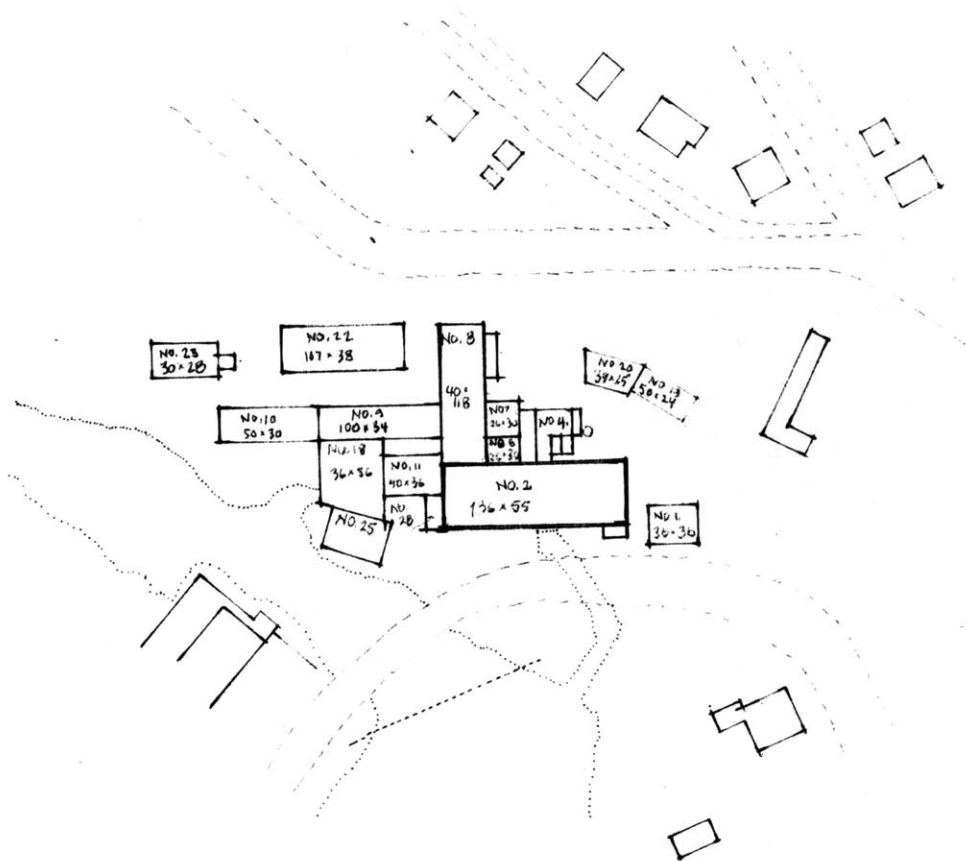


Figure 69. Site plan, Faulkner Mills.
Chronology of buildings according to
1947 survey plan (Figure 67).



Chronology of bldgs.

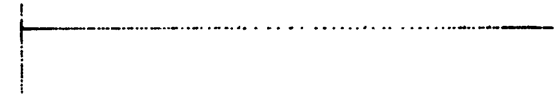
- NO. 2 - 1862, 1886
- 3, 4, 5, 6, 7, 11, 14, 25 - 1836
- 1 - 1836
- 10 - 1907
- 9 - 1909
- 23 - 1911
- 22 - 1918
- 15, 20 - 1931
- 18, 28 - 1938
- 24 - 1944
- 8 - 1945



(S) ①

FEB 13 1981

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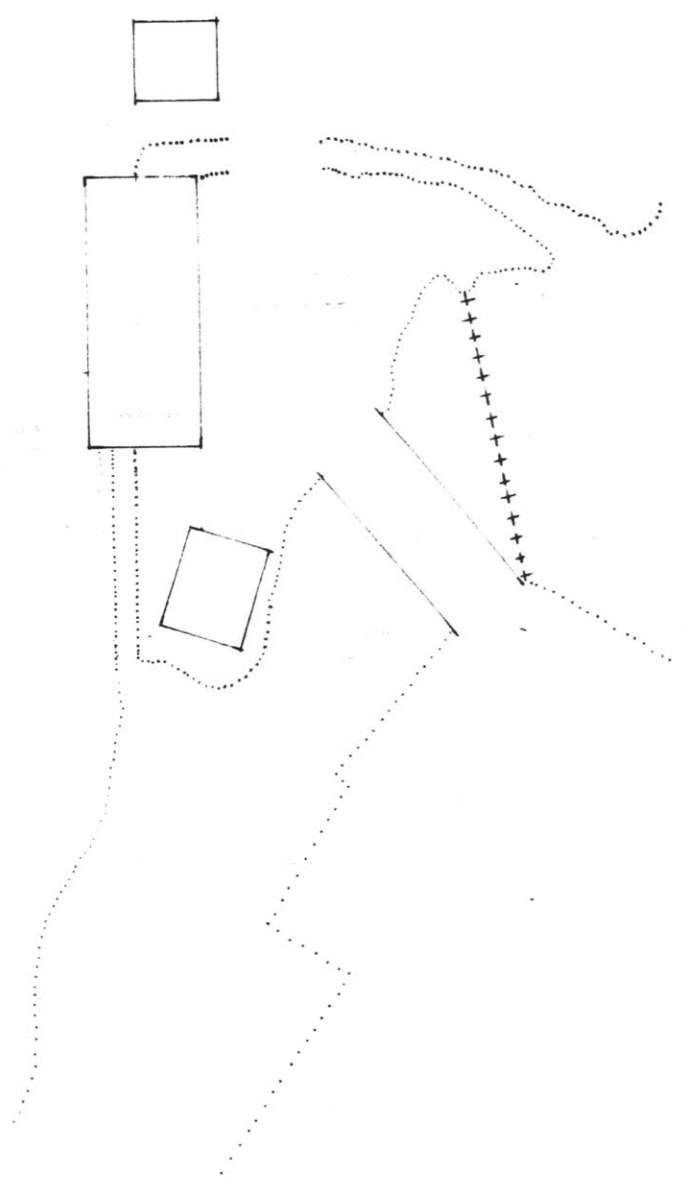
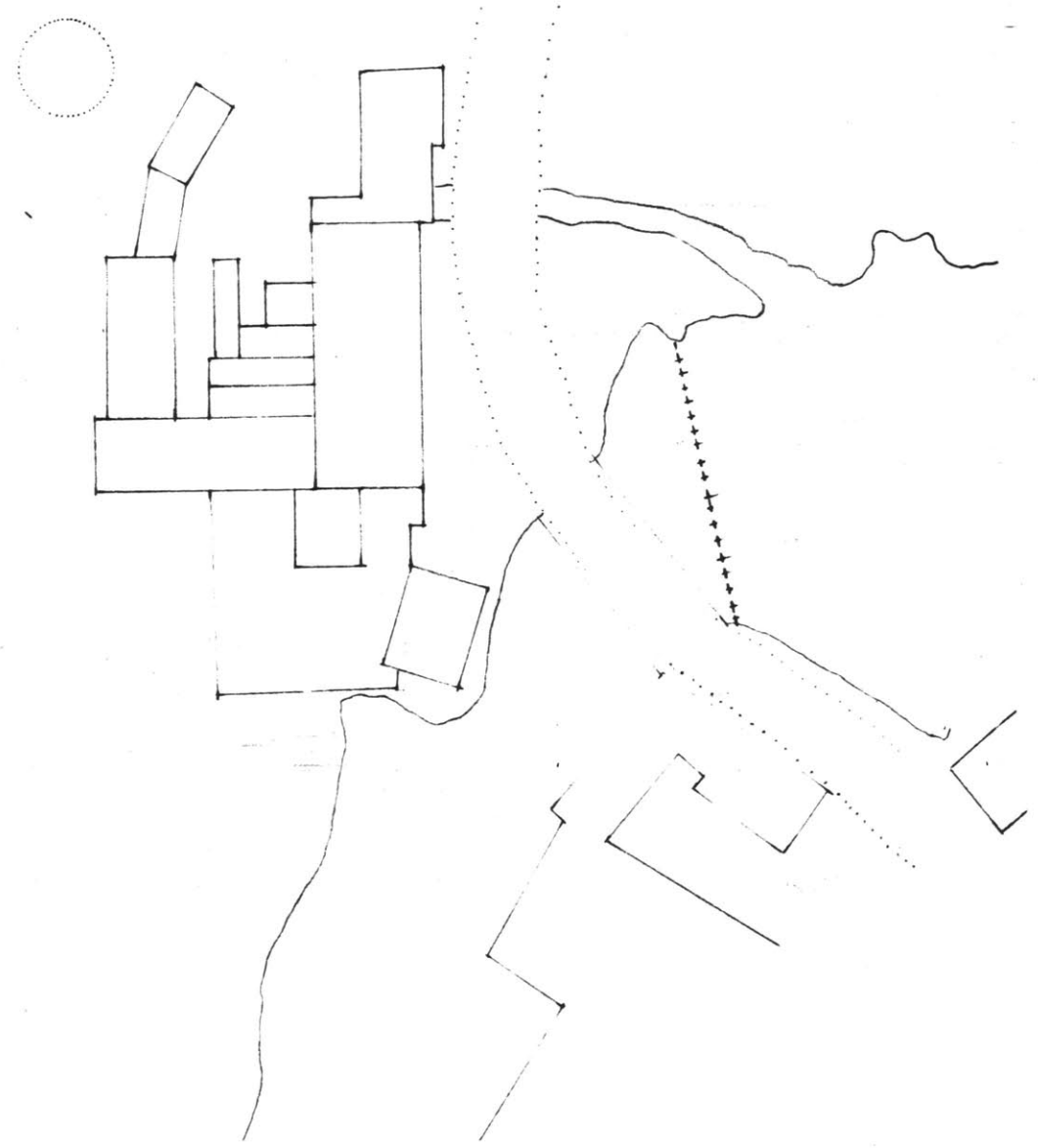


Figures 70-72 (left to right).

Figure 70. Age of buildings.
Figure 71. Site plan, as is.
Figure 72. Site plan, with only 3 oldest buildings remaining. This is the version of the site plan to be used for the study.

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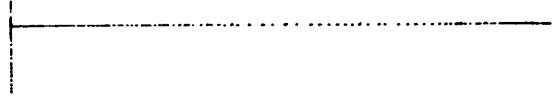
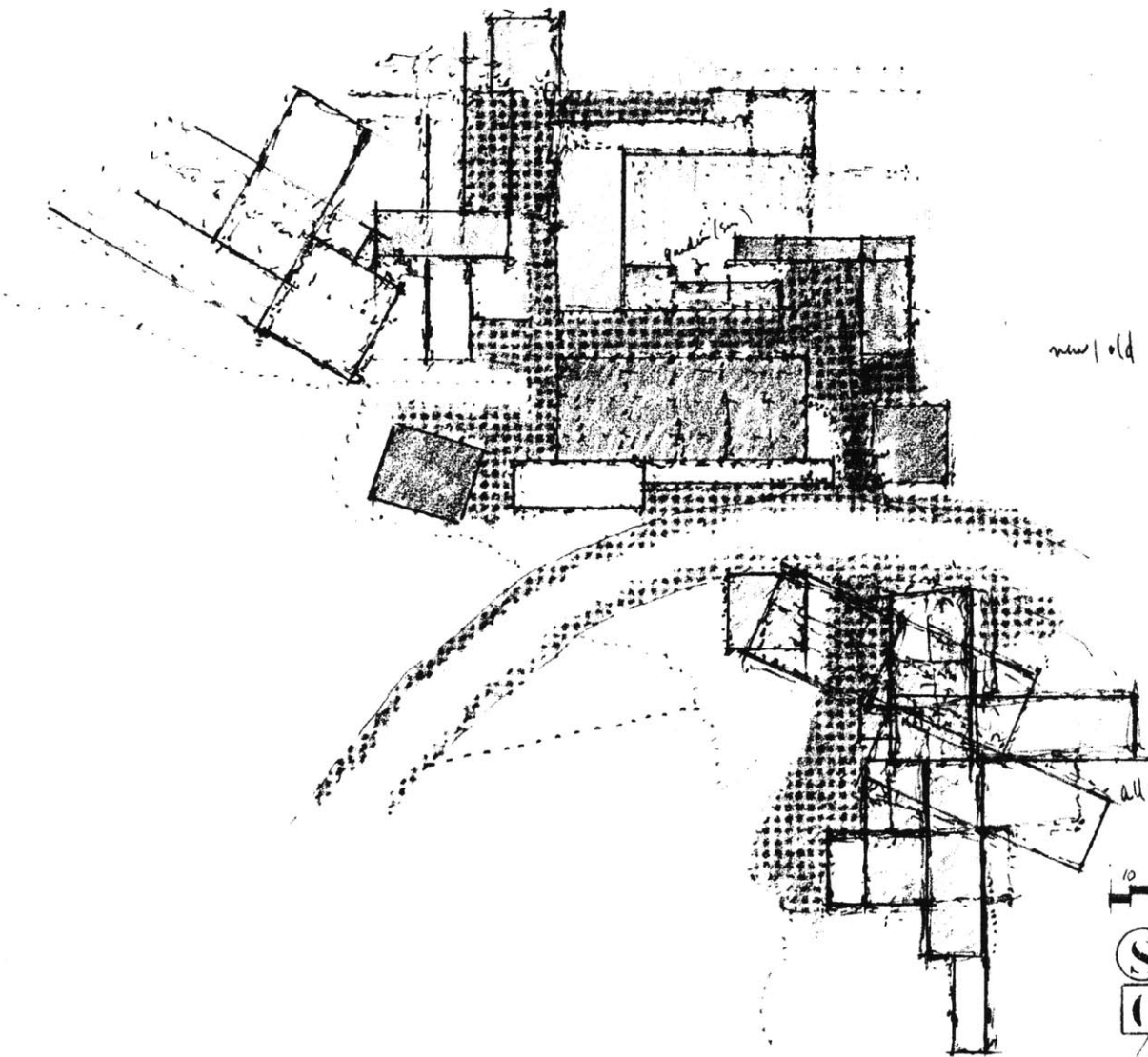
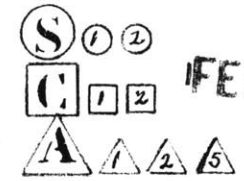


Figure 73. Site plan sketch. Program study. Addition of commercial greenhouse and bedding gardens, and more housing.



new/old

all new



FEB 13

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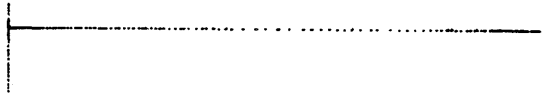
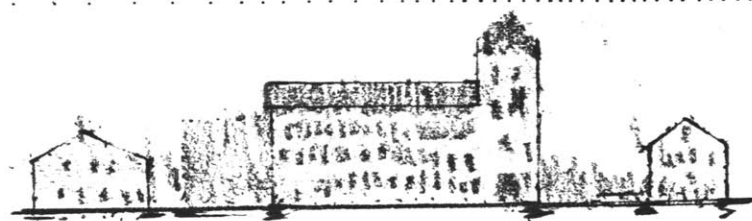
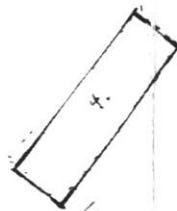
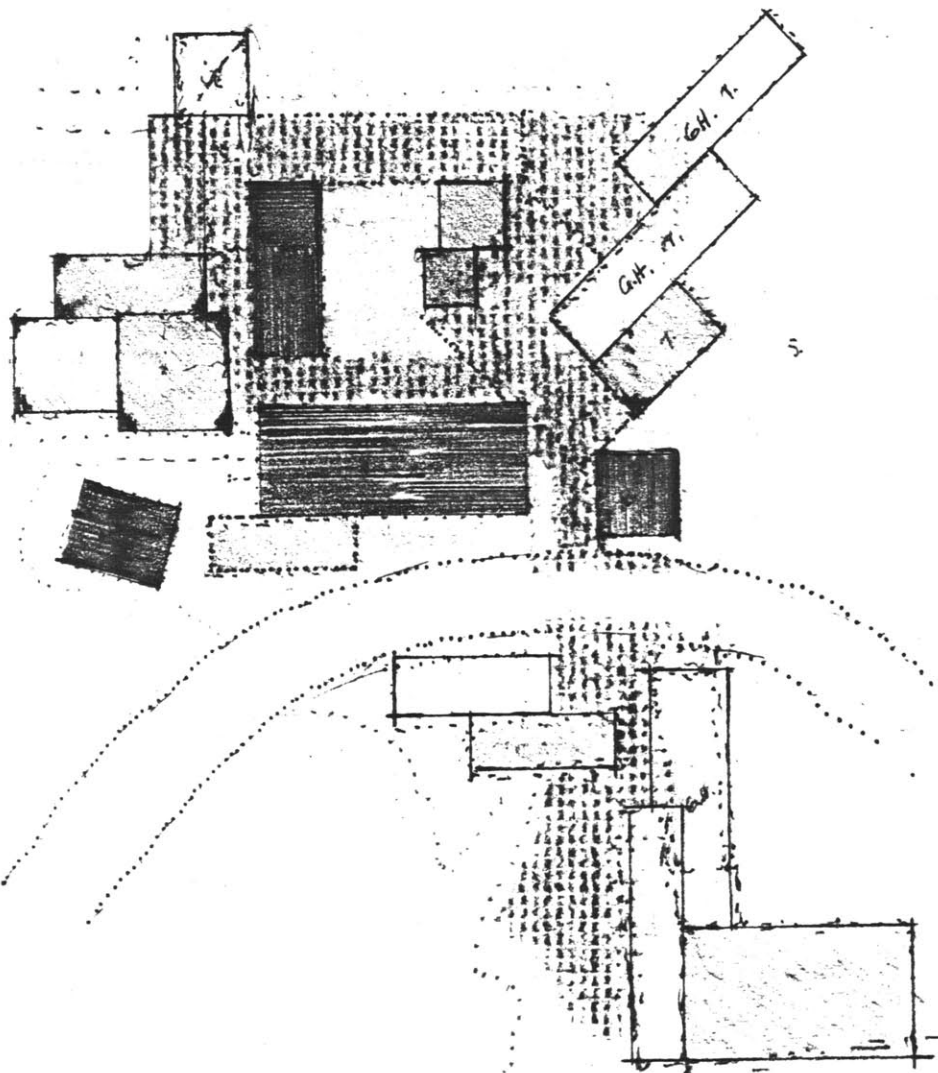
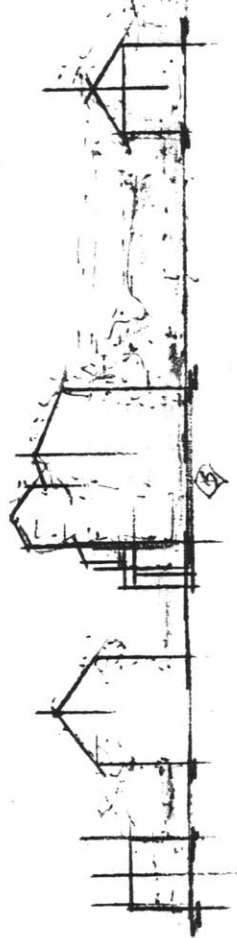


Figure 74. Site plan, sections. Sketches. Program and massing study.

143

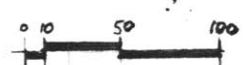


13 A



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13



FEB 13 1981

B 2

FEB 15 1981

2-15-81

S 1 2

C 1 4

- 1. A + 1. library
- 2. 3. admin. building
- 4. kitchen
- 5. play area
- 6. growing beds, garden
- 7. nursery
- 8. meeting room



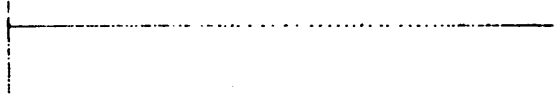
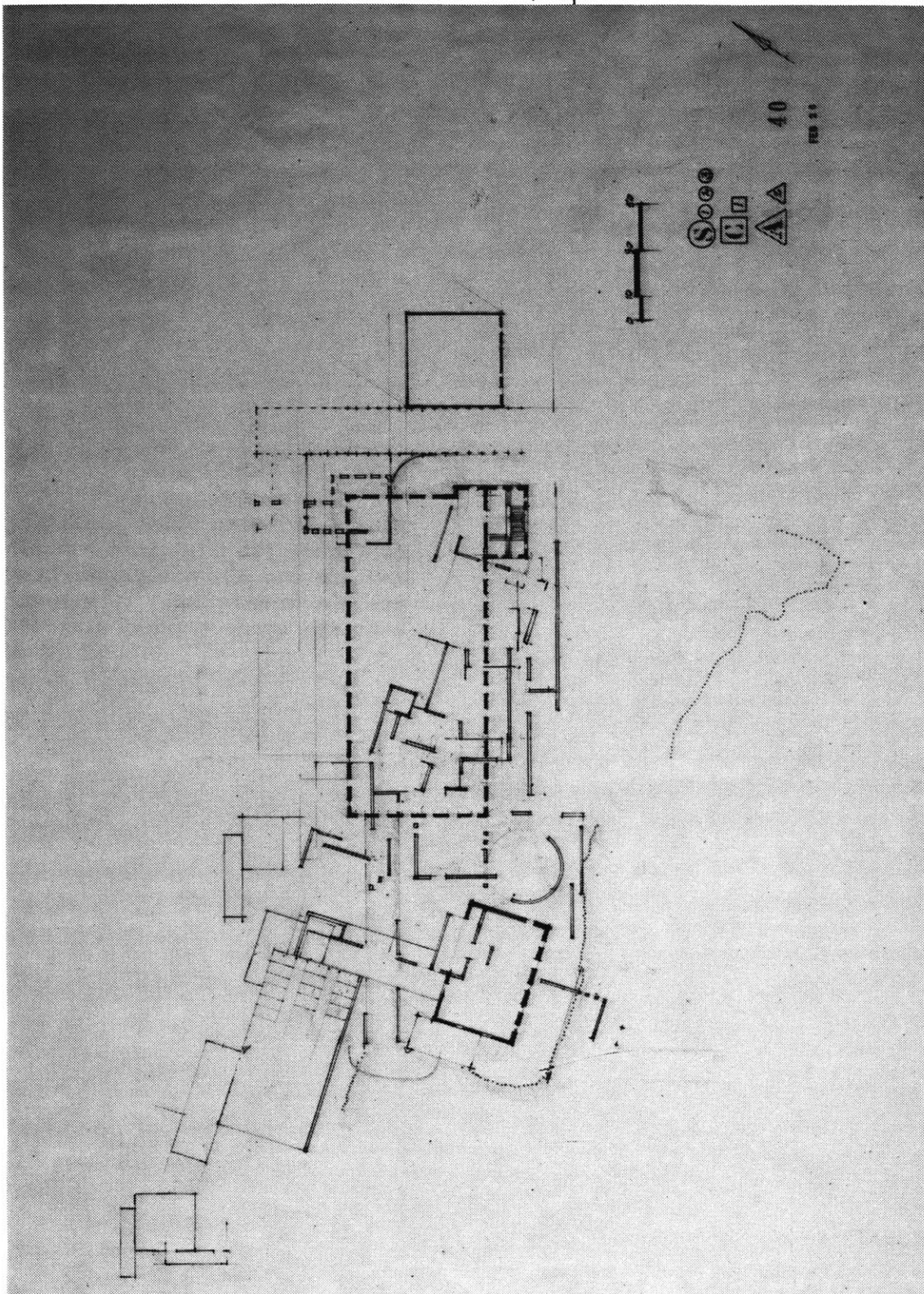


Figure 75. Site plan. Greenhouse located at western side of site, along river. Access to building along eastern and northern side.



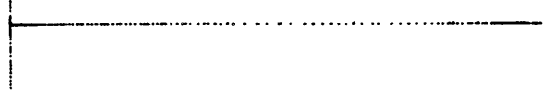
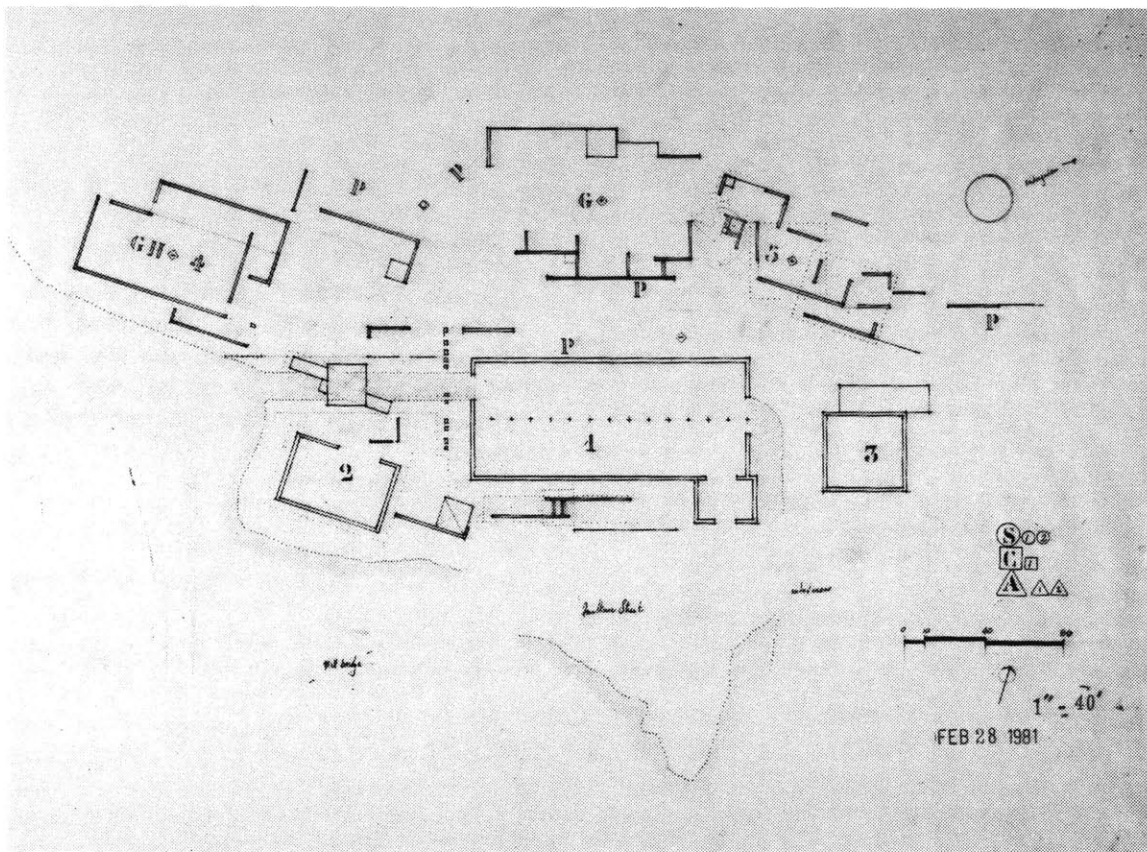


Figure 76. Site plan. Amplification of Figure 75. Buildings numbered 1-3 are the old buildings. Others are the greenhouses. P = parking. A bridge spans the old sluiceway.



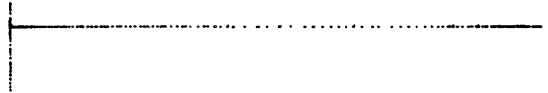


Figure 77. Plan study.

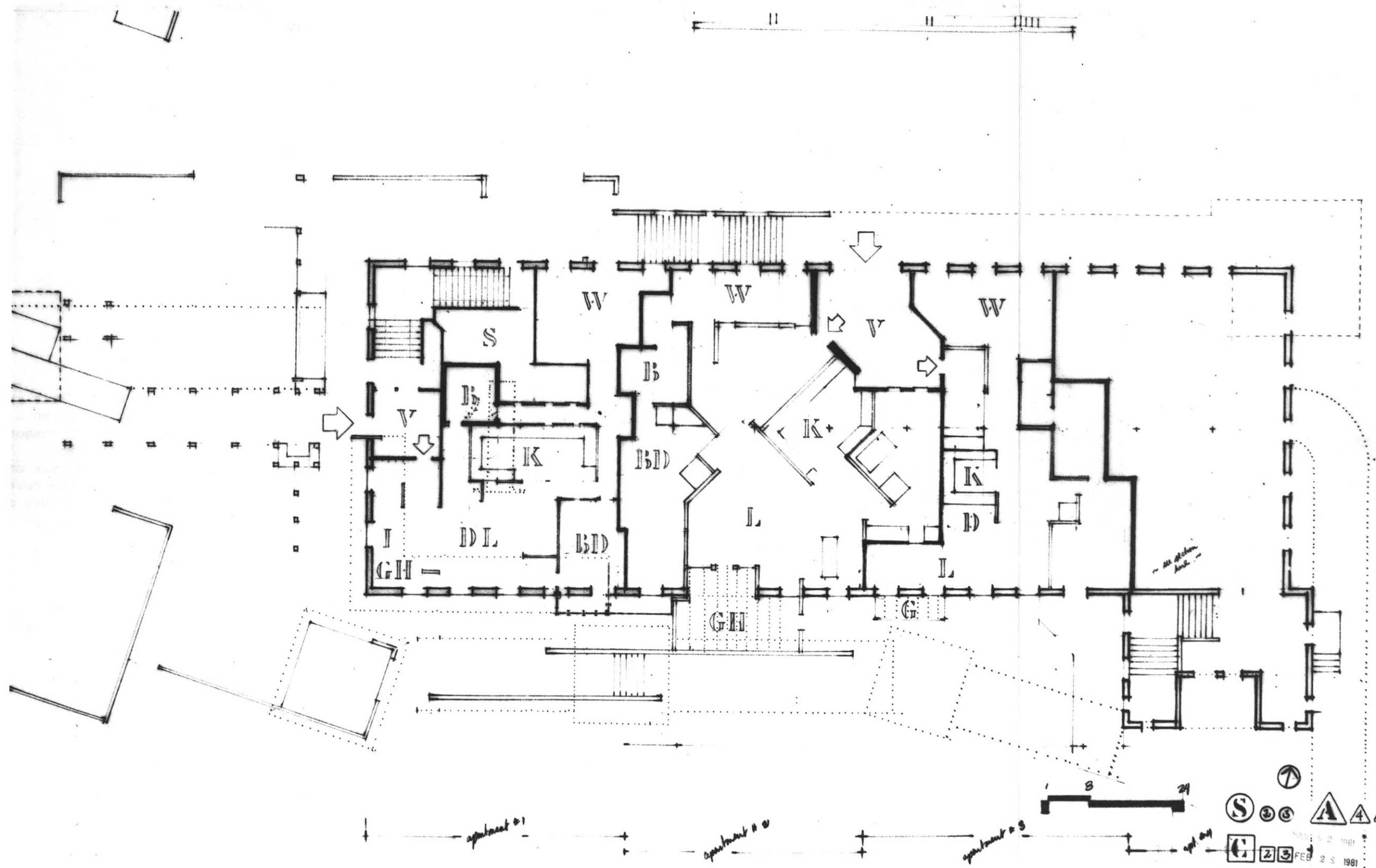
This study looks at accesses for 4 living quarters on the ground floor, and ways in which the various zones within the building might be used.

V= vestibule

GH= greenhouse

W= work spaces, studios.

S= slack, storage, room to expand.




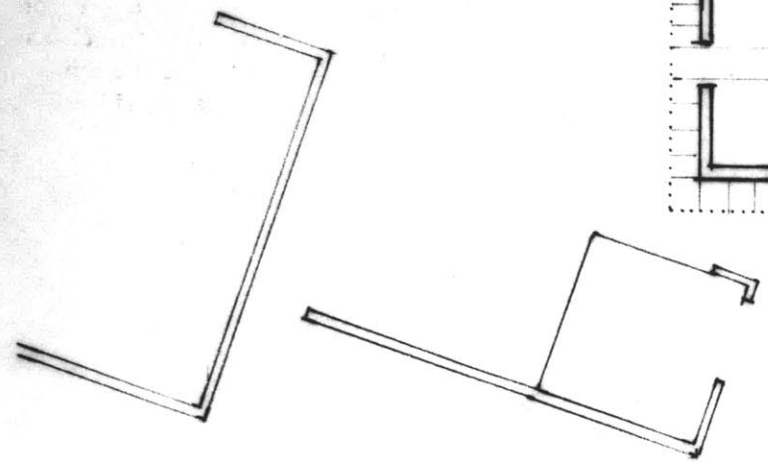
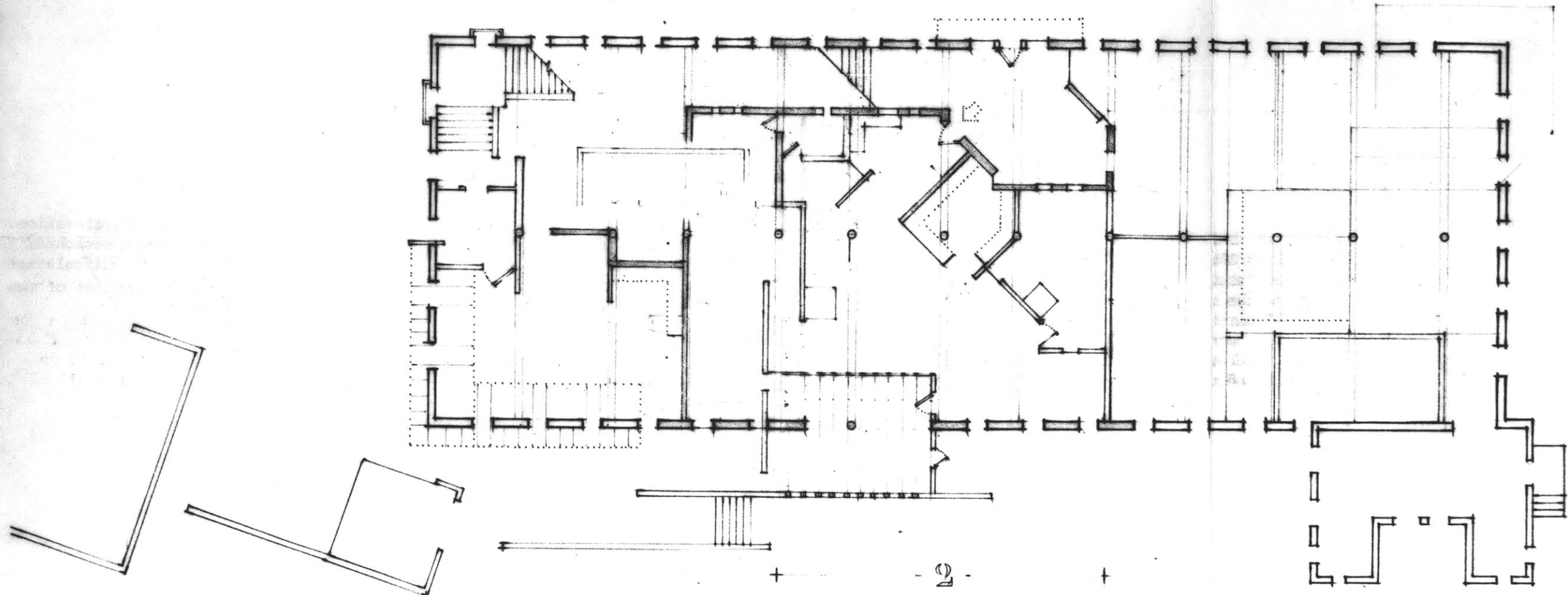


Figure 78. Plan study. This study looks at 3 living spaces on a floor and the feasibility of diagonal entry to the middle space. Vertical circulation occurs on the northwest corner, and the northern side. Greenhouse area occurs on southern and southwestern sides.



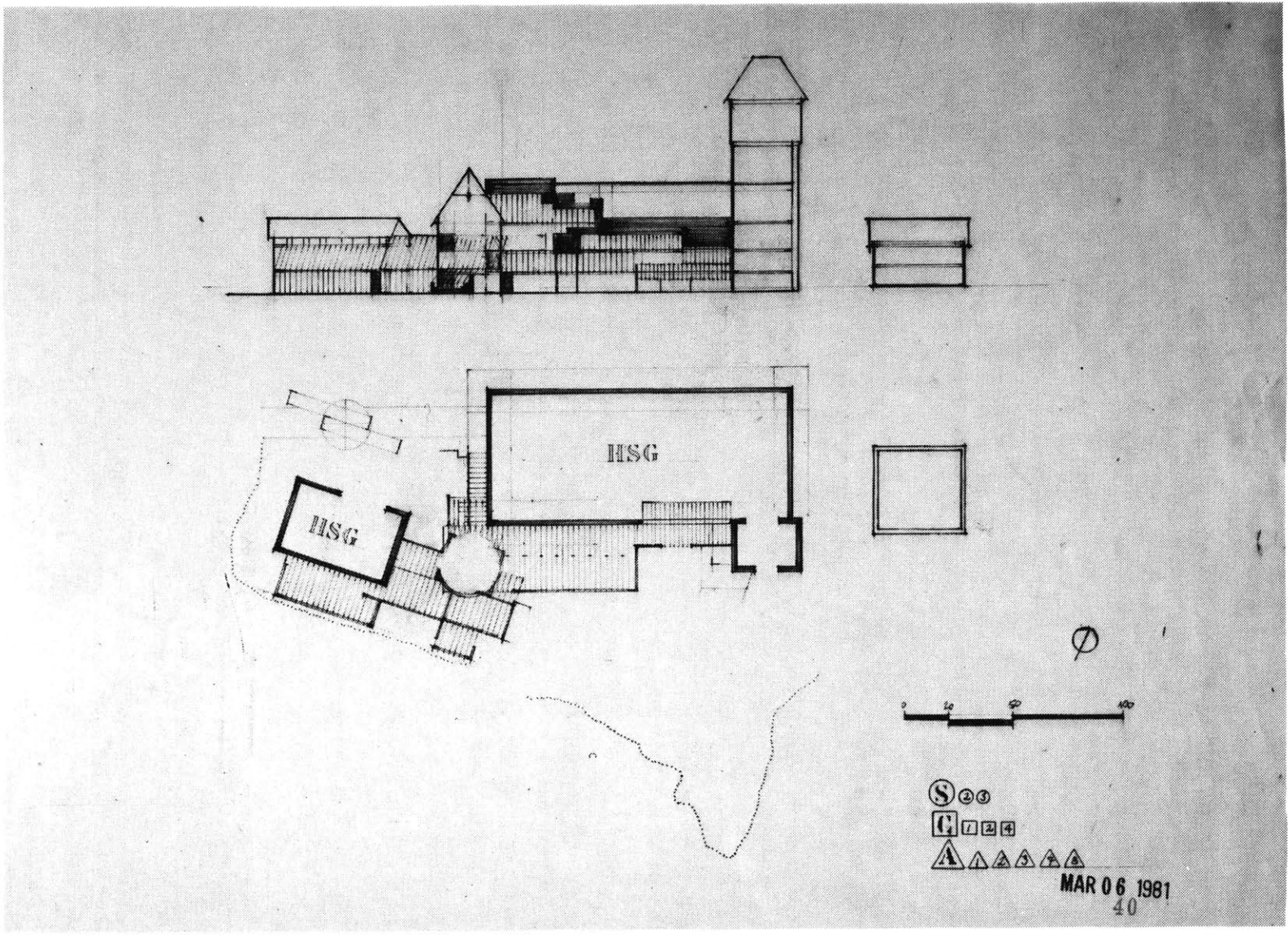
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16 27 MAR 03 1981

- (S) ① ②
- (C) ②
- (A) ② ③ ④
- ⑧ ⑨

Figure 79. Plan, section/elevation.
Greenhouse becomes more attached/
incorporated into plan. Circulation
tower / pavilion at junction of two
directional fields.



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MAR 06 1981
40

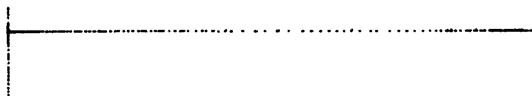
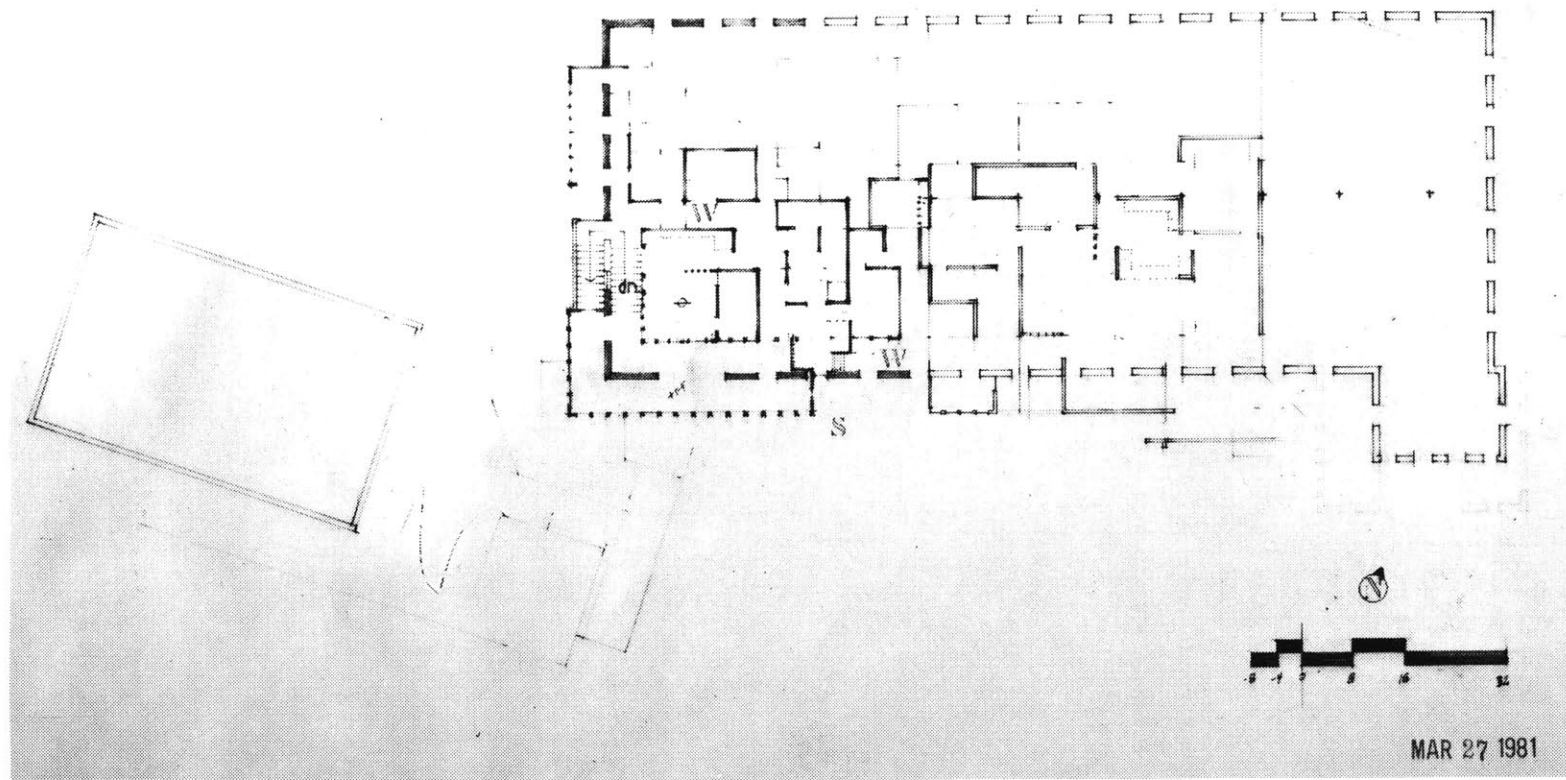


Figure 80. Plan study. 2nd floor.
The wall zone being treated for
circulation and glazed/ green-
house/ morning rooms.



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MAR 27 1981

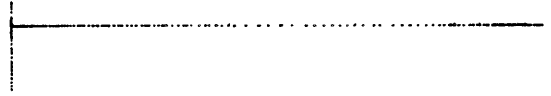
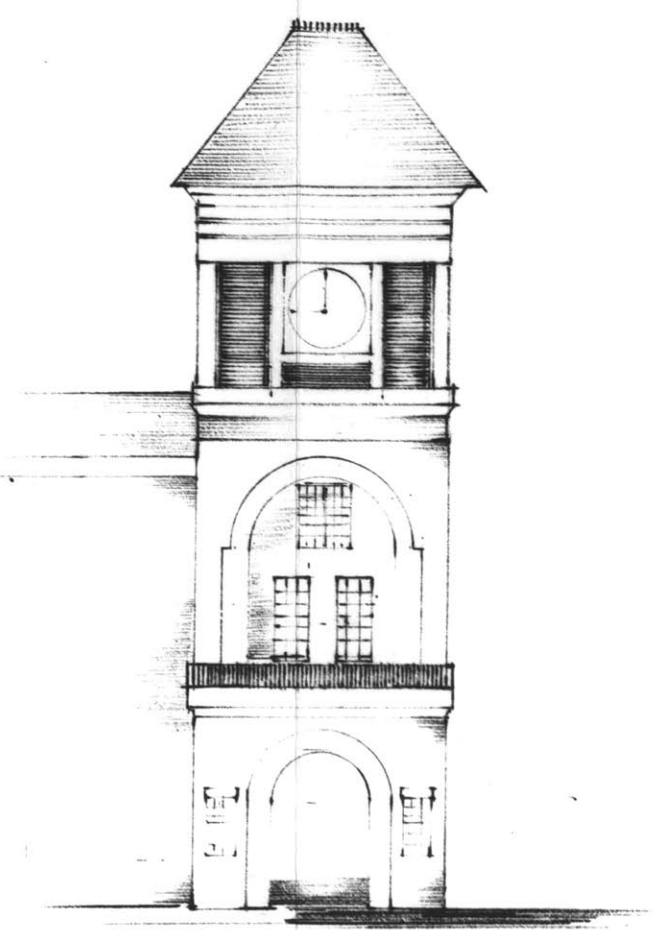
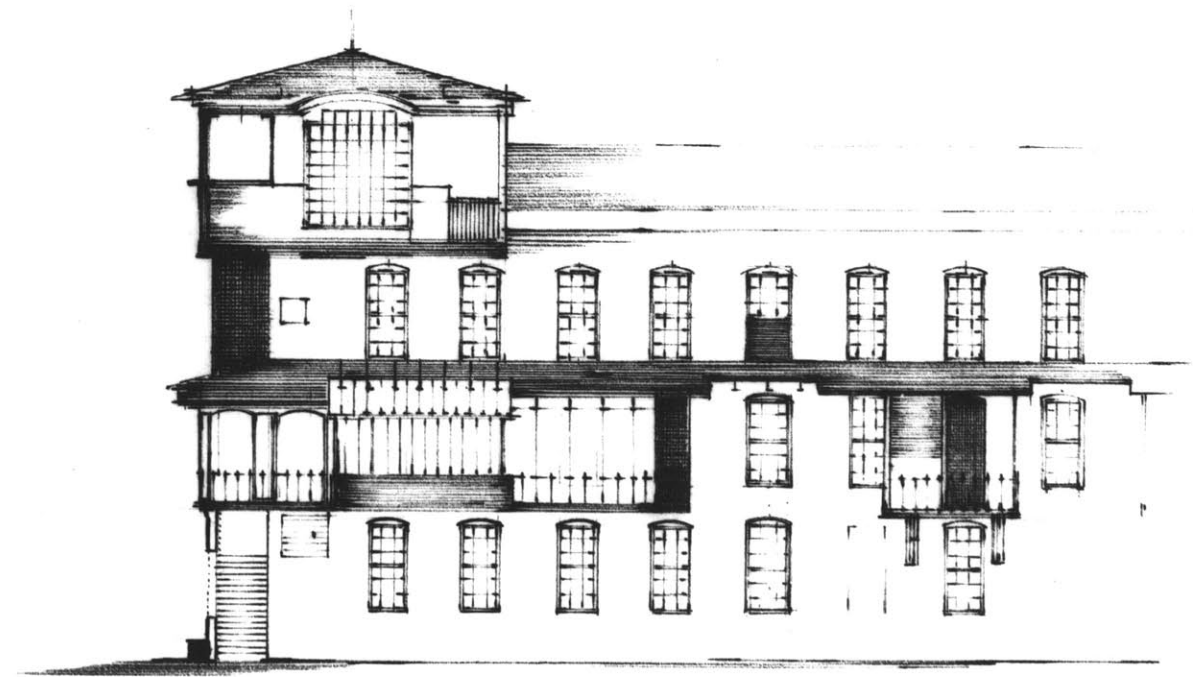


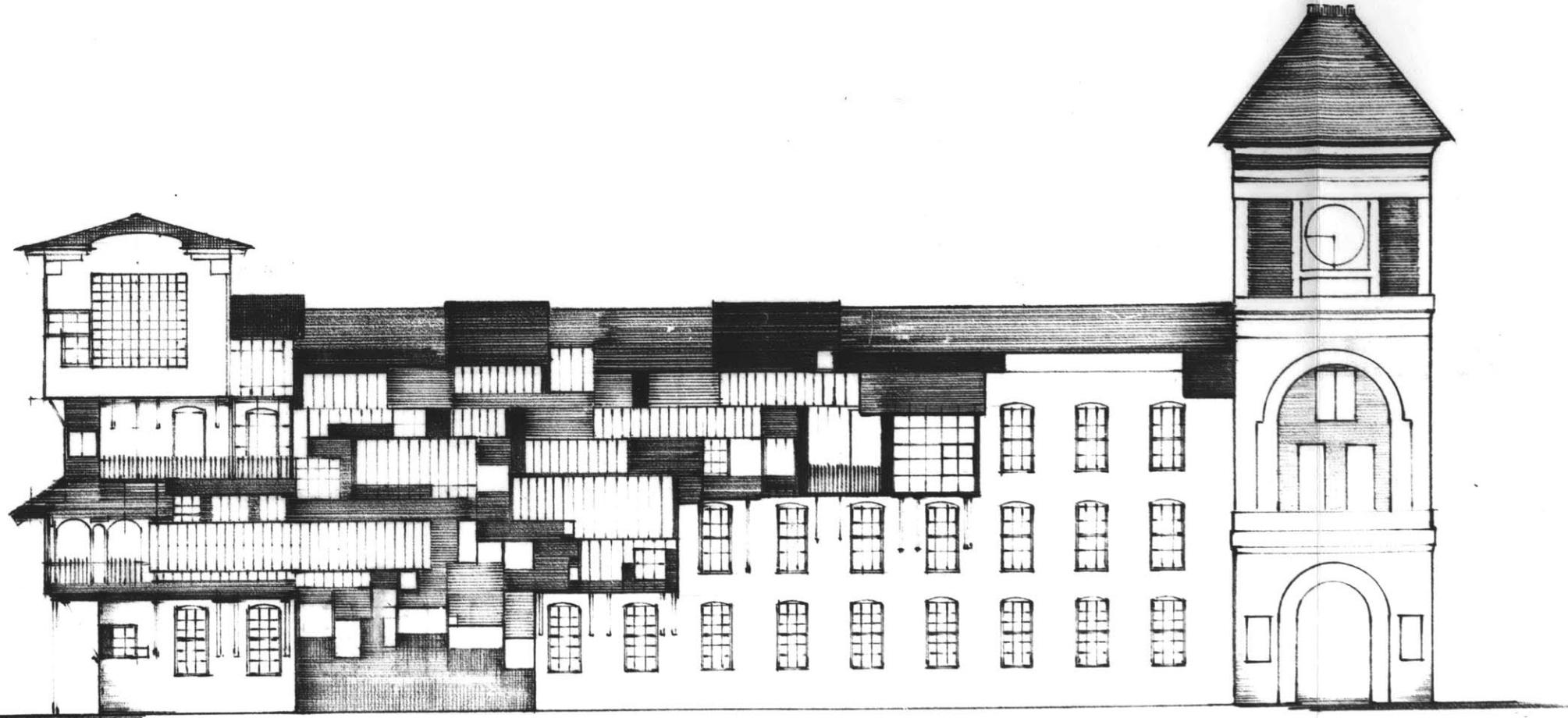
Figure 81. Elevation, south.
Various types of use spaces
attached to the wall: greenhouse,
sun porch, study porch, etc.



cruleba
 partia 500 4th
 porch 200
 realine
 200
 one porch 200
 study porch 200

S
 4 0 4 12 28
 MAR 28 1981

Figure 82. Elevation, south.
Collage. Final.



private drive

public way - ground

porch - w/ roof; no glass

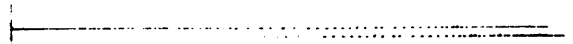
stepped wall: no glazing

greenhouse - glazing
sun porch - enclosed w/ glass

original wall left

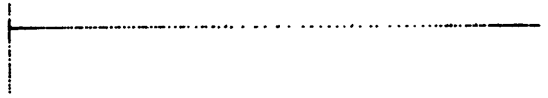


APR 03 1981



SHEFFIELD

161



The farmhouse expansion should re-define circulation to make winter access, including a mudroom, occur on the west side of the house.

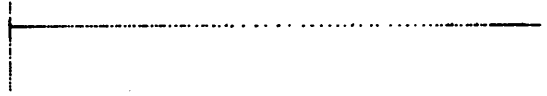
On the first floor, the kitchen and dining areas must be larger than they now are, and less lineal. A small greenhouse and/or sleeping porch is to be added on the south side of the house. Wood storage space, minimally enclosed, is to be made around the periphery of the new extension.

A small vault should be incorporated into the design of the foundation system. It need be no larger than 35 SF.

On the second floor a small sleeping area, a bathroom and three bedrooms must be made out of the existing space. Only minor envelope extension will be permitted on the second floor.

The entire project should be build-able by two experienced carpenters over a four month period.

As much of the present building as



possible should be left untouched, including vertical circulation, the east facade, the ell to the north of the major living space.

History:

The house, the old Holbrook farm, is situated on a high ridge, the watershed ridge which separates waters flowing west to the Hudson River Valley and east to the Connecticut River Valley. The house was built shortly after the Civil War, around 1870. It was a "section farm", originally comprised of 750 acres. While scenically beautiful, it was the extreme exposure of the site which led to the decline of the buildings over the years. Two large cow barns and one small haybarn have been struck by lightening and burned to the ground over the last 75 years. After the land had been cleared, around 1880, the winter winds which blew unabated, made living there difficult. It became a "summer farm", a "tenant farm". One tenant set up a sawmill on the foundations of the old cow barn in the 1930s. The isolation of the setting, and the hostile environ-

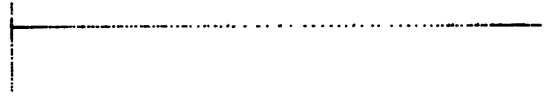


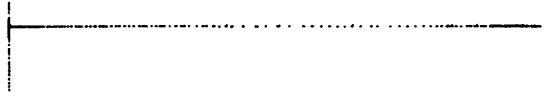
Figure 83.

made his tenure short, and the house fell into disrepair.

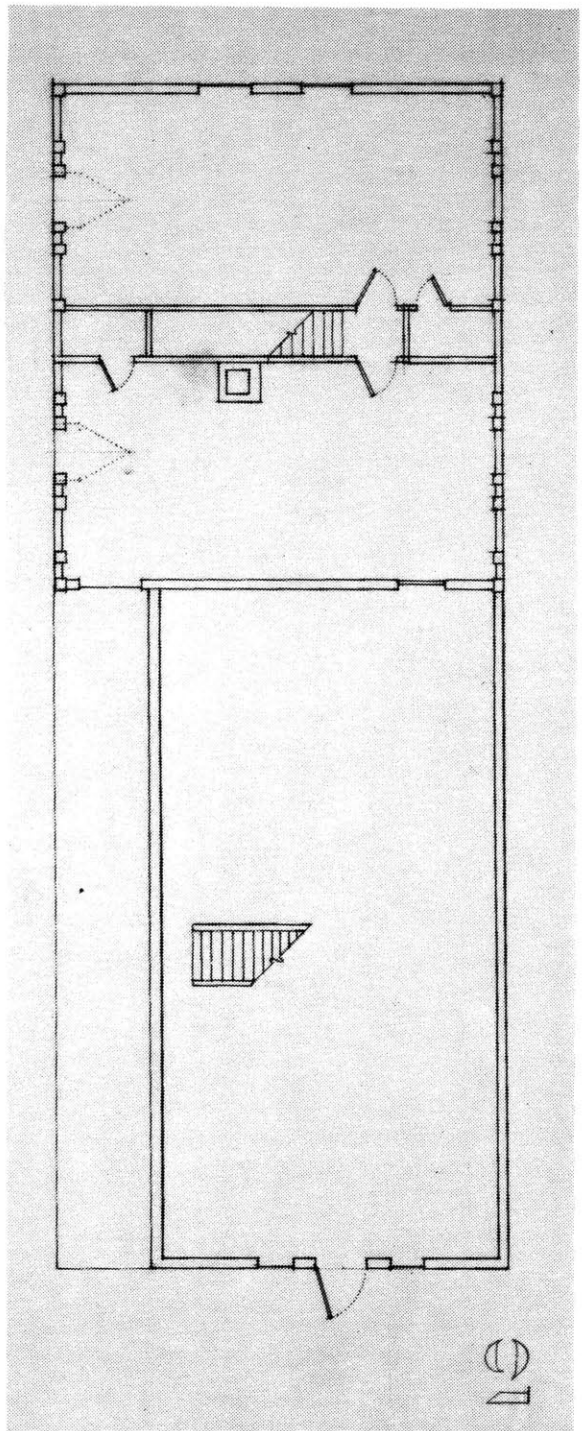
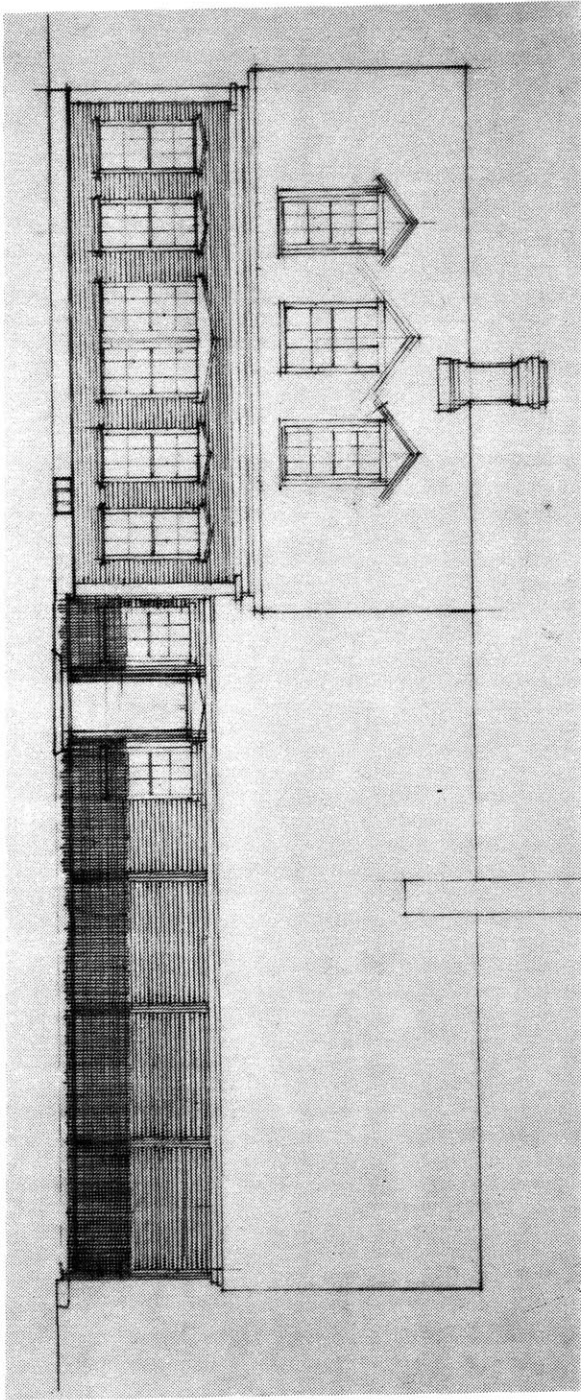
Ten years ago the present owner began "restoration". The house is now structurally sound, with new foundations, plumbing, wiring, roofing, etc. Although the house is predominantly used in the summer, it is being made for winter use as well.

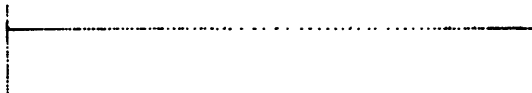


The Holbrooke Farm
Sheffield, Vermont



Figures 84, 85.

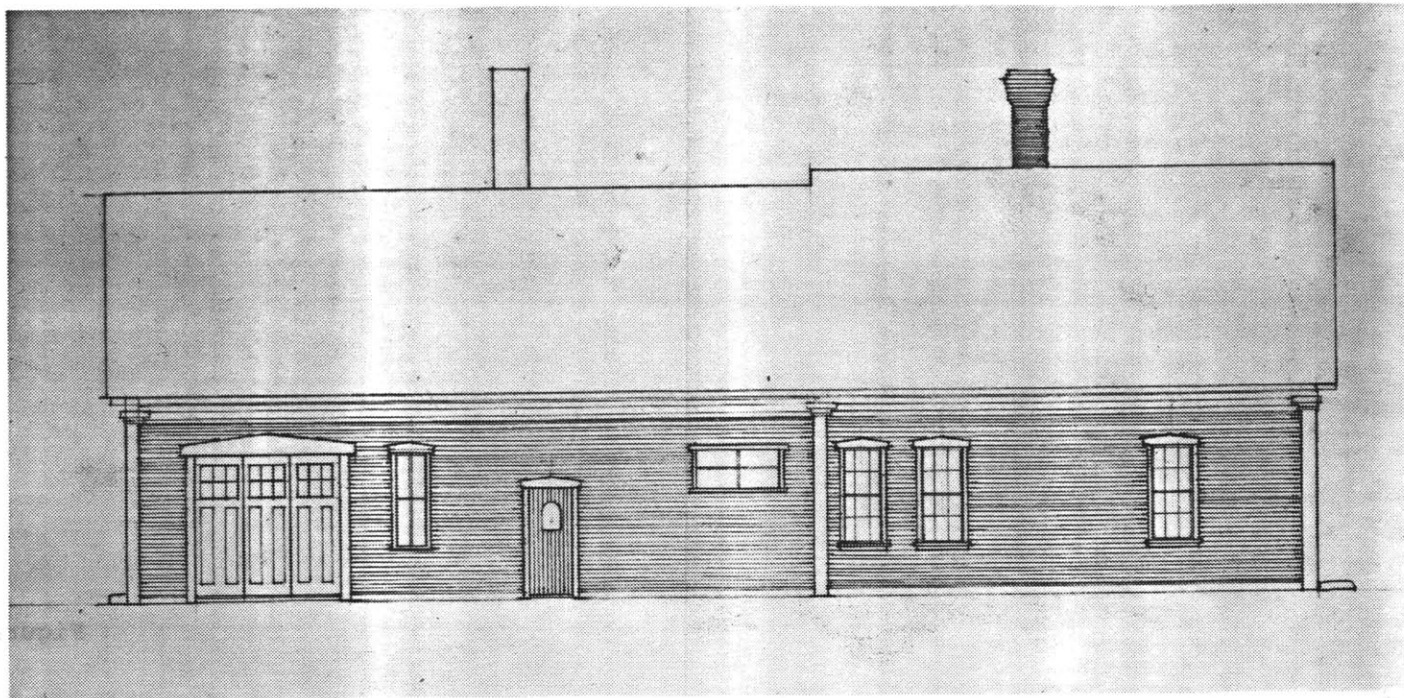




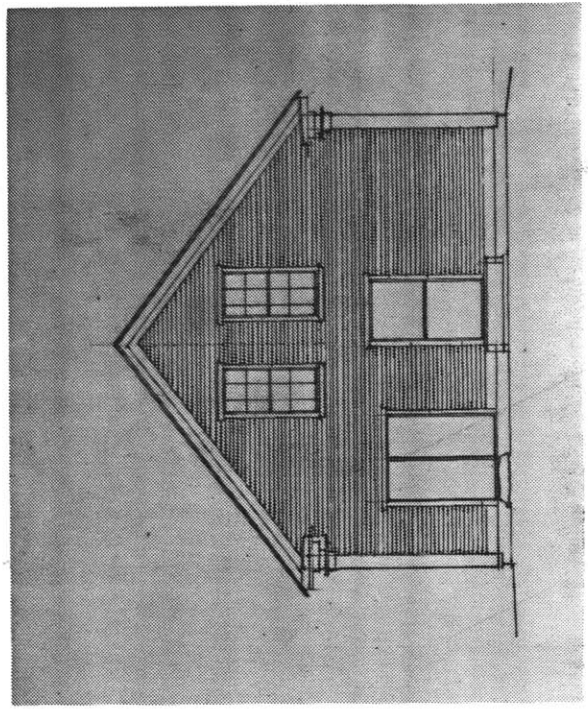
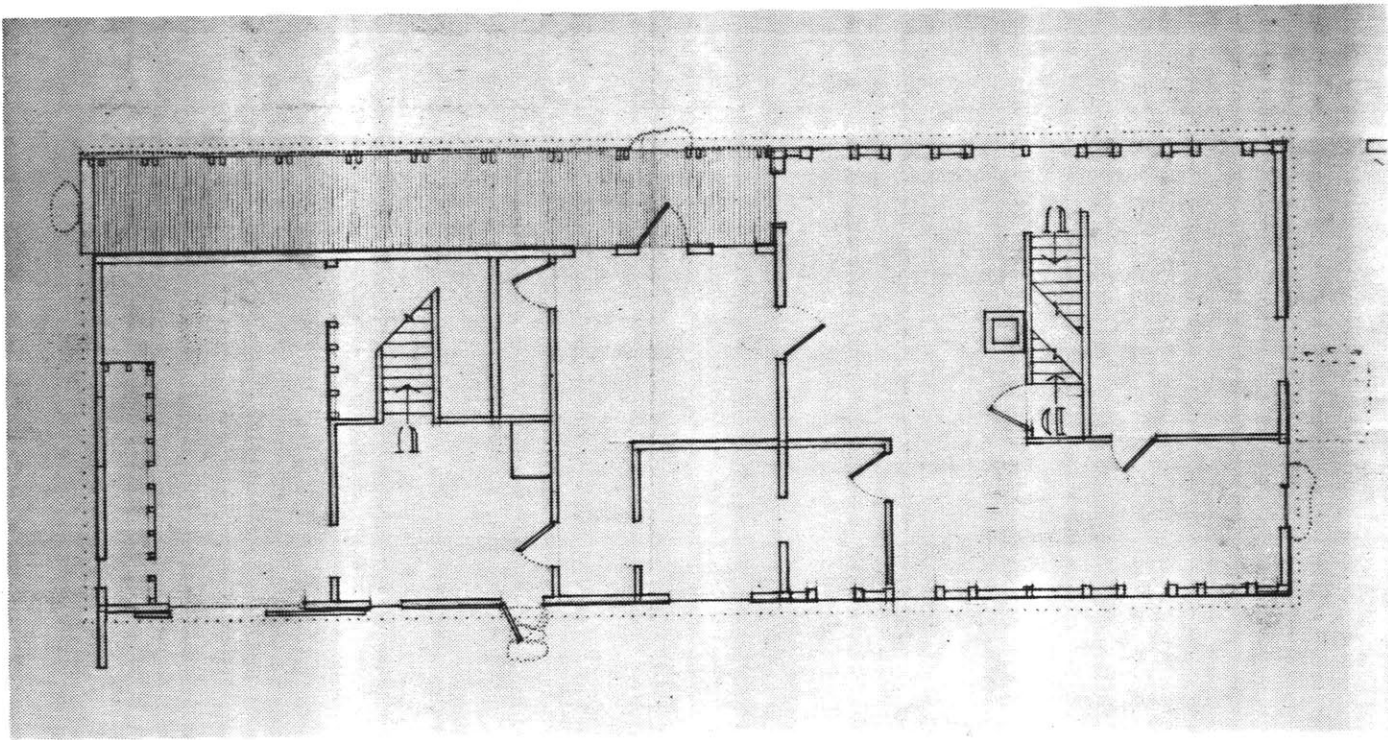
Figures 86-88.

571

571 Sheffield: as is.



Clockwise from below:
South Elevation.
1st Floor Plan.
West Elevation.



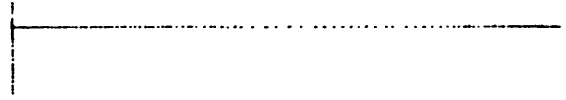
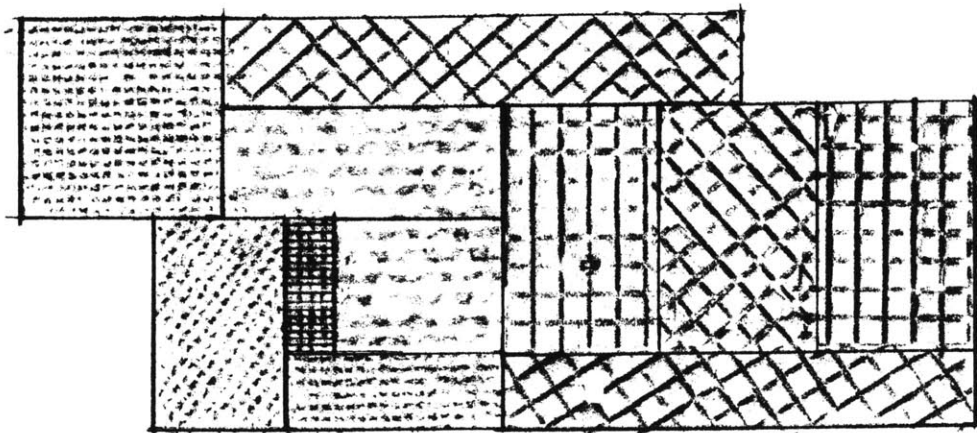
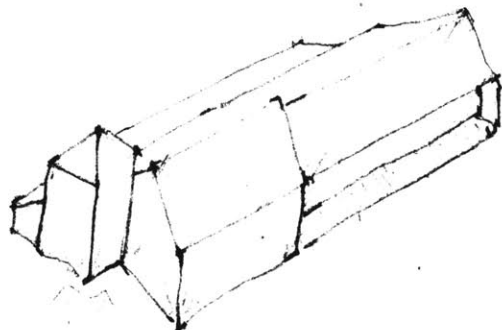


Figure 89. Plan, collage.



⊕
 Kitchen as T joint
 circulation/pathways
 as outside porches / woodstore
 □ bays in cl.
 workshop / sports / tractor,
 stores vehicles

⊖
 entrance? from west
 " East
 extra bedroom - form
 inside circulation
 space saving



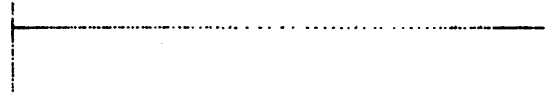
(S) ③

(C) ④

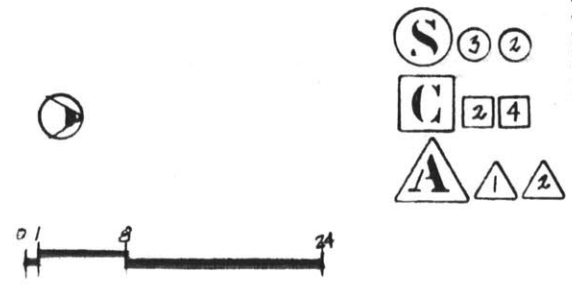
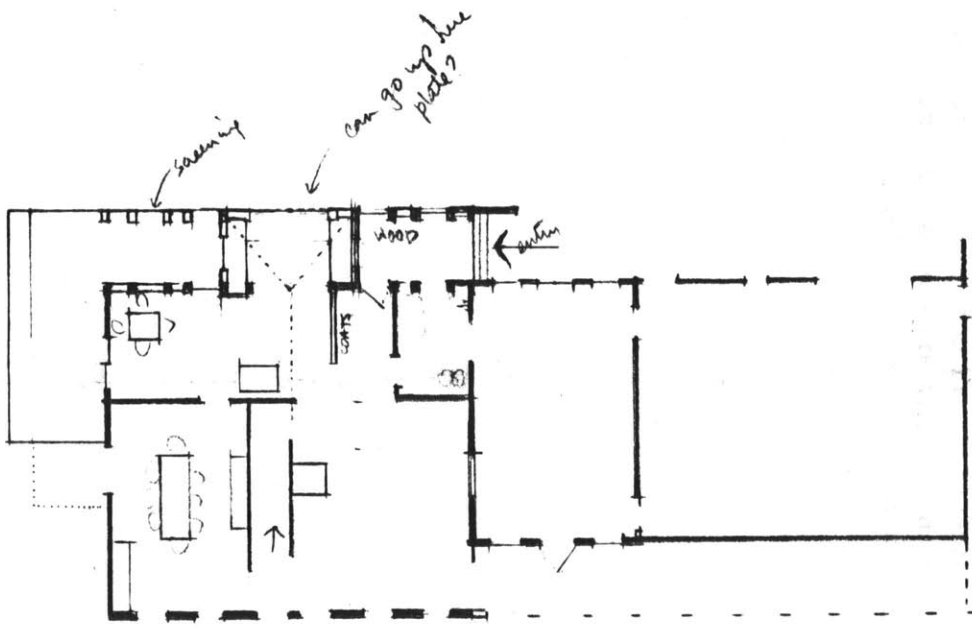
FEB 08 1981

FEB 09 1981

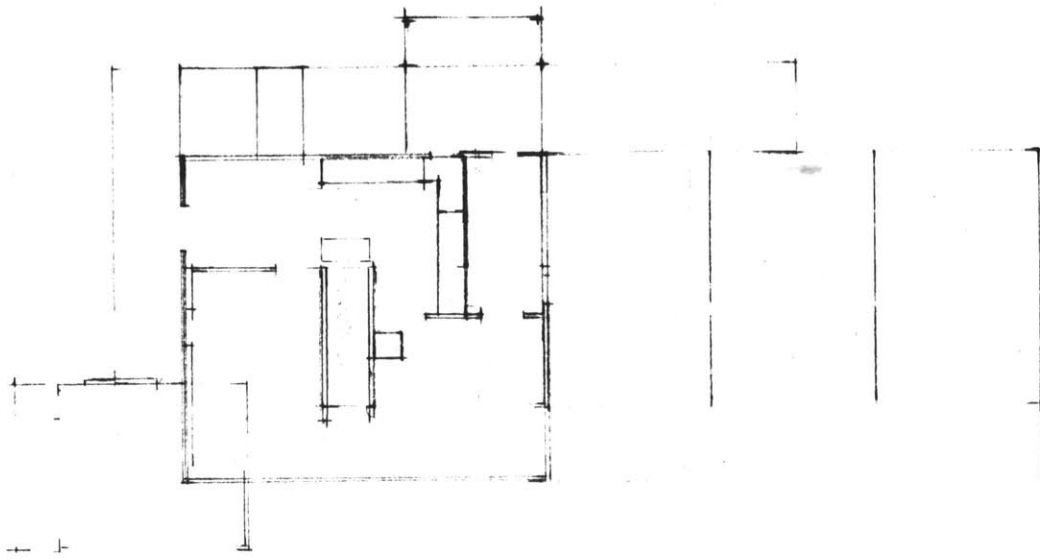
173



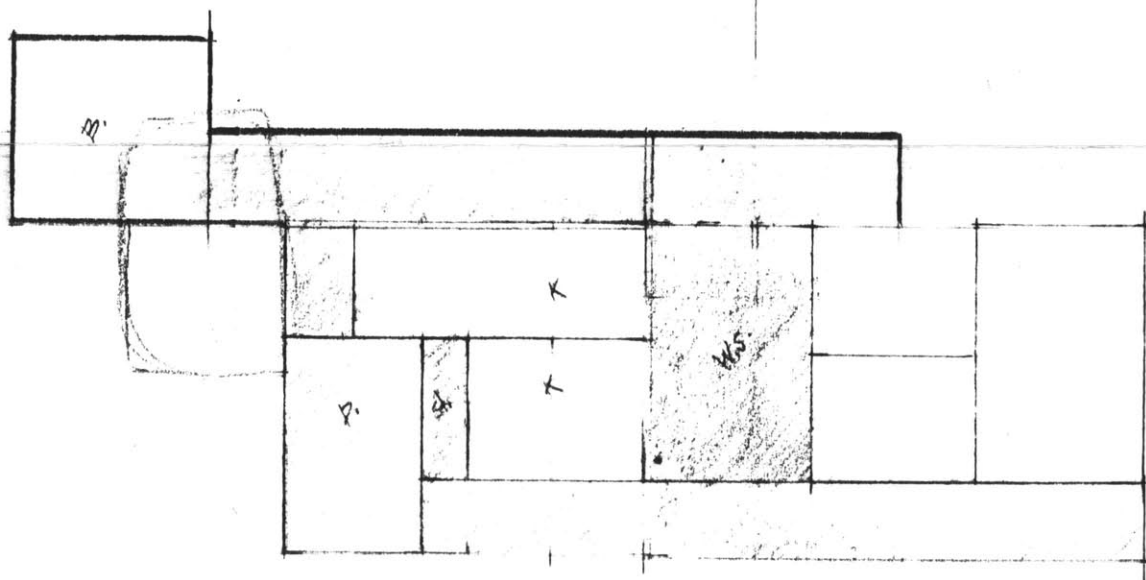
Figures 90-92. (Left to right)
Early sketches . Access along
west side of building. Corner
at southwest becomes pavilion.



FEB 8 1981
 FEB 9 1981
 (2)



FEB 08 1981



175

SH1 (A)



FEB 8 1981
 FEB 9 1981

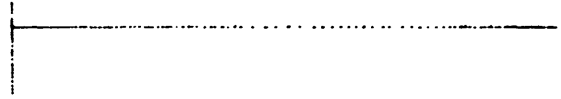
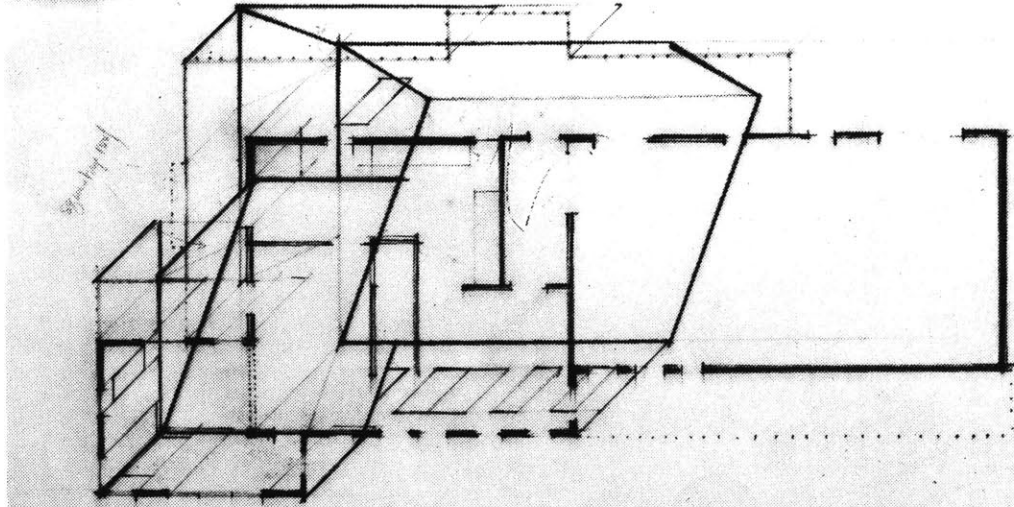
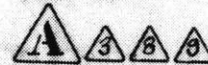
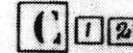


Figure 93. Elevation, axonometric.
East elevation showing maximum dis-
tance roof can come down. Sleeping
porch/ dining area on southeast
corner.



EAST ELEVATION



FEB 08 1981

FEB 09 1981

SH 1

D

FEB 8 1981
FEB 9 1981

177

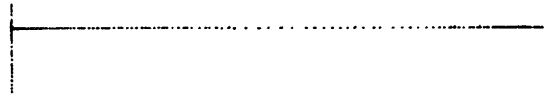
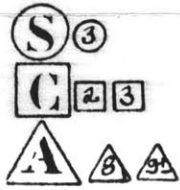
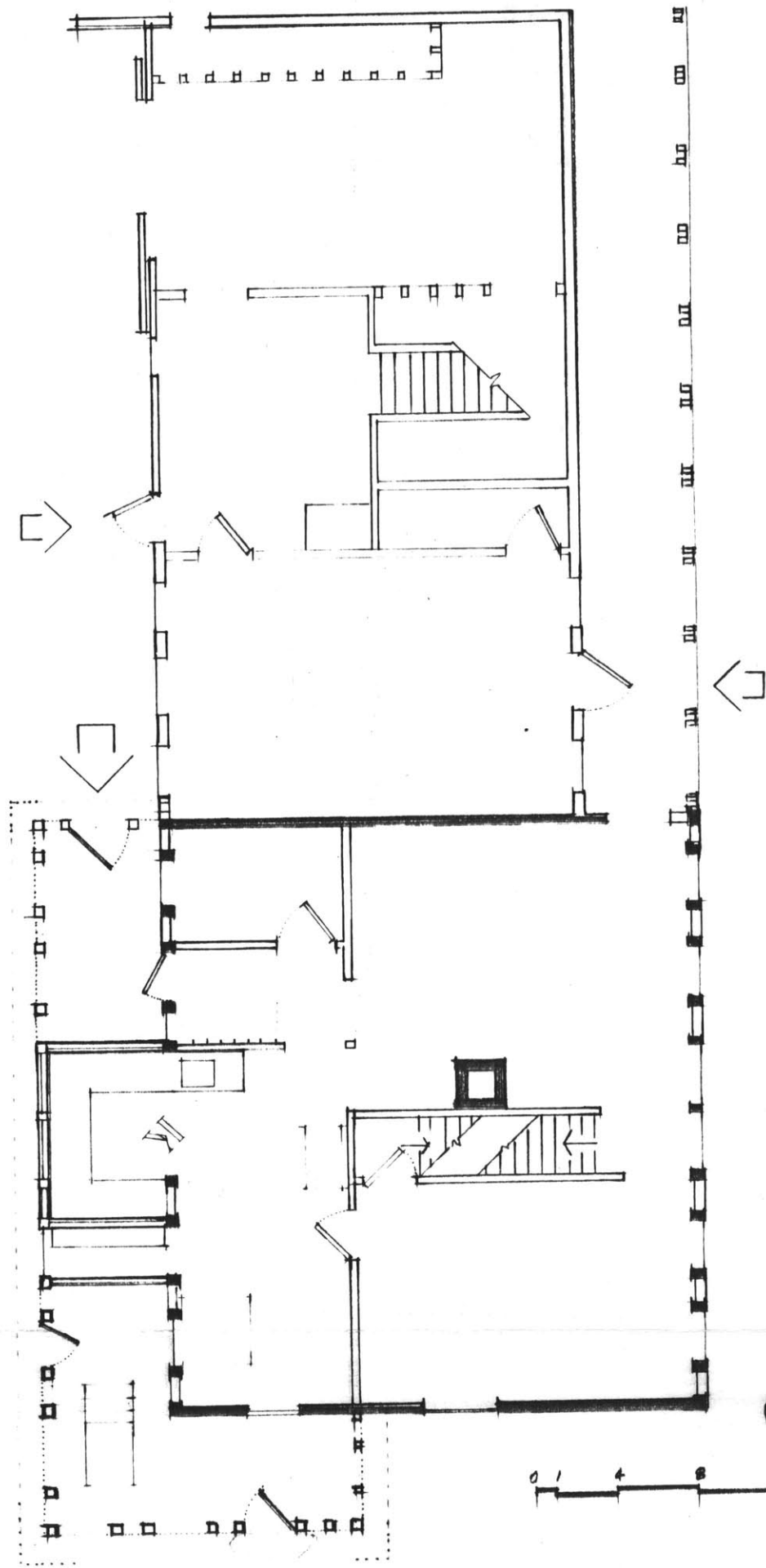


Figure 94. Inhabitable dormer extension from 2nd floor for bathroom. To north of kitchen is the mudroom, to the south is a screened in porch area.

FEB 10 1981



FEB 10 1981

17 8

180

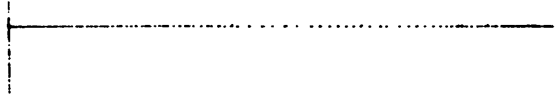
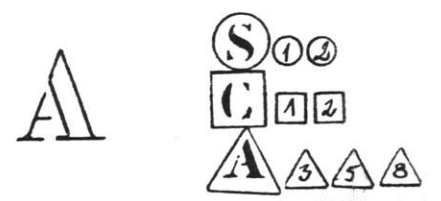
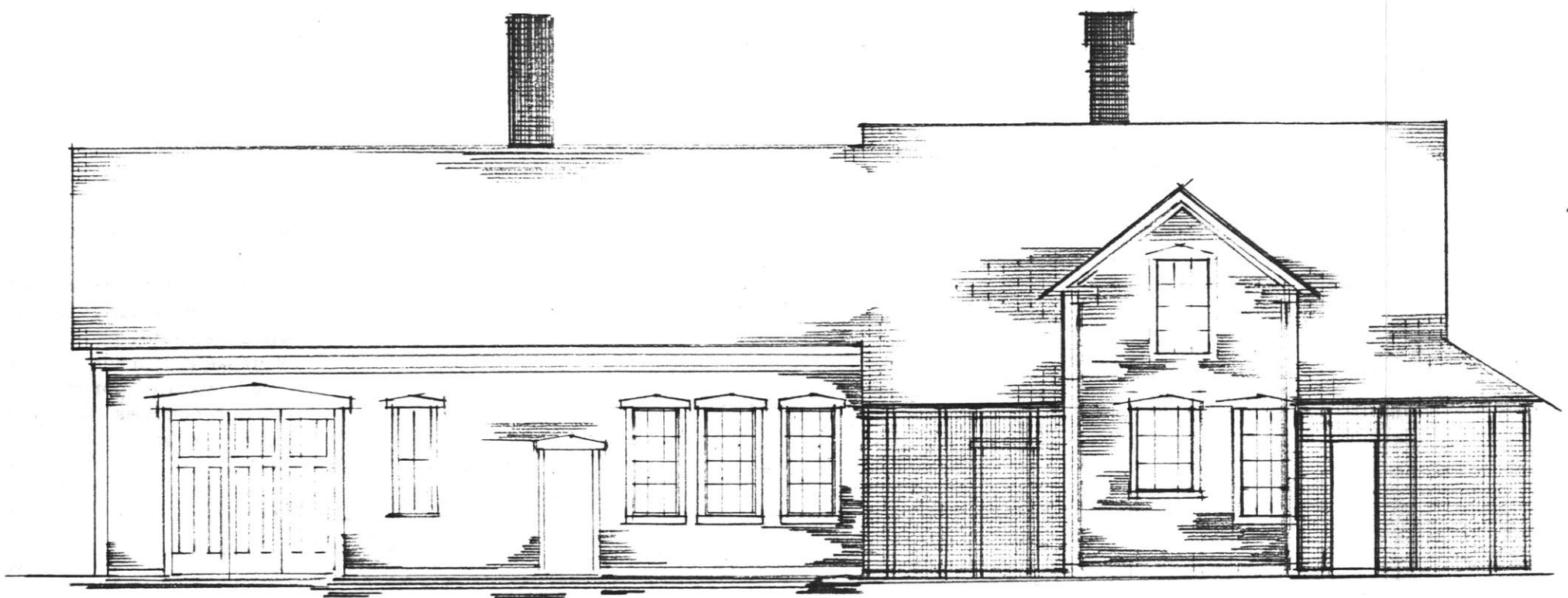


Figure 95. Elevation, west.
'Building within the vernacular'. Corresponds to Fig.94.



FEB 10 1981

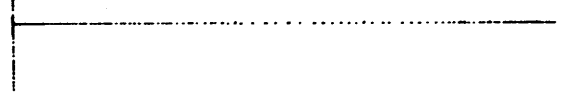
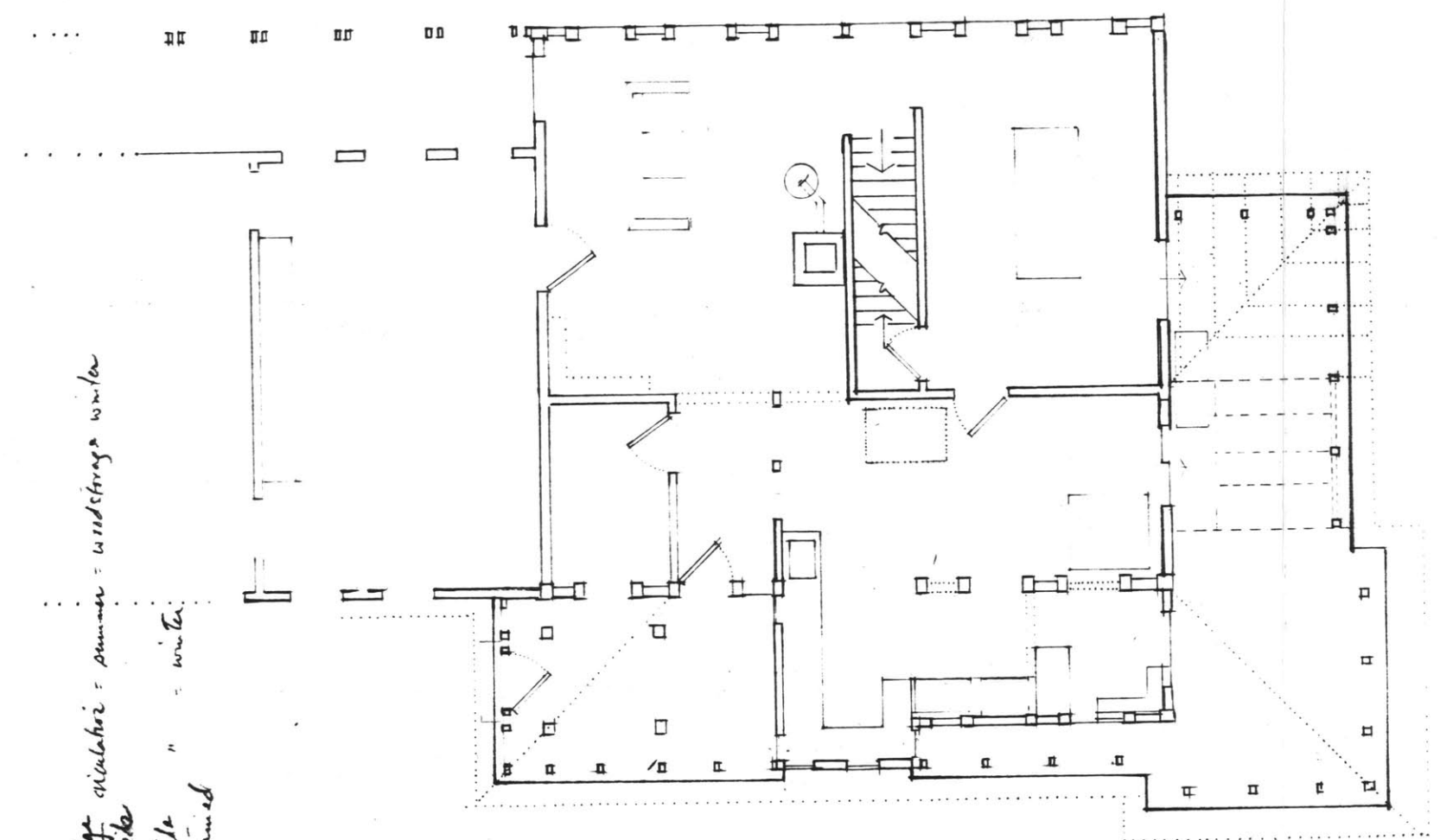


Figure 96. Plan. Alternative to Fig. 94.
Outside edge to be used in summer for circulation, in winter for wood storage.
Southwest corner becomes bigger, the sleeping porch/or greenhouse at end becomes 'lacier' than the corner room.

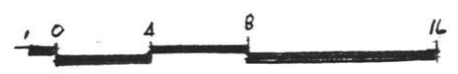
183

*Wedge circulation - summer = west wing winter
outside
inside
contained*



DB

FEB 11 1981



(S) 2 3

(C) 2

(A) 2 3 5 8

FEB 11 1981

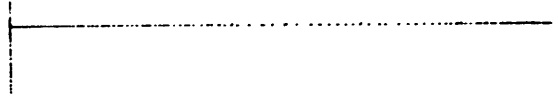
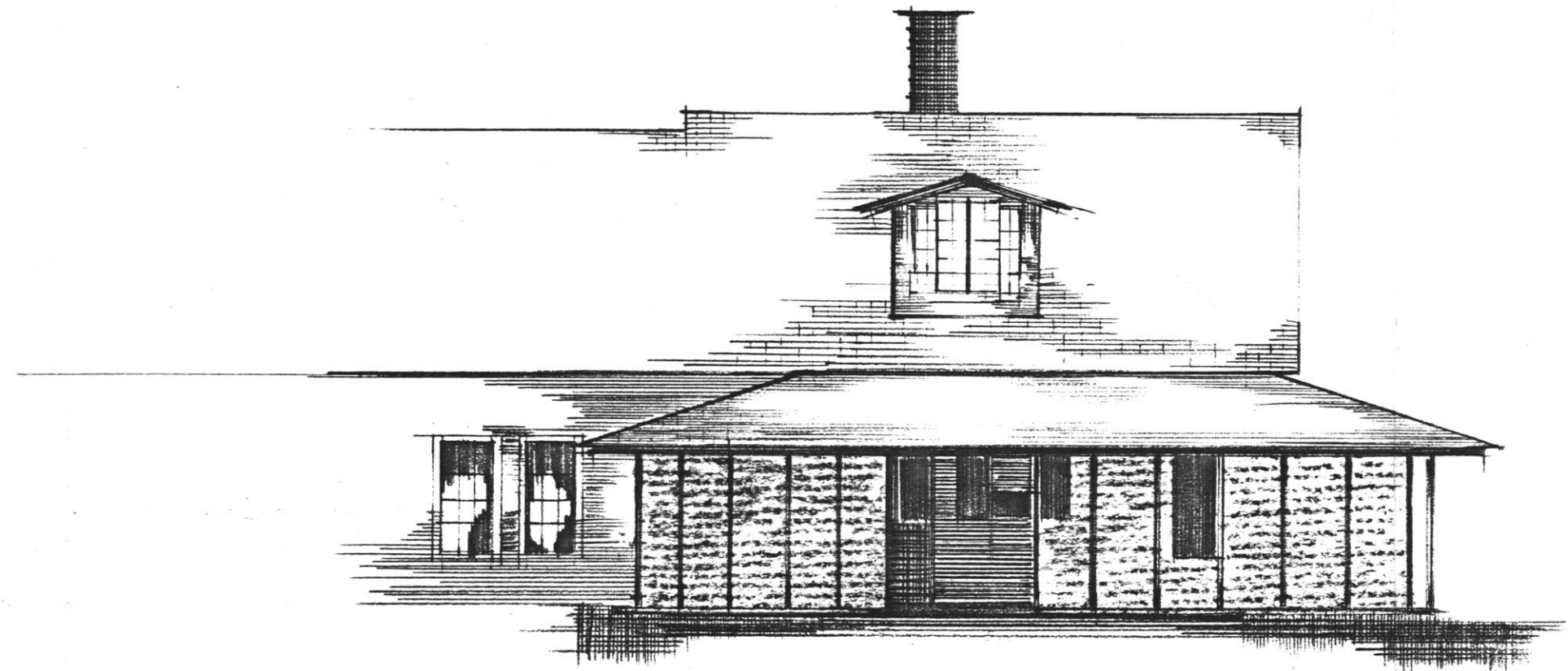


Figure 97. Elevation, west.
Corresponds to Fig.96.
The plate remains in tact
in this 2nd story solution.

186



FEB 11 1981

S ③
C ②
A ①

B

FEB 11 1981

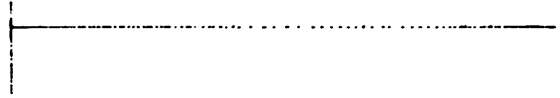
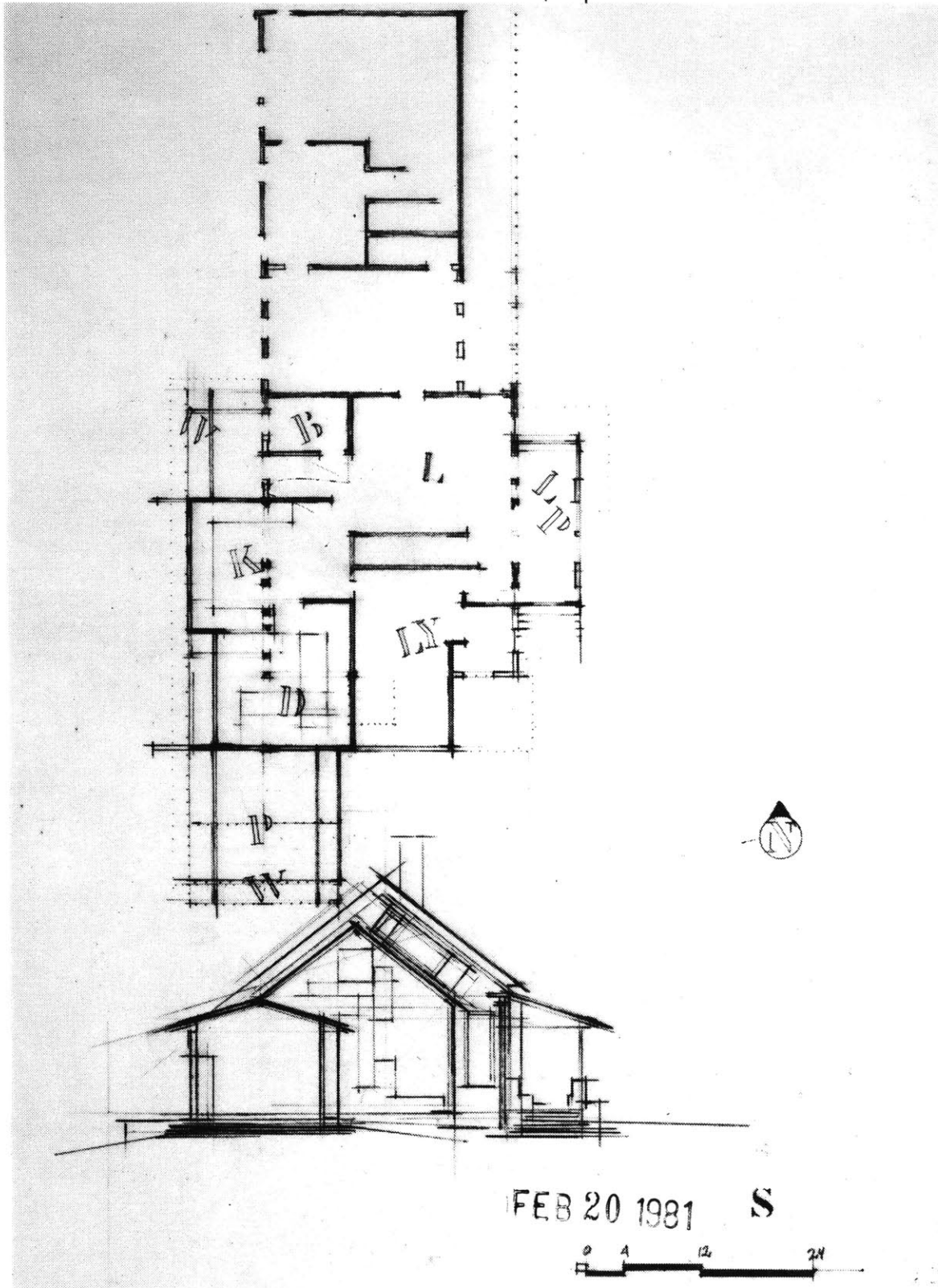


Figure 98. Plan, elevation (south).
Short extension of 2nd floor to
the south. Pavilion on end.
W= wood storage.
LP= living room porch.



FEB 20 1981 S



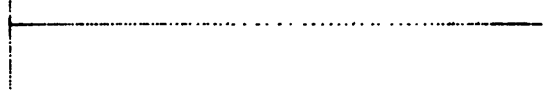
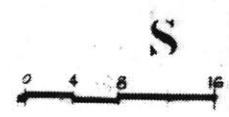
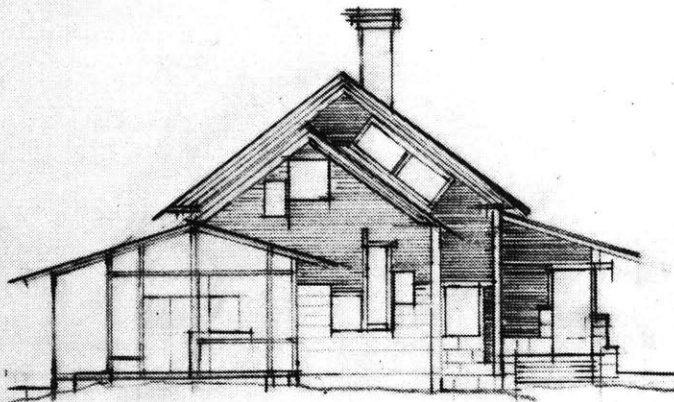
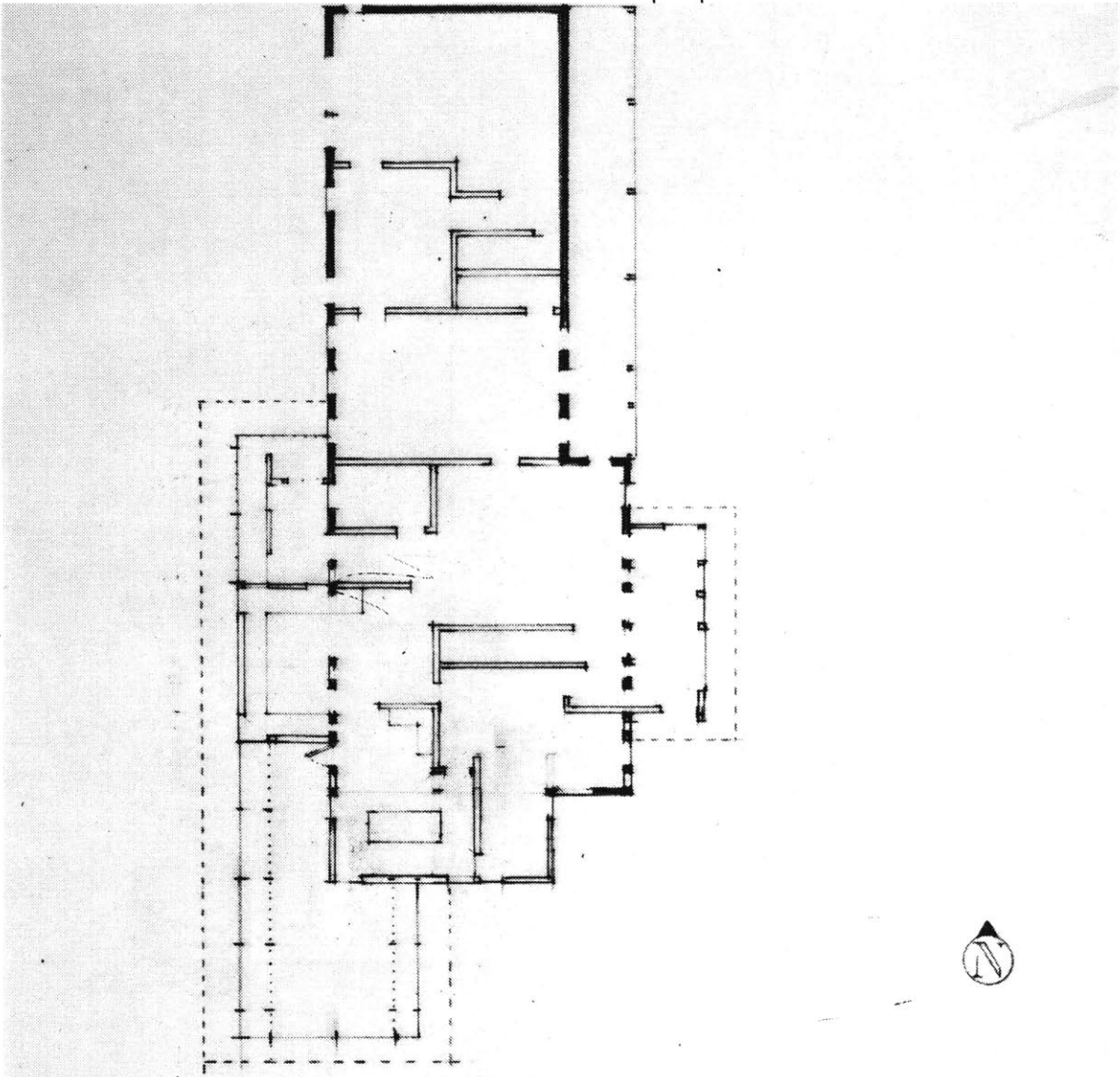


Figure 99. Plan, elevation.
Same as Fig. 98, but reor-
ganized pavilion/sleeping
porch becomes lighter.



S

FEB 20 1901

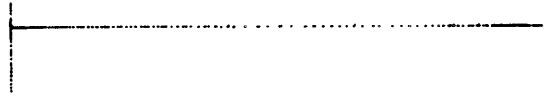
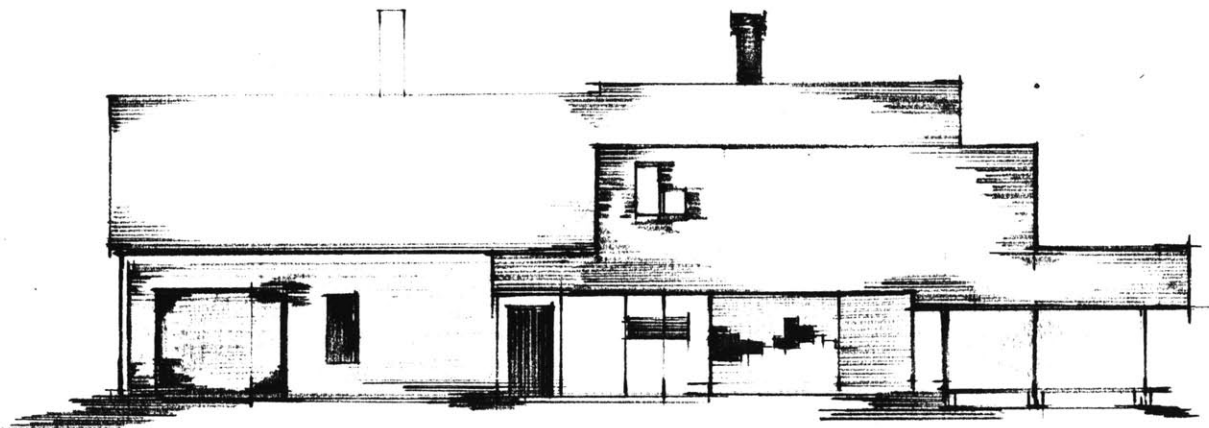
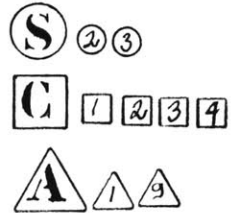
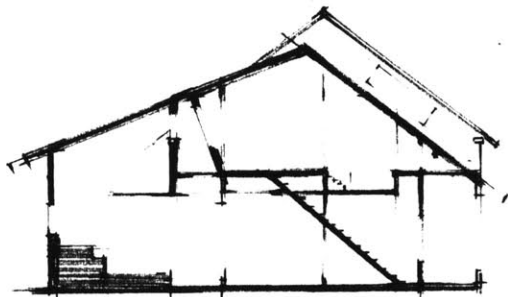


Figure 100. Elevation (west), section (east-west through stairwell).

Extending new roof from existing collar ties to explore kitchen/ dining space below. Plate remains unsevered.



West Elevation



191

too dark too much wasted space, too enclosed.

- need 2 sections, ^{short} elevation, ^{long} plan to show what's happening
 , show elev

FEB 21 1911

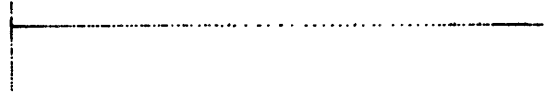
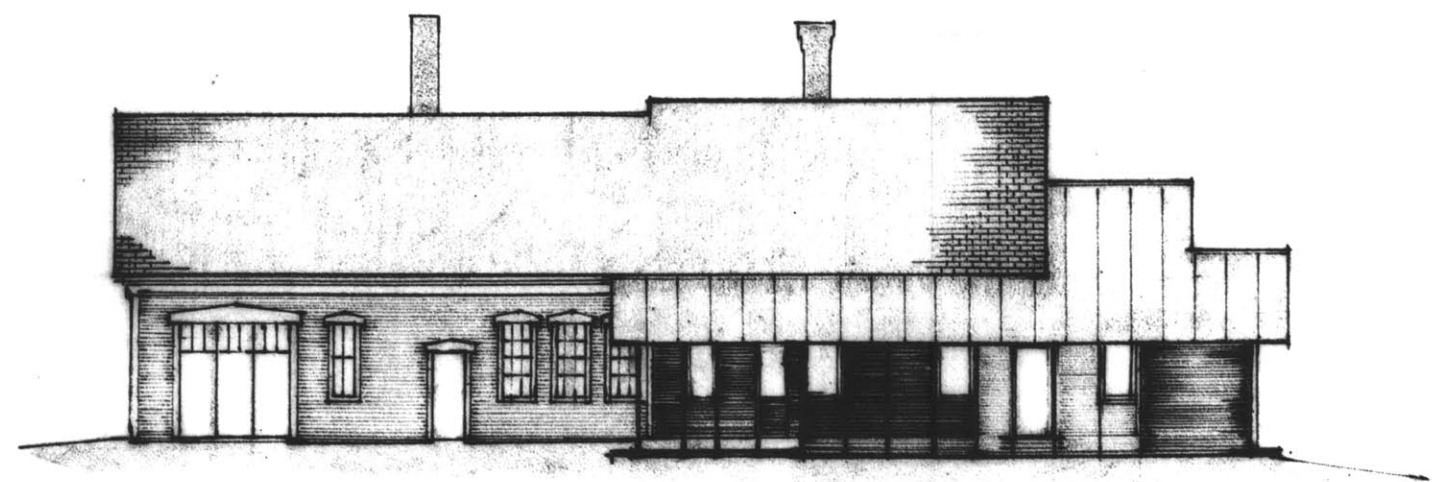
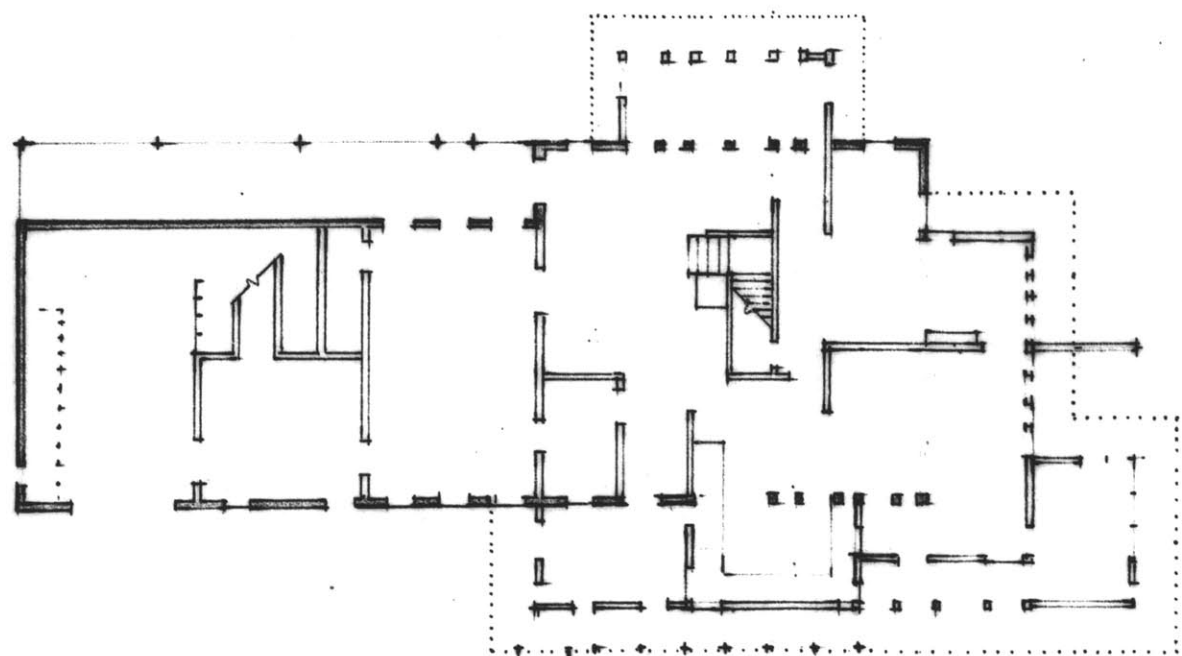


Figure 101. Plan, elevations
(west, below; south, right)
Small extension from south
on 2nd floor, double shed
roofs on sleeping porch
on south end.



MAR 06 1981

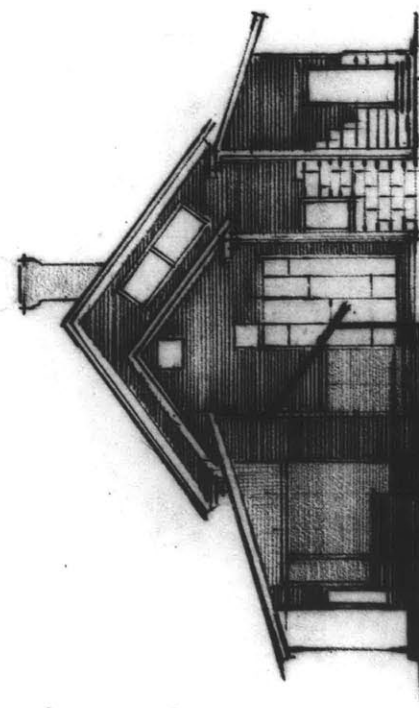
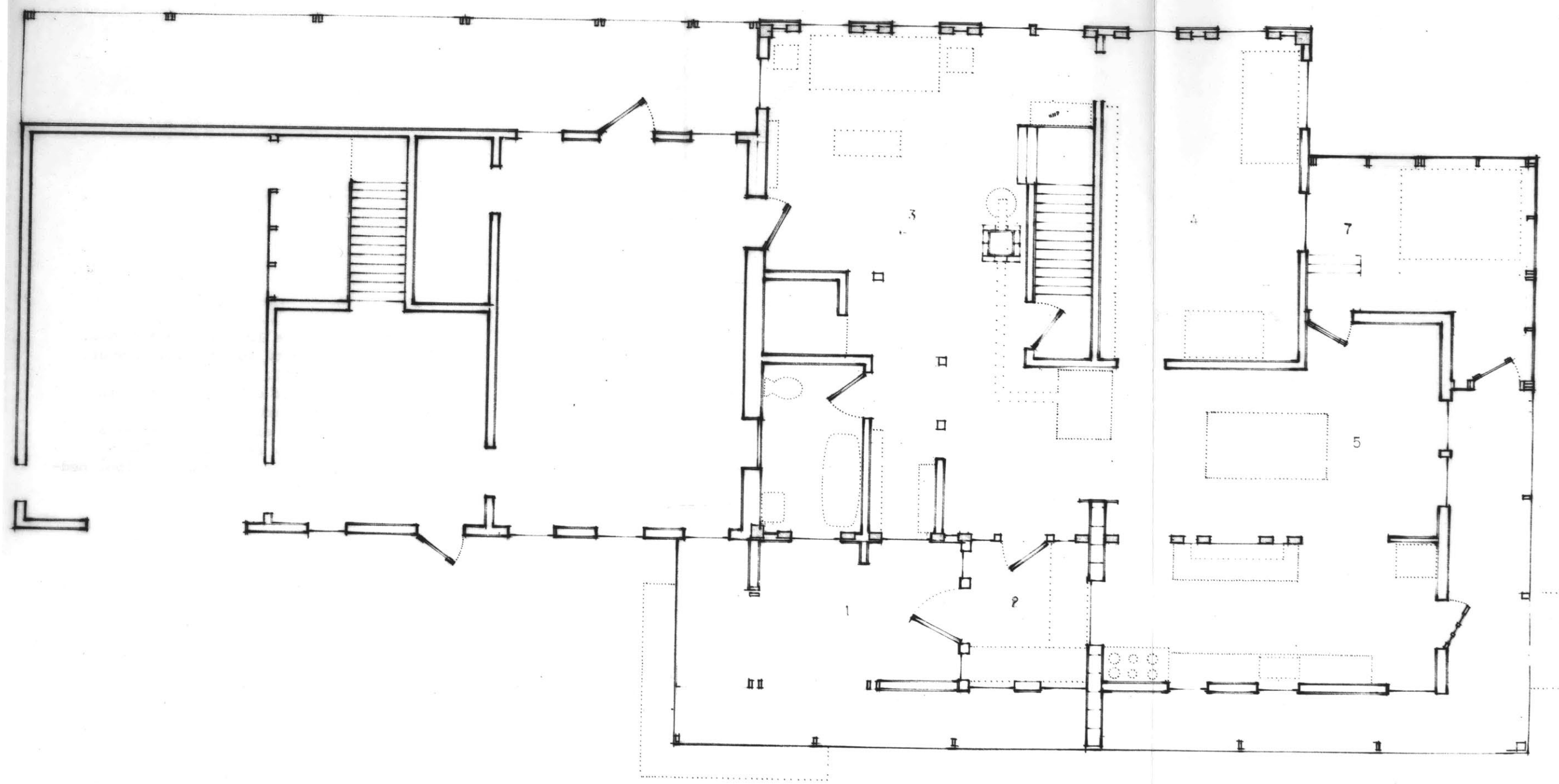
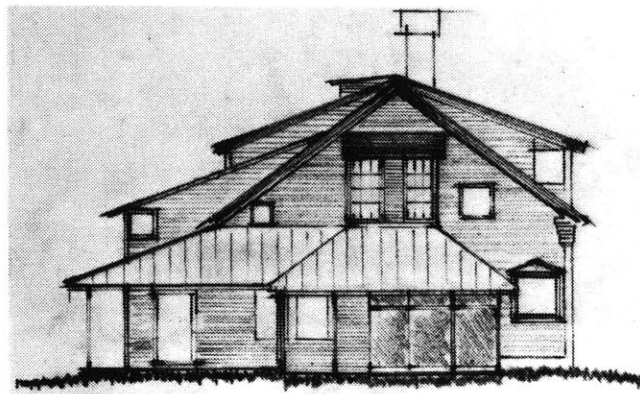
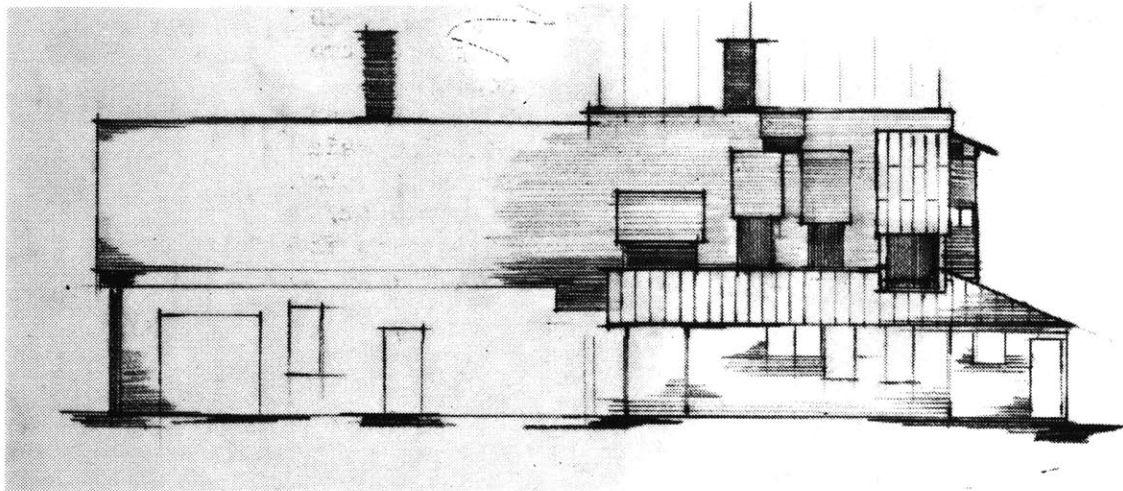
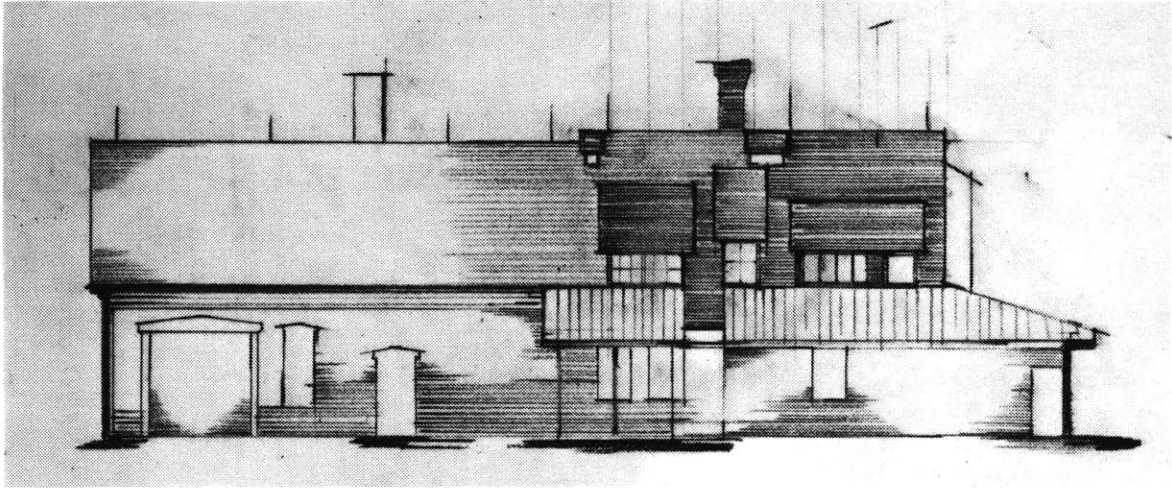


Figure 102. Plan



MAR 24 1981
MAR 25 A.M.

Figure 103-105. Elevations.
(top to bottom: west, west,
south).
former extensions, within
existing rafters.
South elevation showing a
window seat/ small bed
projecting from 2nd floor bed-
room.



MAR 30 1981

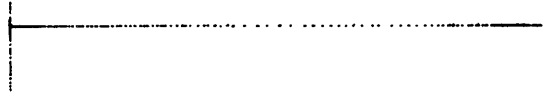
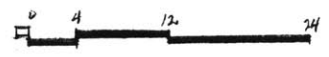
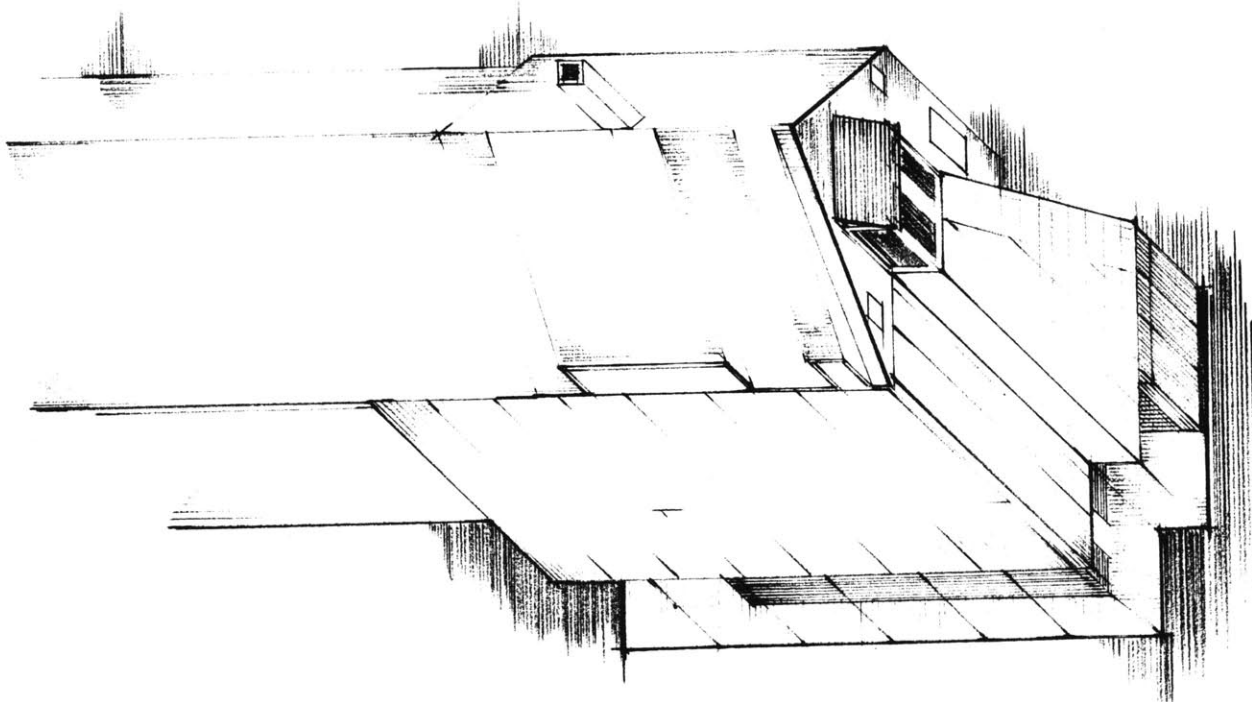


Figure 106. Axonometric from SW.
Corresponds to Fig. 105.



SW

MAP 50 1947



200

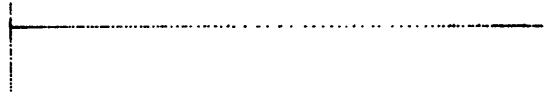


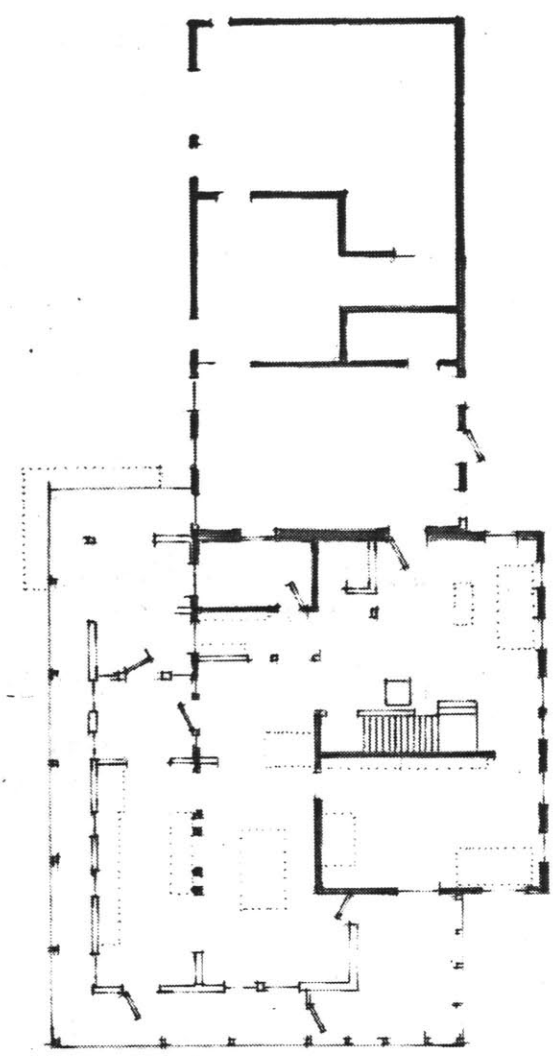
Figure 107. Plan

Figure 108. Elevation, south.

Figure 109. Axonometric from SW.

Final sketches.

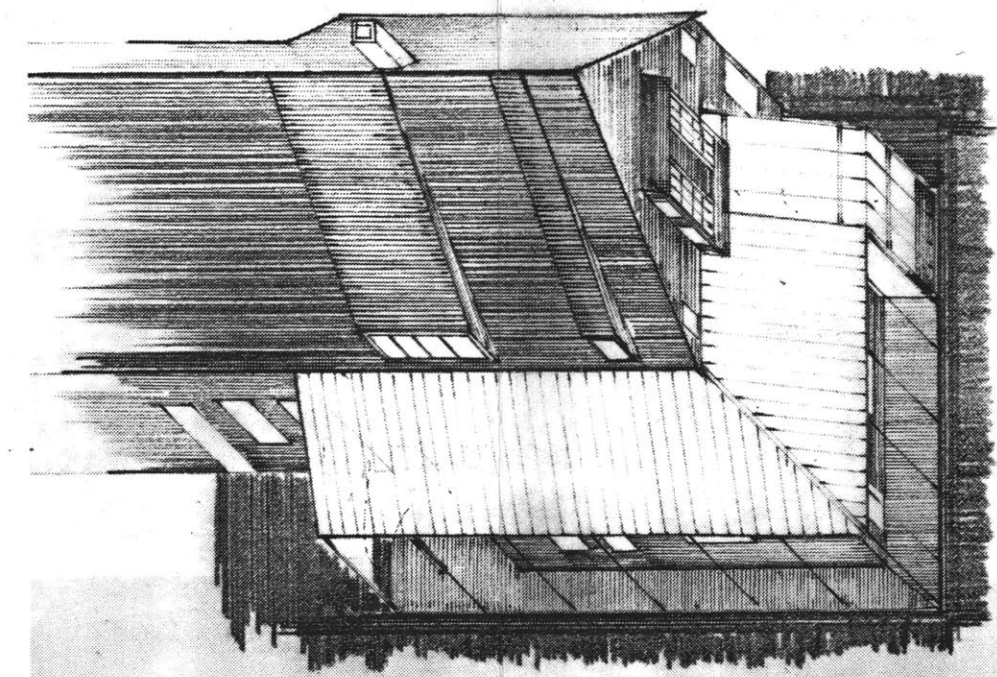
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MAR 27 1981



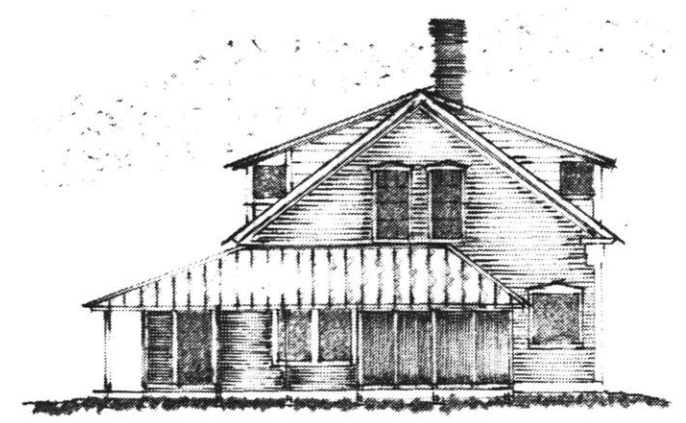
3 27 81



SW



MAR 31 1981



202

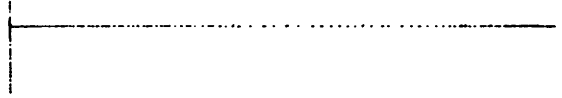
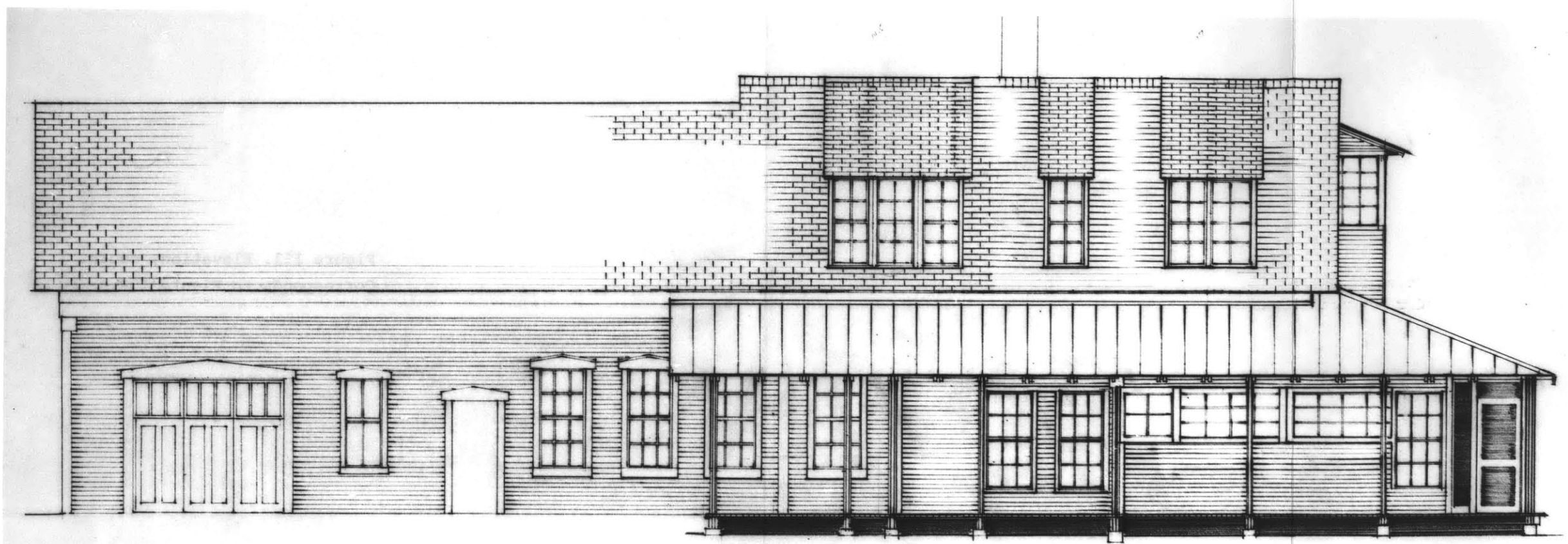


Figure 110. Elevation, west.
Corresponds to Figure 102.



antiquary porch

*change windows?
modern*

*hidden
wood storage (porch)
(vault under)*

*ground sloping porch
(optimal for lawn)*



APR 04 1981 MAR 26 1981

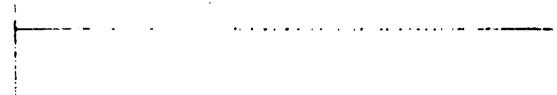
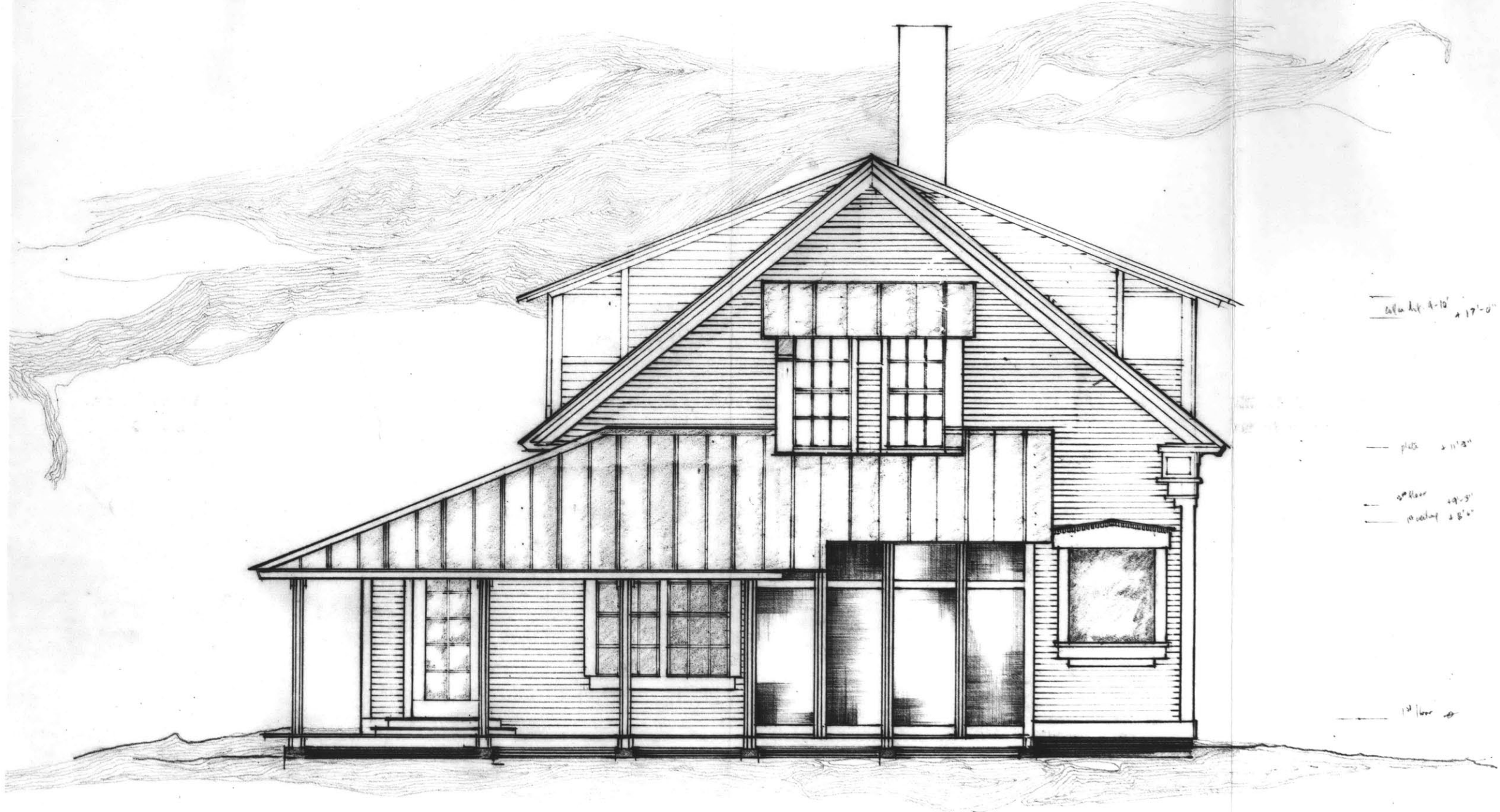


Figure 111. Elevation, south.
Corresponds to Figure 102.



total height 17'-0"

plus 11'-0"

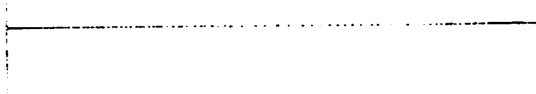
2nd floor 14'-0"

porch 8'-0"

12/1/81



APR 04 1981 MAR 25 1981
 1981 APR 04 1981 MAR 26 1981



REFERENCES

207

Clockwise from bottom right:
Figures 112-118. Aalto.

Figure 112. Plan, Saynatsalo Town Hall. Courtyard plan. See Figures 29, 73.

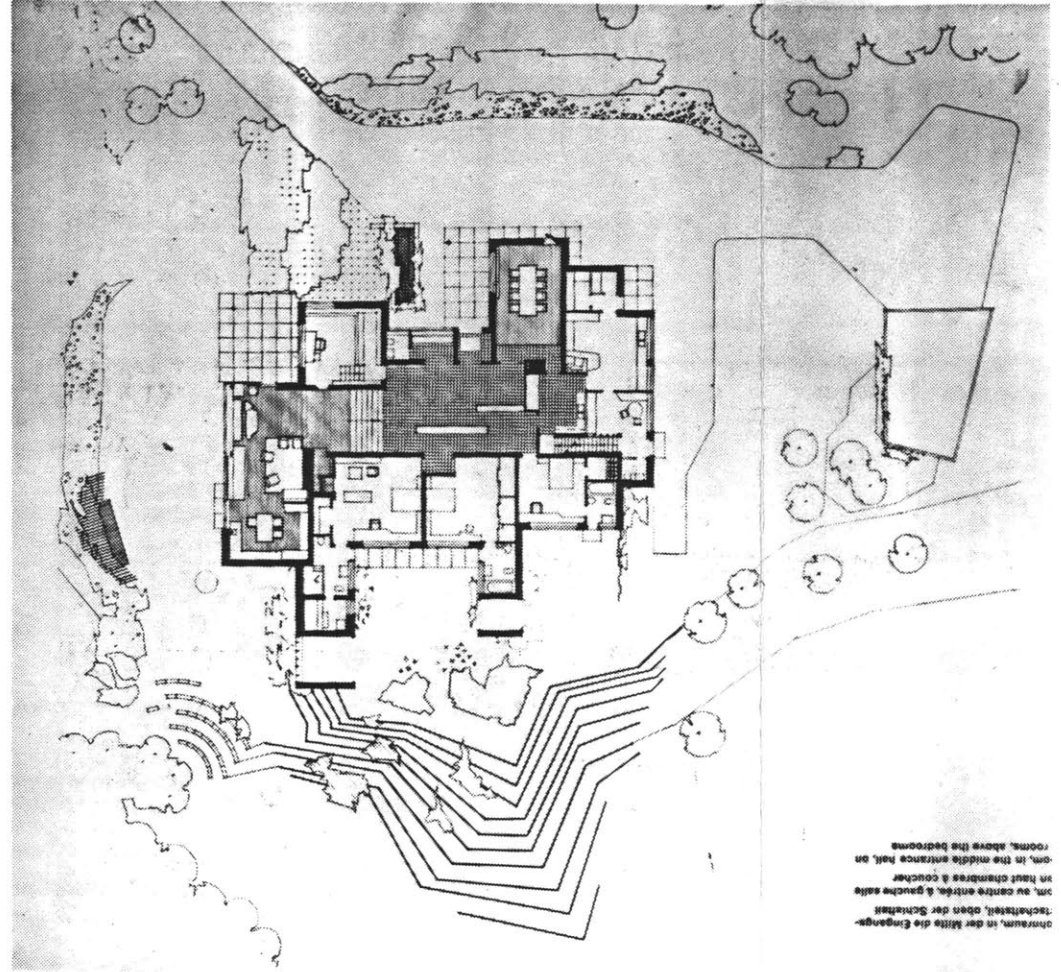
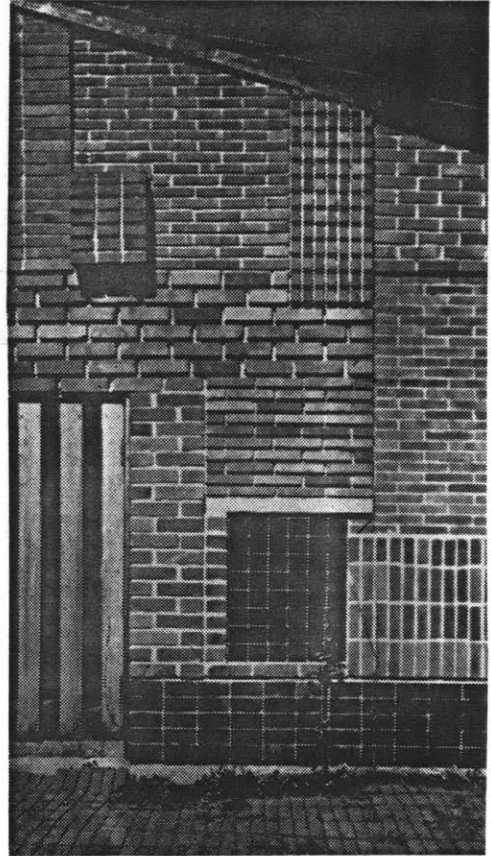
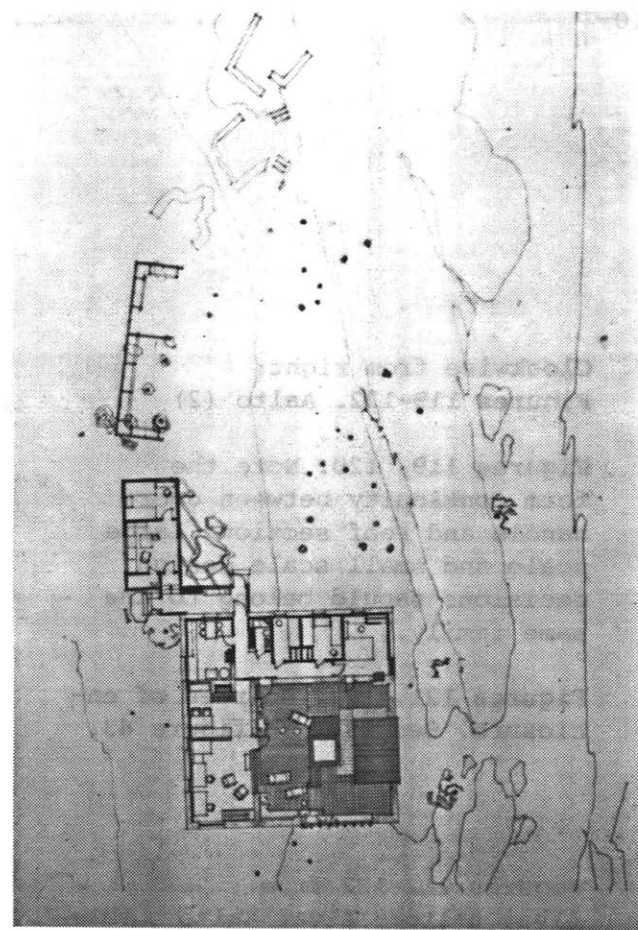
Figure 113. Site plan. Appendage to north becomes smaller, but still provides enclosure. See figure 99.

Figure 114, 115. Plan, elevations, Paataso. Compositional framing of the mid-19th C Town Hall with the new buildings. See Figures 14 et al.

Figure 116. Site plan. Response to landscape, topography. See figures 75, 76.

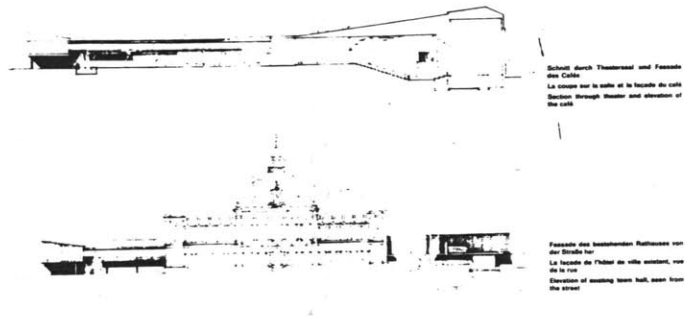
Figure 117. Detail. Collage. See Figures 57, 58.

Figure 118. Plan. Directional fields. See figure 30, 98.



Staircase, above the entrance
rooms, in the middle entrance hall, on
the left entrance to concert
rooms, above the bedrooms

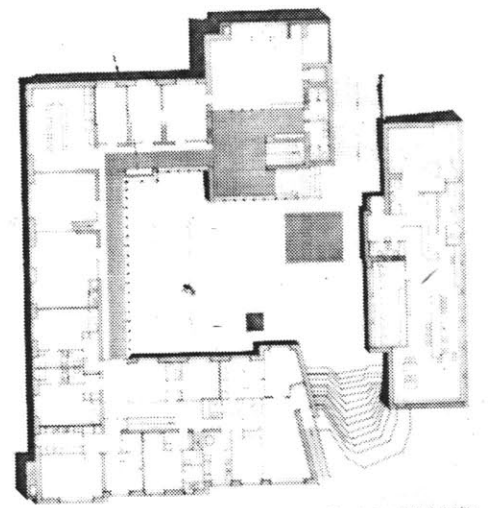
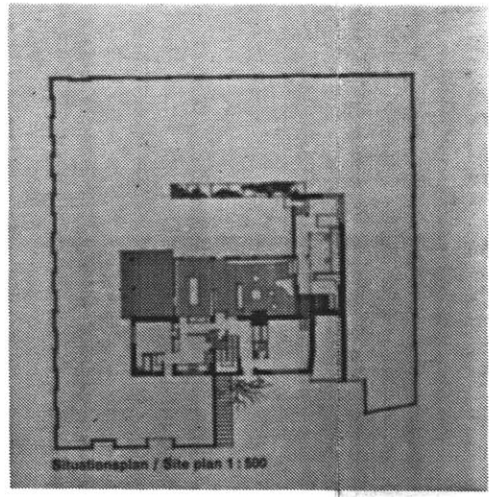
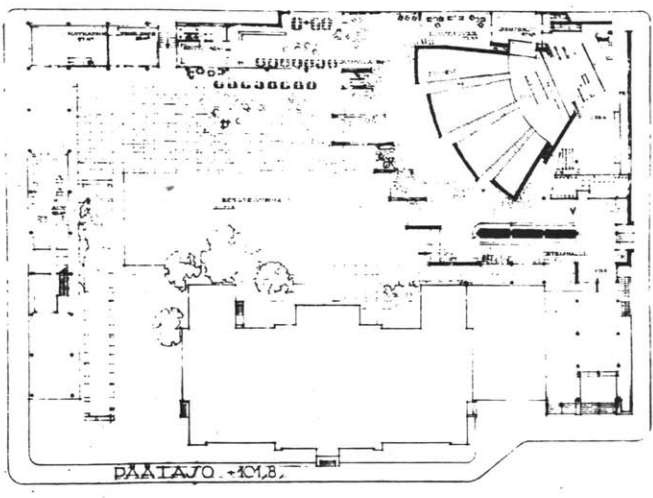
Clockwise from below:
Plan, Saynatsalo.
Site plan, Aalto House in
Helsinki.
Plan; sections of
Theater and Concert Hall
at Kuopio.
Site plan of Aalto summer-
house at Muuratsalo.
Detail of courtyard eleva-
tion showing use of bricks.
Plan Maison Carre.



Theater and Concert Hall in Kuopio
Wettbewerb 1951 Nicht ausgeführt
Kuopio, eine Provinzialstadt Mittelfinlands, besitzt in
ihrem Zentrum der Mitte des 18. Jahrhunderts stammenden
Rathaus eine wertvolle architektonische Tradition. Es war
geplant, das einstöckige Theater- und Konzerthaus um das
Rathaus herum zu errichten, wodurch das architektonische
Vakuum hinter dem Rathaus ausgefüllt würde. Dank dieser
Anordnung hätte sich ein zweiter Rathausplatz gebildet, ein
Kontrapunkt zu dem an der Eingangsfront liegenden
Marktplatz. Der Theater- und Konzertsaal ist in einer
Ecke des abfallenden Geländes so platziert, daß ein
asymmetrisches Amphitheater entsteht, ohne ansteigende
Treppe, wodurch die gesamte innere
Verkehr auf ein Stockwerk zu legen läßt.

Théâtre et salle de concert à Kuopio
Concours 1951 Non réalisé
Kuopio, ville de province de la Finlande centrale,
possède un bel hôtel de ville datant du milieu du
XVIII^e siècle.
Le projet prévoyait un théâtre et une salle de concert
assis face, qui auraient comblés le vide à l'arrière du
bâtiment existant. Par cette disposition, il y aurait eu
une seconde place publique formant le pendant de la
place du marché qui se trouve devant l'hôtel de ville.
L'édifice proposé était placé dans l'angle du terrain
en pente de manière à créer un amphithéâtre asymé-
trique sans escalier, avec une circulation intérieure
sur un seul étage.

Theater and Concert Hall in Kuopio
Competition 1951 Not executed
Kuopio, a provincial city in the central part of Finland,
possesses in its mid-18th-century Town Hall a rich
architectural tradition. It was planned to build a one-
story theater and concert hall around the Town Hall,
so that the architectural vacuum behind the Town
Hall could be filled. With this arrangement a second
Town Hall Square would have been created—as a
counterpoint to the market place on the entrance side.
The theater and concert hall were placed in such a
manner on a corner of the steeply falling site that an
asymmetrical amphitheater resulted, without ascend-
ing staircases, so that the entire internal circulation
was contained on one level.



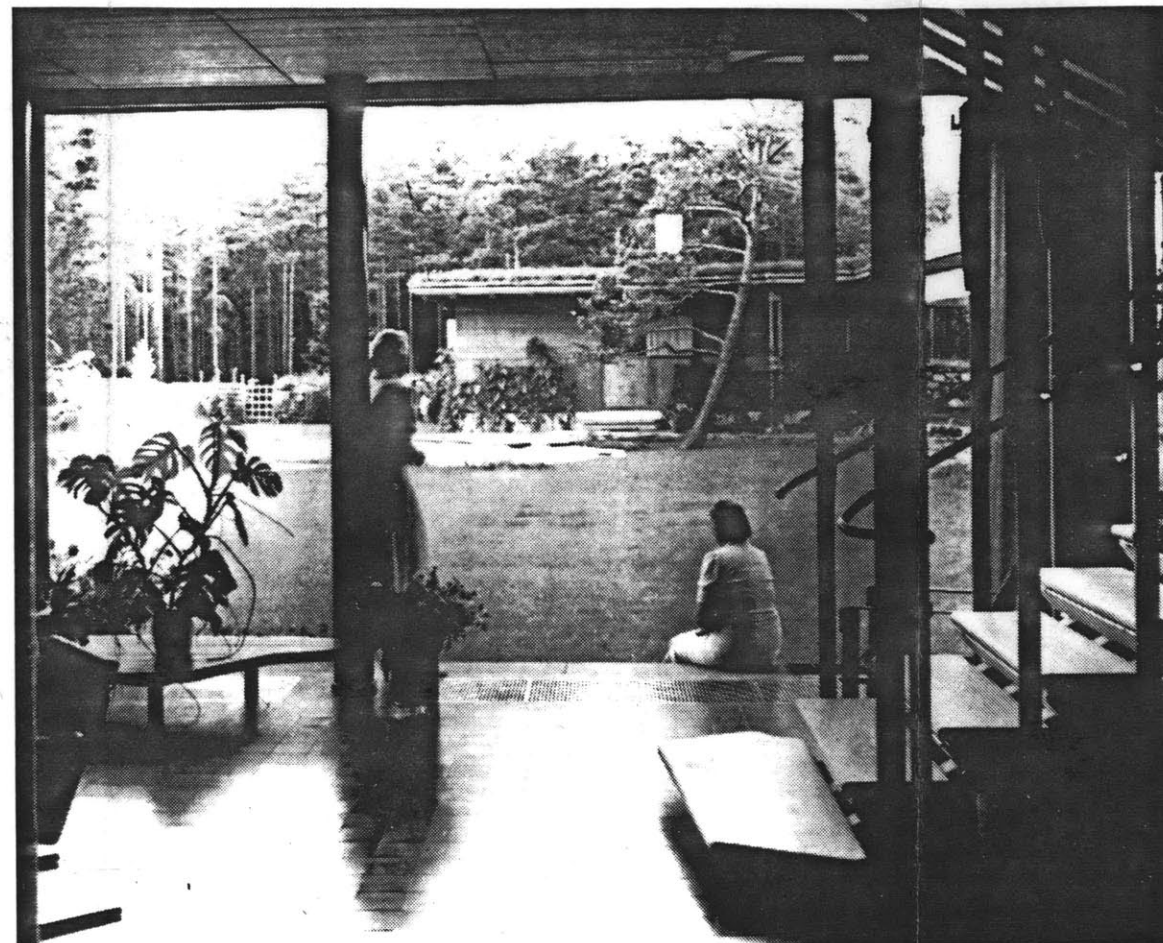
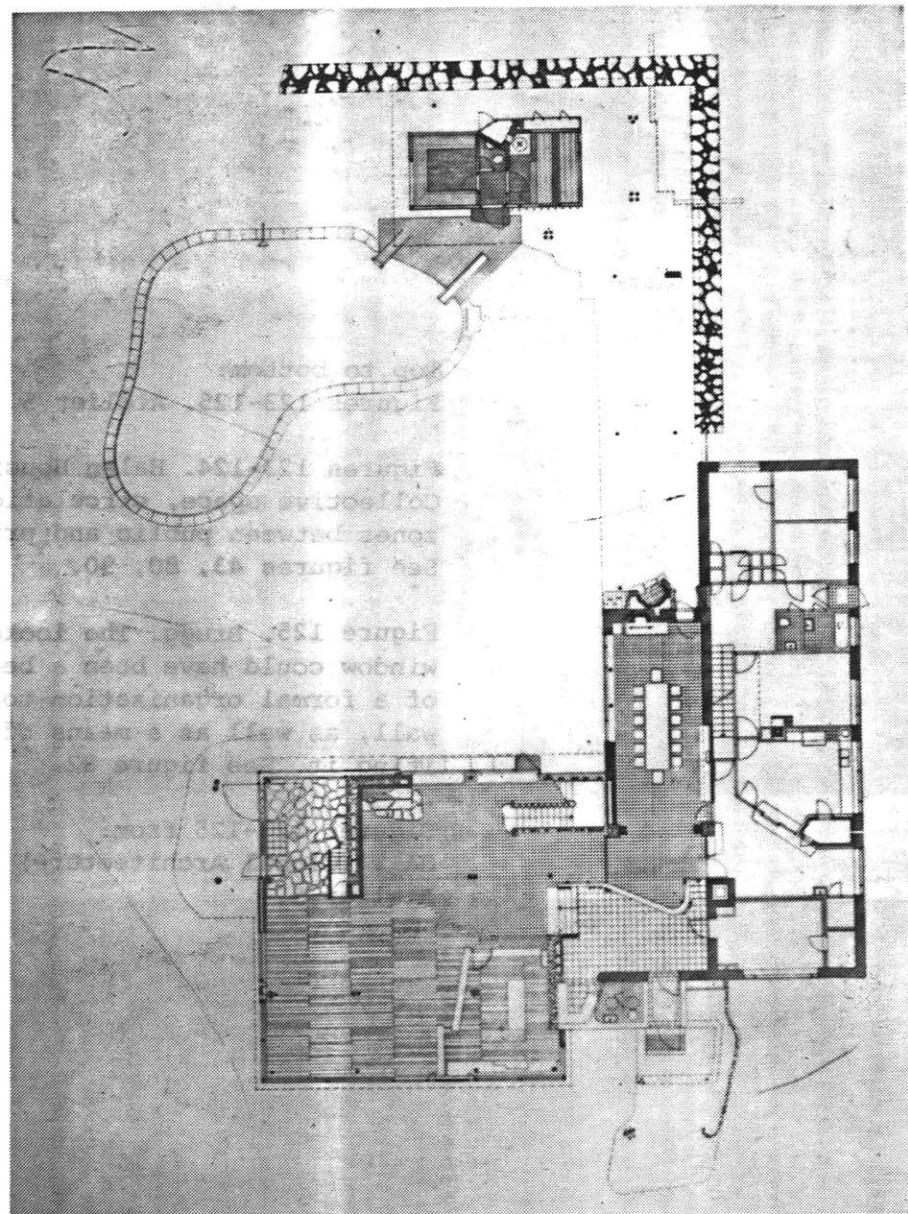
Hauptgesch. oben Eingang zur Gemeindeverwaltung, rechts
Bibliothek, unten Wohnungen 1: 400
Etage principal; en haut entrée des bureaux de l'administration; à
droite, la bibliothèque, en bas, les appartements
Main level, above entrance to the administration department, right
the library, below apartments

Clockwise from right:
Figures 119-122. Aalto (2)

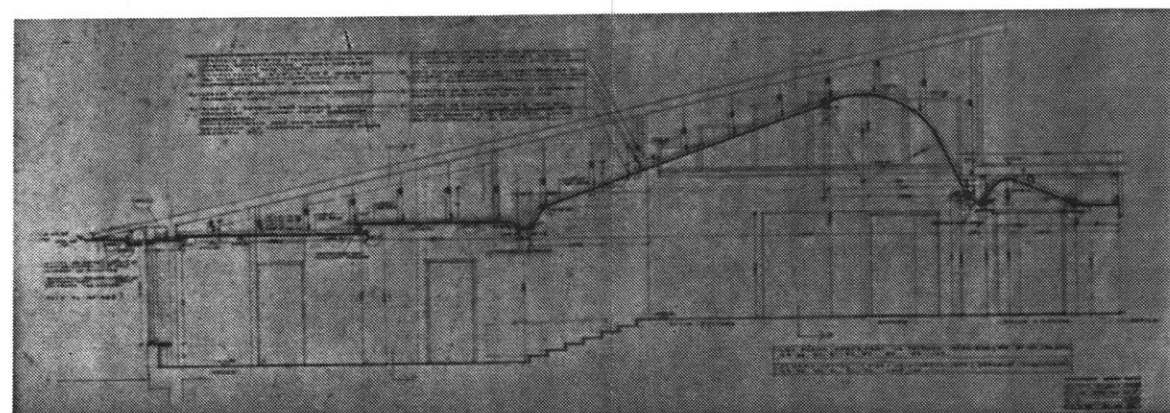
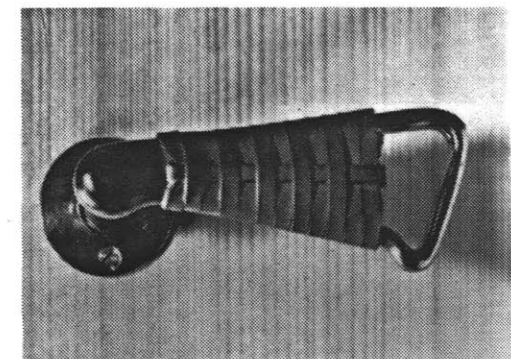
Figures 119, 120. Note the form continuity between door handle and roof section. Large scale and small scale design decisions should belong to the same family.

Figures 121, 122. Degrees of enclosure. See wall in figure 43.

Figures 112-122 from:
Alvar Aalto: Alvar Aalto, Wittenborn and Co., NY, 1963.



Clockwise from below:
 door handle, Maison Carre.
 Roof section, Maison Carre.
 Plan, Villa Mairea.
 View of courtyard, Villa
 Mairea.



Top to bottom:

Figures 123-125. Atelier 5.

Figures 123-124. Halen Housing.
Collective space, circulation
zones between public and private.
See figures 43, 80, 90.

Figure 125. Brugg. The lookout
window could have been a beginning
of a formal organization to the end
wall, as well as a means of inhab-
iting it. See figure 82.

Figures 123-125 from:
GA : (Global Architecture)
Atelier 5.

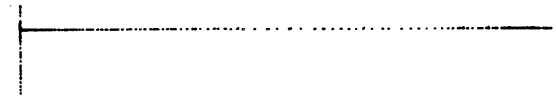


Halen Housing Estate
near Bern, Switzerland.
[left]



Apartment in Brugg,
Switzerland.
[below]





Top to bottom:
Figures 126-127.

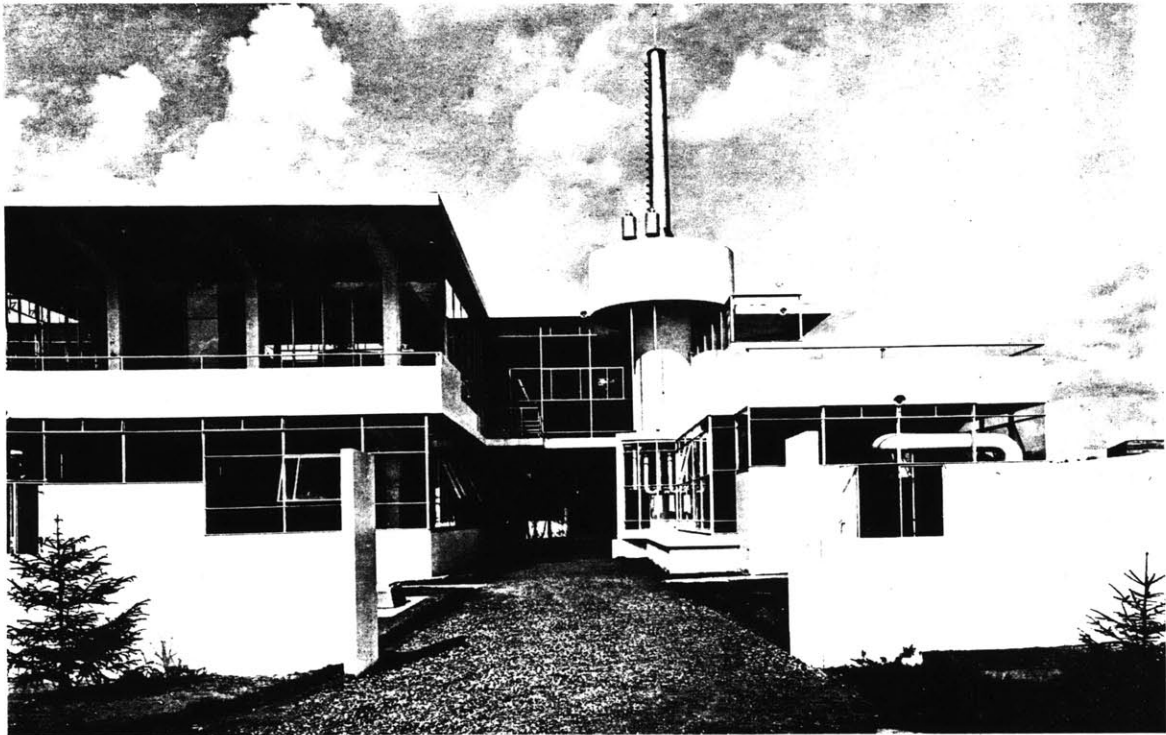
Degrees of intensification of
the corner, as shown by attitudes
on glazing. Also continuity; while
top part of windows stays the same,
the bottom part can change.
See figure 64.

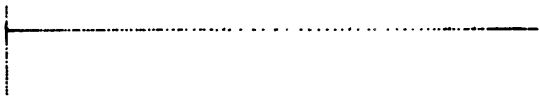
Figures 126-127 from:
E.Jelles, C.Alberts: Duiker 1890-1935,
Reprint of January 1962 Forum.



Nirwana-flats
Den Haag [left]

Zonnestral TB Sanatorium
Hilversum [below]





Figures 128-132. Frank Furness.

Top figure shows farmhouse before transformation, bottom figures after. The continuation of directions extant in the old and the introduction of a new design vocabulary (the gable end peaks, new siding materials, etc.) make the transformation. See figure 82.

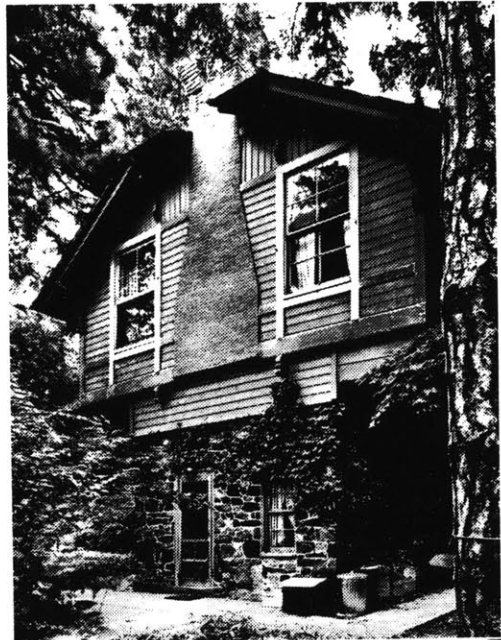
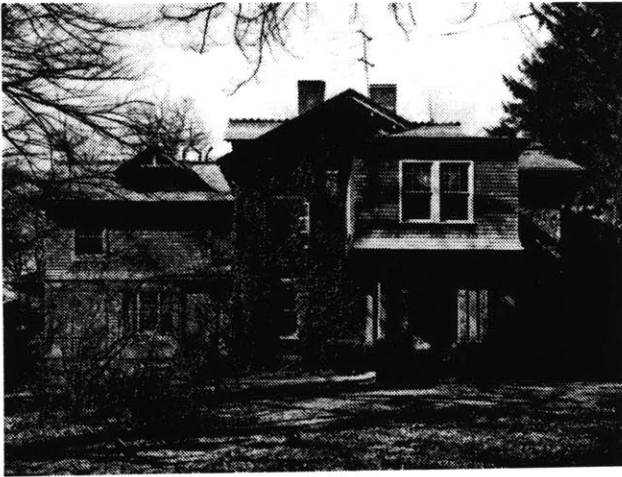
Figures 128-132 from:

O'Gorman, J.: The Architecture of Frank Furness, Philadelphia Museum of Art, Philadelphia, Pa., 1973.



22-2 Exterior of farmhouse from south. Before 1882. Courtesy Mr. and Mrs. Alexander Phillips

Transformation of
Samuel Shipley House
left: before
below: after

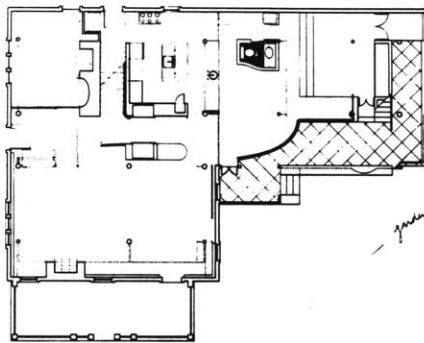


Top to bottom:
Figures 133-136. Michael Graves.

Benacerraf House: The plan introduces an exaggerated version of an existing form, the curved wall, while simply continuing the back wall, making no distinction (in plan) between new and old. The zones of usage between public (garden) and private (inside) in plan seem more transitional than in elevation.

Claghorn House: The original entry has been reorganized (as in fig.90 et al). The lighter, screened addition provides transition. See fig. 102.

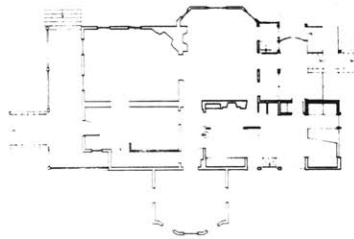
Figures 133-136 from:
National Trust for Historic Preservation: Old and New Architecture, Design Relationship , Preservation Press, Washington, D.C., 1980.



Benacerraf House Addition



Addition (1969, Michael Graves) to the Benacerraf House (1908, W. B. Harris) Princeton, N.J. (Photo Laura McCracken)



Claghorn House Addition

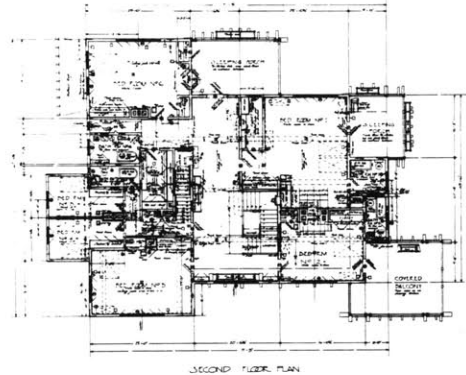
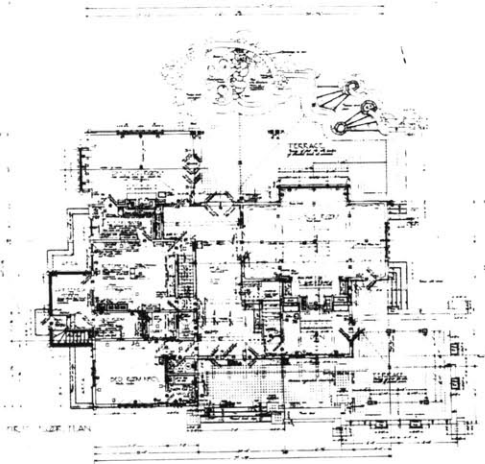


Figures 137-140. Greene & Greene,
Gamble House.

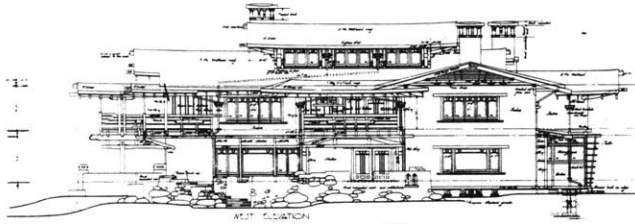
The additive forms and levels
of public/private space are
shown in plan. The variety of
application of the family of
forms is shown in elevation.
Compare with Shingle Style
references.

Figures 137-140 from:

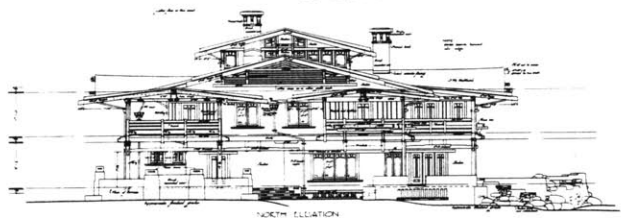
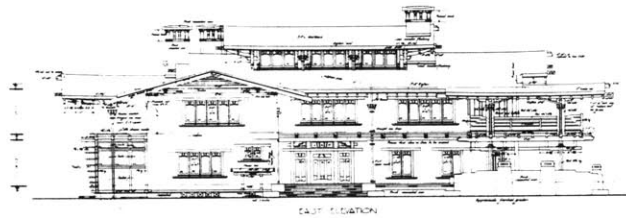
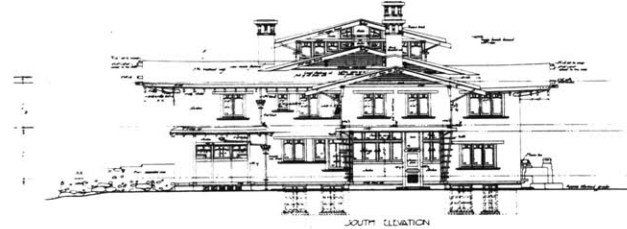
Current & Current: Greene & Greene ,
Morgan & Morgan, NY, 1977.

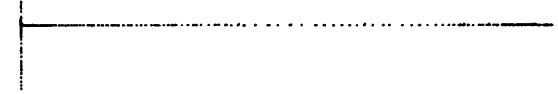


David R. Gamble house.



D.R. Gamble House
Pasadena, Calif.





Figures 141-144. Karl Larsson.

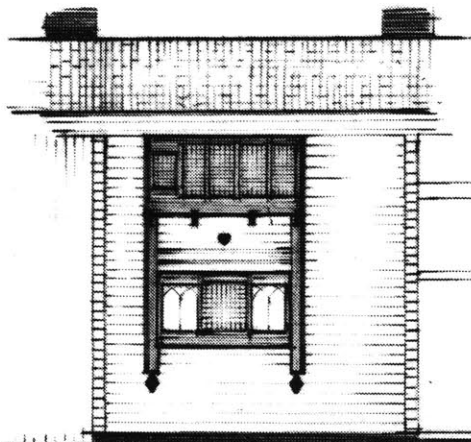
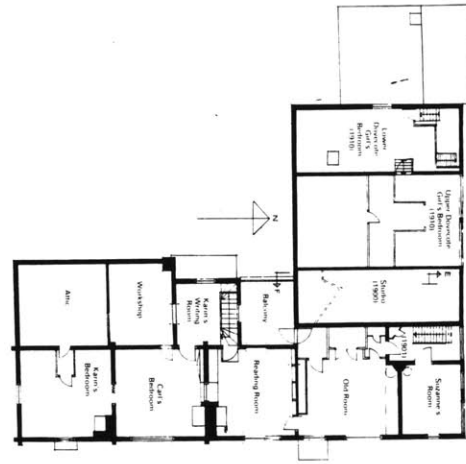
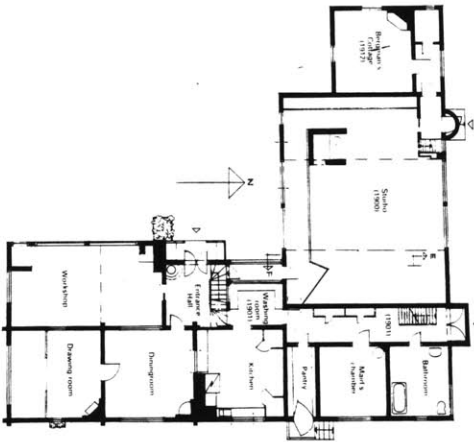
The studio was the first part, the rest was subsequently added /or converted.

The plan shows the strong enclosure necessary in the northern climate, nevertheless articulation on the outside is not neglected, as the elevation shows. The small drawing on the bottom is of the window detail directly above it in the elevation.

See figure 105.

Figures 141-144 from:

Granath, K-L: Carl Larsson's Home ,
Ljunglofs, Stockholm, 1975.



Karl Larsson House
Sundborn, Sweden

Figures 145-147. C.R.MacKintosh.

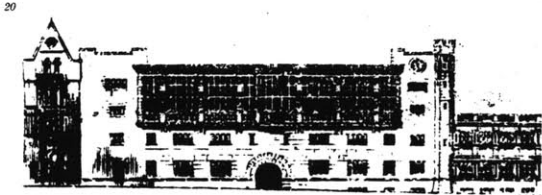
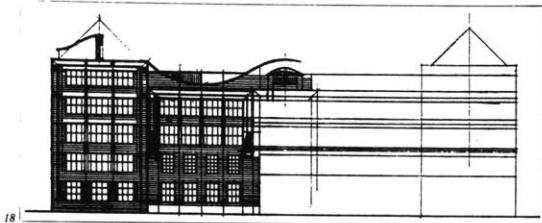
Top figure showing MacKintosh's early elevation study above
a. a studio by Voysey, 1892.
b. Ricardo's competition design for Oxford Town Hall, 1892.
The windows in the Voysey design resemble strongly those in the Glasgow School of Art. The two towered corners and glazed 'in-fill' of Ricardo's Town Hall also resembles the Glasgow School of Art.

The small study of a bay window, done by MacKintosh in 1895, resembling Glasgow.

Drawings (below) of the Glasgow School of Art.

See figures 40-42.

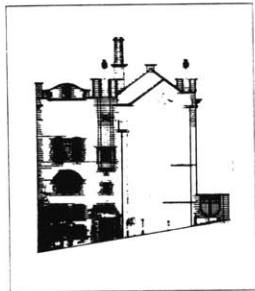
Figures 145-147 from:
David Walker's chapter on
MacKintosh in
Pevsner, Nikolaus: The Anti-Rationalists,
Harper and Row, NY, 1973.



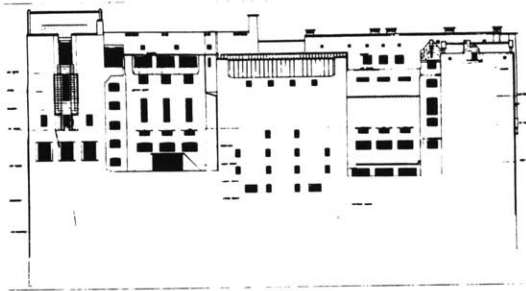
Elevation Studies



25. Study by Mackintosh, published in 1895, of an old house at Lyme Regis, with a bay window resembling that used by him at Glasgow.



21



22



24



23

21. 1897 drawing for Glasgow School of Art, showing a gable on the eastern elevation.

22, 23. Final design for Glasgow School of Art, 1907.

24. Palace Court, London, by J. M. McLaren, 1892, with a balcony window related to that used by Mackintosh in the Glasgow School of Art.

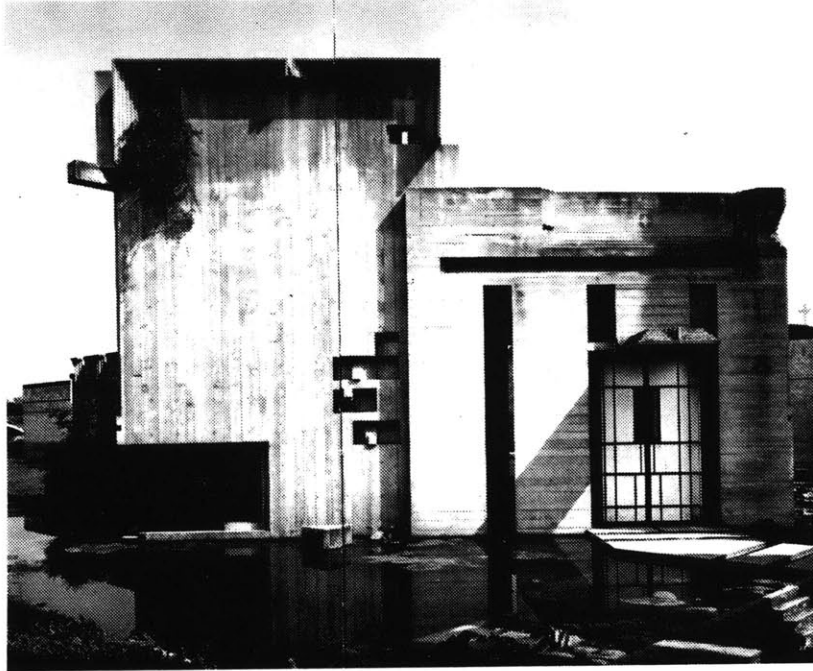
Figures 148,149. Carlo Scarpa.

The levels of containment, continuity, completion, and collage are best shown in Scarpa's Brion-Vega.

The entry (above) shows Scarpa's affinity with MacKintosh, the space (below) with FLW.

See figure 41.

Figures 148-149 from:
GA (Global Architecture) #51
on Carlo Scarpa.



Cemetery
Brion-Vega,
S.Vito,
Treviso,
Italy



Figures 150-155. Maurice Smith.
The Blackman House, Groton, Mass.

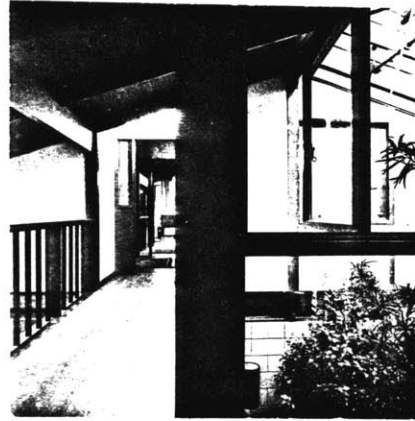
Top left: The corner of the building is experienced from inside, by bringing the room edge back. The transition from inside to outside is more apparent, and softened. See fig. 95.

Top right: Looking down length of upstairs hallway, with entry/ greenhouse to right. The entry is a space between inside and outside, so has qualities of both. See fig. 102.

Middle left: Ground form goes up to give enclosure. See figs. 57,58. Window/corner see fig. 64.

Middle right, lower left: Access along side of building. Perambulatory in association with building. Lower right: Roof plane change in section (as in middle right, lower left). See fig.101, south elevation.

Photographs by the author.



Figures 156-157. Mies van der Rohe.
Figure 158. Greene & Greene.

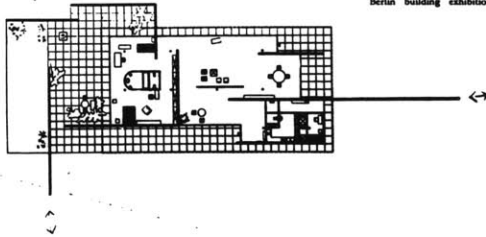
Van der Rohe's directional fields (in plan) give partial containment while remaining orthogonal. Compare with Aalto references (plans). See fig. 43.

Greene & Greene's Pratt Residence places the entry at the spatial junction of the two directions, intensifying the junction. See fig.28.

Figures 156-157 from:
Norberg-Schulz, Christian: Intentions In Architecture , M.I.T. Press, Cambridge, Mass.,1965.

Figure 158 from:
Current & Current. *ibid.*

70. Mies van der Rohe: House on the Berlin building exhibition 1931.



House at Berlin Building
Exposition 1931

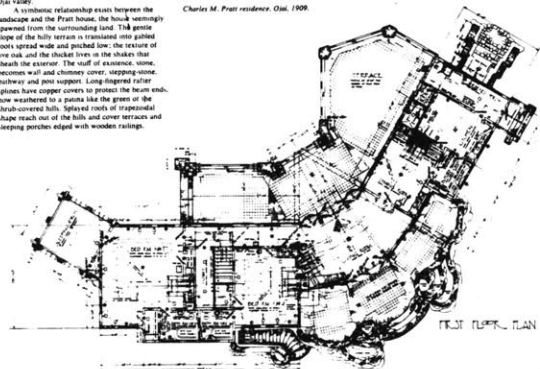


Project for a Brick House

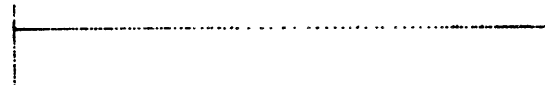
Mr. and Mrs. Charles M. Pratt made their home in New Jersey but, as did many wealthy Easterners, wintered in California. They preferred Ojai, a fertile valley nestled among mountains and situated inland from the coast, similar to Pasadena, and by their realising it as a fashionable resort and exclusive wintering spot Mrs. Pratt commissioned the Greenes to design a winter home to be built on a ridge of land that tumbled into a thickly grown canyon and overlooked a sweeping view of the Ojai valley.

Charles M. Pratt residence, Ojai, 1909.

A symbiotic relationship exists between the landscape and the Pratt house, the house seemingly opened from the surrounding land. The gentle slope of the hilly terrain is translated into gabled roofs spread wide and pitched low; the texture of the oak and the thicker lives in the shades that gleam the exterior. The staff of existence, stone, becomes wall and chimney cover, stepping-stone, pathway and post support. Long-fingered eaves project have copper covers to protect the beam ends, now weathered to a patina like the green of the shrub-covered hills. Splayed roofs of trapezoidal shape reach out of the hills and cover terraces and sleeping porches edged with wooden railings.



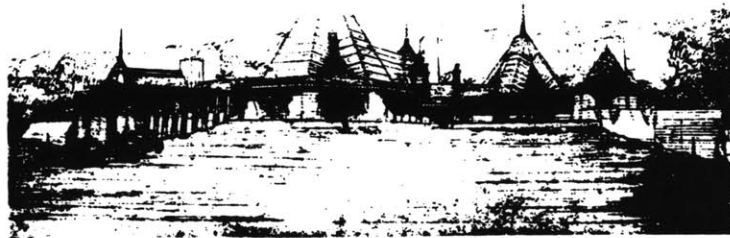
Pratt Residence
[G&G]



Figures 159-163. Frank Lloyd Wright.

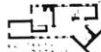
While the Nakoma plan uses the directional change junction as a collector, the Taliesen West plan incorporates the direction change as perambulatory and transition zone.

See figs. 28, 77, 79.



267.

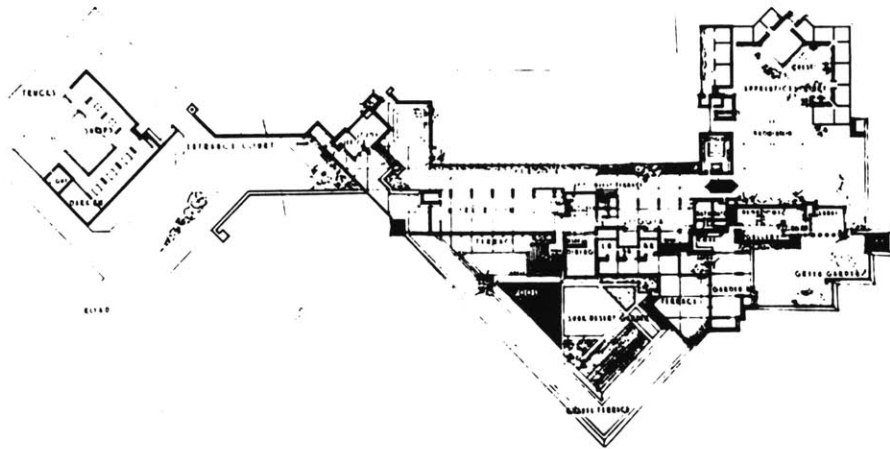
PROJECT: NAKOMA COUNTRY CLUB, MADISON, WIS., 1924.

268.
PLAN.

As the Nakoma Country Club was to occupy the historic Winnebago Indian Camping Ground site, Wright echoed in the form of the main roof, as in some of the Tahoe cabins a few years before, the pitch of a wigwam. It is one of the rare instances of Wright's specific inspiration from an artistic form of the past.



Nakoma Country Club



Taliesin West

Taliesen lll

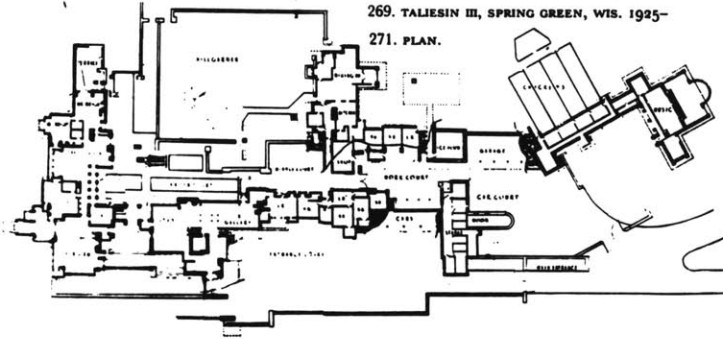
The spatial junction here is special:
a chicken coop.

The variety of spaces within the
additive form is quite unique,
and the generative quality of the
plan, although similar to the Little
House in its expanse, is more complete.

It is possible to see the Little
House as an embryonic version of
Taliesen lll.

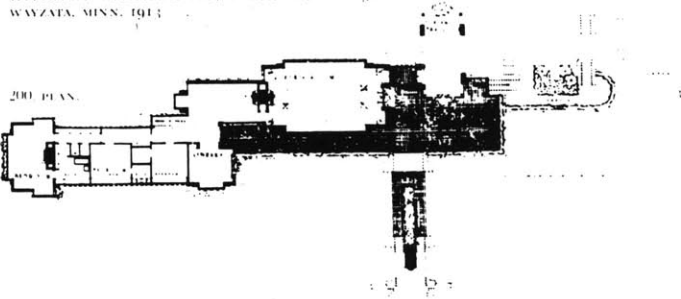
The McCormick House plan shows the
additive quality of Wright's work:
it was a 'holograph' plan, where one
could see roof, floor, ceiling, floor,
ground at once. The privacies are
naturally darker than the more public
zones.

Figures 159-163 from:
Hitchcock, H.R.: In The Nature of Mat-
erials , Da Capo, NY, 1979.

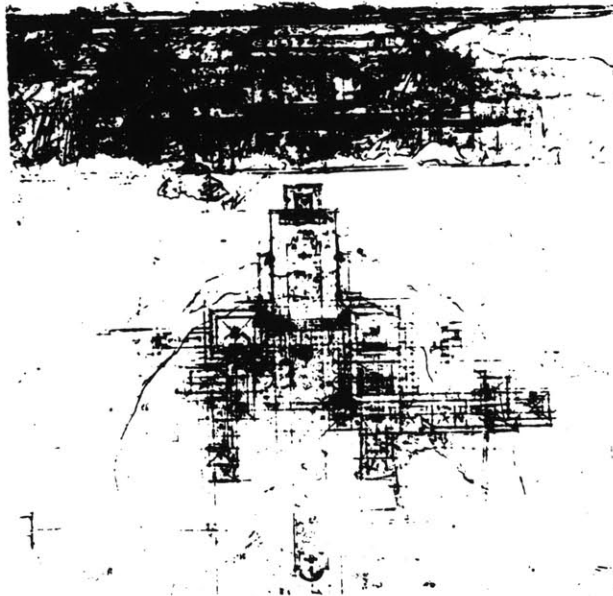


Taliesin III

199. FRANCIS W. LITTLE HOUSE, "NORTHOME," R.E.D.,
WAYZATA, MINN., 1913



F.W.Little House



H. McCormick House

Figures 164-169 'Japanese Residential'.

The perambulatory zone at the rear of the house serves as transition and collector. See fig.102. It is also shown in section.

The difference of public to private is shown in the two views of a Tokyo dwelling.

The additive bay window is shown on lower right. See fig.111.

Figures 164-169 from:

Morse, Edward F.: Japanese Homes and Their Surroundings , Charles Tuttle Co., Rutland, Vt., 1972. This was originally published through the Peabody Museum in Salem, where Morse was the director from 1880-1914.

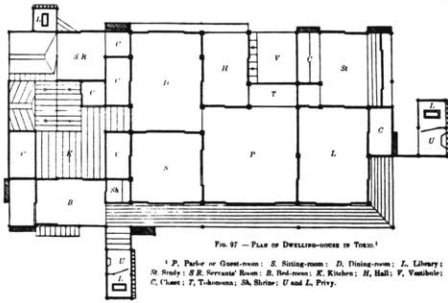


FIG. 36.—STREET VIEW OF DWELLING IN TOKYO.

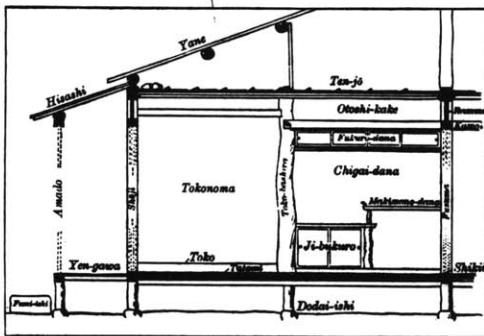
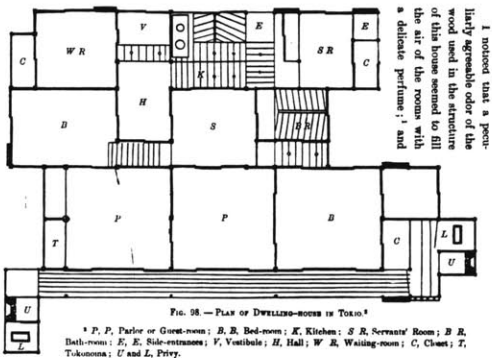


FIG. 37.—VIEW OF DWELLING FROM GARDEN, IN TOKYO.



I noticed that a peculiarly agreeable odor of the wood used in the structure of this house seemed to fill the air of the rooms with a delicate perfume.¹

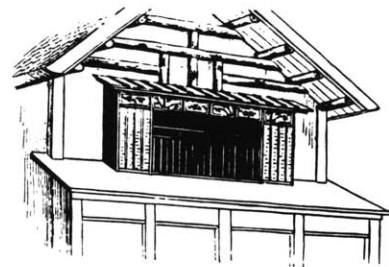


FIG. 42.—BAY-WINDOW, VILLAGE OF ODZUKA, HINUZEN.

Figures 170-173. 'Shingle Style Additive'.

The generative aspects of Shingle Style form making went beyond envelope extensions. Peabody and Stearn's plan of 'Kraggyde' (lower right) shows this. Porches, verandahs, porte-cocheres, bay windows, even turrets, towers and inhabitable chimneys were status quo.

Figures 170-173 from:
Scully, Vincent: The Shingle Style ,
Yale Press, New Haven, 1971.



27 F. H. Van Dusen House, Washington, Connecticut, by Potter and Robertson, 1879-82. (*American Architect*, 1882)



28 William Sturges House, Cheverus, Wyoming, by W. A. Bates, 1881. (*American Architect*, 1881)



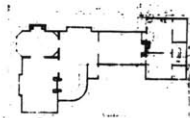
29 West End Hotel, Bar Harbor, Mount Desert, Maine, by Bruce Price, 1878-79. (*American Architect*, 1879)



30 "The Grange," Mount Desert, Maine, by Bruce Price, 1879-86. (*American Architect*, 1879)



31 and 32 M. F. Stoughton House, Cambridge, Massachusetts, by H. H. Richardson, *Rebate & Co.* plan, 1882-83. (Hitchcock, Richardson, *House*, exterior, Sheldon)



33 F. L. Ames Gardner's Cottage, North Easton, Mass., by H. H. Richardson, 1881. (Hitchcock, Richardson)

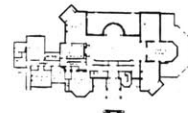
34 (left) H. W. Mansfield House, 66 Mansfield Street, New Haven, Conn., c. 1883. (Norman Ives)

Peabody & Stearns [below]
H.H. Richardson [lower left]
Bruce Price
W.A. Bates
Potter & Robertson [left]

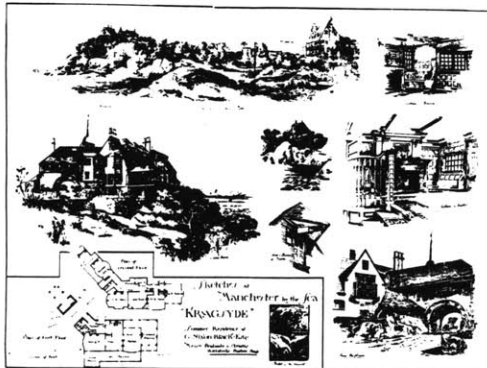
(After V. Scully)



35 House on Brush Hill, by Peabody and Stearns, 1877-78. (*American Architect*, 1878)



36 and 37 Pierre Lottard House, Newport, R.I., by Peabody and Stearns. Plan and entrance front, 1878. (Sheldon)



38, 39, and 40 "Kraggsville" (G.N. Black House), Manchester-by-the-Sea, Mass., by Peabody and Stearns, c. 1883 to 84. Exterior. (Sheldon) Plan. (*American Architect*, 1885) Sketches by Eldon Deane. (*American Architect*, 1885)

Figures 174-177. Miscellaneous
References.

Courtyard organizer plan of
A.M.Brown's East Farm. See
fig. 29.

Screened porch within roof zone
of Louisiana farmhouse.

Perambulatory/ verandah within
roofed zone of Newport Casino
by McKim, Mead, White.

See fig. 109.

The long wall behind the Vale Mansion
(by Samuel MacIntyre) has several
greenhouses attached to it. The wall
is brick, ±10' tall, ±300' long. The
greenhouses were looked at by the
author in connection to the Billerica
project. The greenhouse on the left,
the 'grape house', has the least heat
loss of the three because of the
built zone behind it, which acts as
an insulator. That is the condition
proposed at the N.Billerica site.

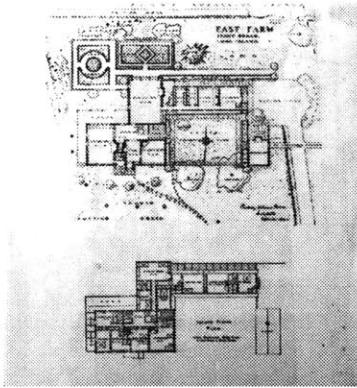
Figure 174 from:

Architectural Record, 1919.

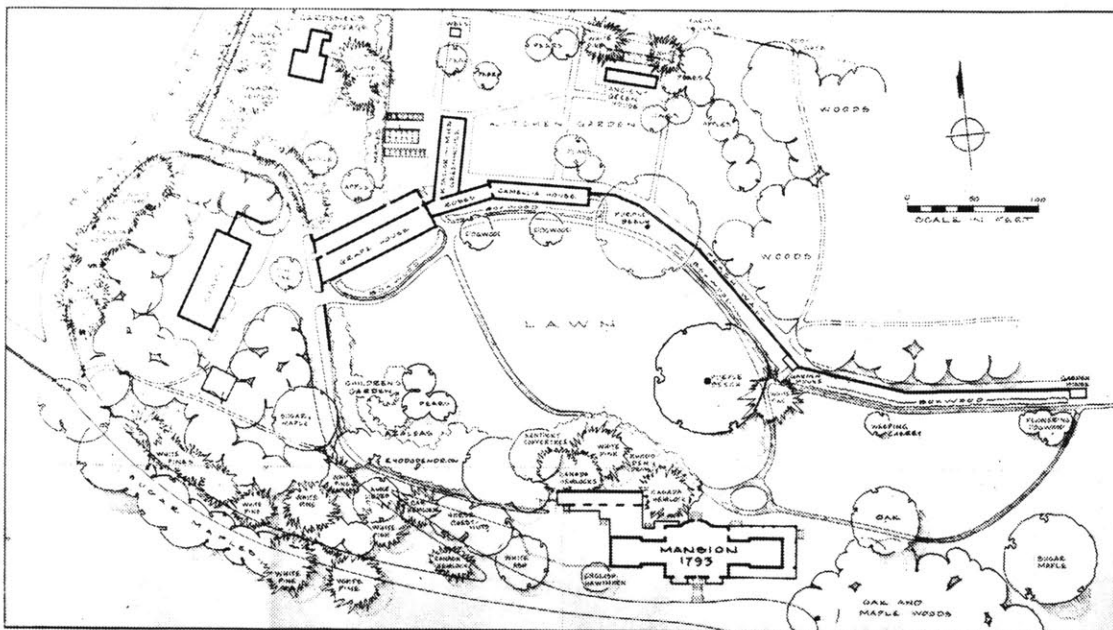
Figure 175 from the author.

Figure 176 from V.Scully, *ibid.*

Figure 177 from The Vale Mansion.



Clockwise from top:
 Plan: 'East Farm', Stoney-
 brook, L.I., by A.M.Brown.
 Louisiana farmhouse, Vinton,
 Louisiana.
 Site plan, The Vale, Waltham,
 Mass.
 Verandah, Newport Casino, by
 McKim, Mead & White.



Figures 178-180. Miscellaneous
References.

Kepes' 'Descending Light' suggests
an organic transition from one
condition to another.

Klee's 'Green-Orange Gradation...'
suggests a similar additive quality
to FLW's 'holograph' plan (fig.163).
The overlapping quality of the line
drawing has an association to layered
tiles, shingles or the like, where
a perpendicular line cannot inter-
cept another directly above it.
See figs. 24-26.

Figure 178 from:

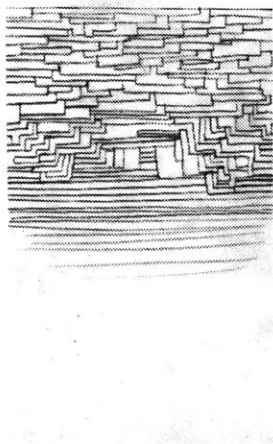
Kepes, Gyorgy: Gyorgy Kepes, The MIT
Years , 1945-1977 , MIT Press, Camb-
ridge, Mass. 1978.

Figure 179 from:

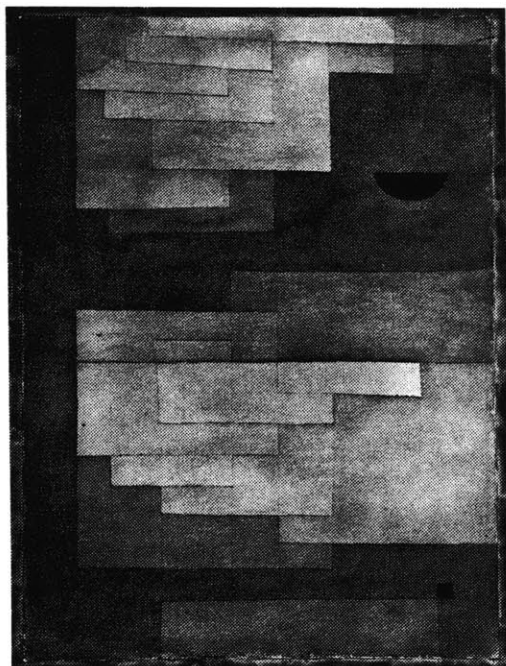
San Lazzaro, Gualtieri: Klee , Praeger,
NY, 1957.

Figure 180 from:

A trace drawing by the author from
the Praeger book above.



Clockwise from below:
'Descending Light' by
Gyorgy Kepes.
'Green-Orange Gradation
with Black Half Moon' by
Paul Klee.
Line drawing after
Paul Klee.



Figures 181-182. Miscellaneous
References.

Palladio's addition to the Basilica in Vicenza was the addition of an extra layer (of 'order' over 'disorder'). See fig. 83.

The additive nature of Piazza San Marco is enriched rather than lessened by the multiplicity of architectural styles. Even 'fundamental' concerns like the alignment of cornice lines (see arrow) do not seem very important.

Figure 181 from:

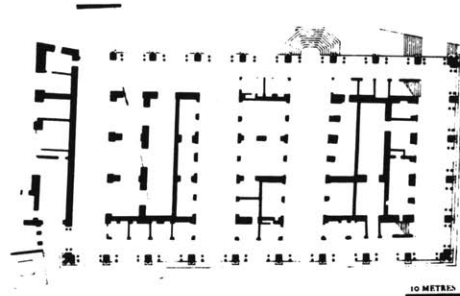
Ackerman, James: Palladio , Pelican Books, Baltimore, 1966.

Figure 182 from:

Old and New Architecture , *ibid.*

Below:
Plan, Basilica, Vicenza,
by Palladio.

Left:
View from Northeast corner
of Piazza San Marco, Venice.

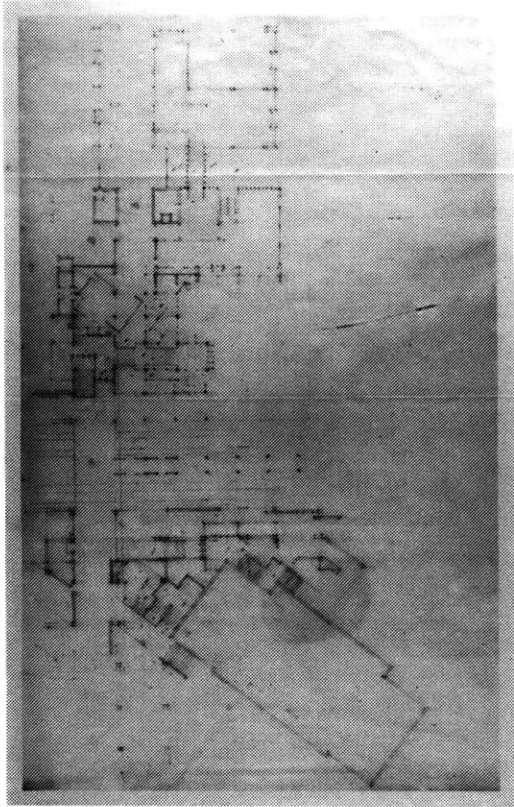


41. Basilica, plan

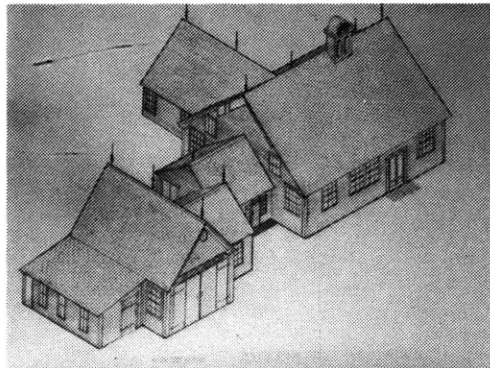
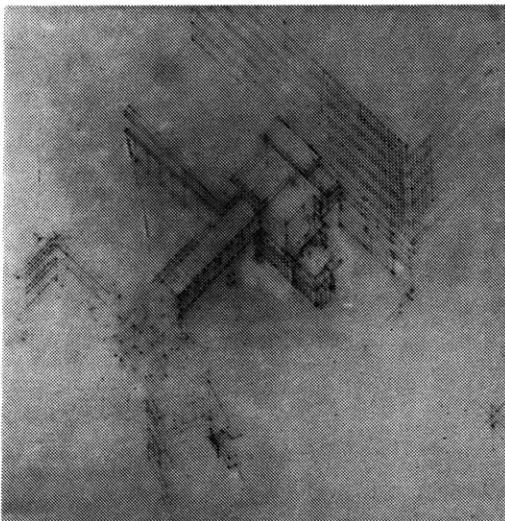
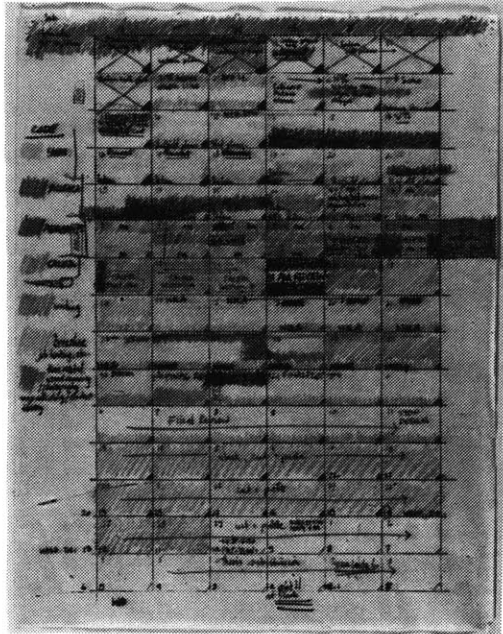
Figures 183-186. Miscellaneous
References.

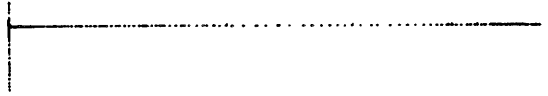
The work schedule is included to show that all four designs were carried on simultaneously; that they progressed together, rather than one being more or less completed before another began. A chronologically organized list of the drawings follows. The Shapiro House, designed and built by the author in 1978, is an earlier example of a concern for the ability of a house to 'contract' or 'expand' depending upon the season. Generative form making is a part of that concern.

Axonometric and plan of previous work done at MIT. A hypothetical extension of Holyoke Center to Harvard Yard and Lehman Hall.



Clockwise from below:
Thesis work schedule.
Axonometric, Shapiro
House, E.Burke, Vt.
Axonometric, Holyoke
Extension.
Plan, Holyoke Extension.
[by the author]

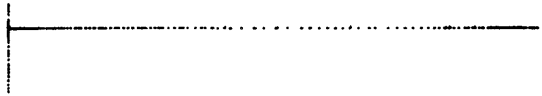




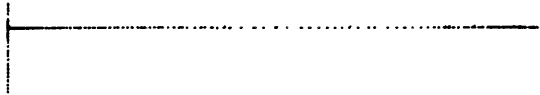
INDEX TO DRAWINGS

12.27.80-			
01.03.81	Sa	Context drawings	1"=4'
01.02-05	Sh	" "	1"=8'
01.15-17	H	" "	1"=8'
01.27-31	Sa	Access diagrams	1"=100'
02.02	Sa	" " , collage	1"=100'
02.08-09	Sh	Plan, collage of rooms	1"=16'
02.08-09	Sh	Plans, #2	1"=16'
02.11+22	H	Elevations, collage, ground form	1"=8'
02.10	Sh	Plan, Elevation #A	1"=8'
02.11	Sh	Plan, Elevation #B	1"=8'
02.13	B	Context drawings	1"=100'
02.15	B	Site plan, sections	1"=100'
02.18-19	S	Access studies, program studies	1"=50'
02.19	S	" " , geometry of street, c.yard	1"=50'
02.19	S	" " " " " "	1"=50'
02.20	H	Roof plan, east elevation	1"=8'
02.20	Sh	Plan, south elevation	1"=16'
02.20	Sh	" " "	1"=16'
02.21	H	East elevation, ground form	1"=8'
02.21	Sh	Plan	1"=16'
02.21	Sa	Access study	1"=50'
02.22	H	East elevation, collage	1"=8'
02.22	H	" " , sketch, ground form	1"=8'
02.22	H	" " " " " #2	1"=8'
02.26	B	Site plan	1"=40'
02.28	B	" "	1"=40'
02.28+03.02B		" , floor plan	1"=16'
03.03	B	Ground, 2nd floor plan, 3 apts.	1"=16'
03.04	Sa	Plan, directional angles	1"=50'
03.05	Sa	Ground floor plan	1"=16'
03.06	B	Site plan, section	1"=40'
03.08	Sa	Ground floor plan	1"=16'
03.09	Sa	Section BB	1"=16'
03.10	H	South elevation, east elevation, roof plan	1"=8'
03.10	Sa	Section AA	1"=16'
03.11	Sa	Elevation, Essex Street	1"=16'
03.13	Sa	Elevation studies, sketches	1"=16'
03.13	Sa	" " "	1"=16'
03.14	Sa	Elevation, Essex Street	1"=16'
03.24-5	Sh	West elevation, amended 4.04	1"=4'
03.24	Sh	Plan	1"=4'
03.27	Sh	Plan #A, south elevation, west elevation	1"=16'
03.27+31	Sh	2nd floor plan	1"=16'

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03.30	Sh	South elevation, axonometric, west elevation roof studies, axon.#2	1"=16'
03.31	Sh	Axonometric	1"=16'
04.04	Sh	South elevation	1"=16'
04.08	Sa	Elevation, entrance to Marine Hall	1"=8'
04.08-10	Sa	" " " " "	1"=8'

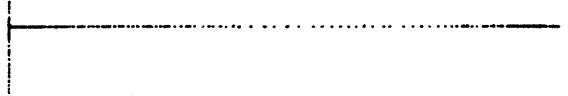


LIST OF WORKS

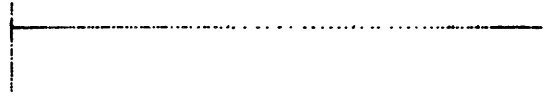
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CONSULTED

Aalto House; Helsinki. Plan.	Aalto, Alvar
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Sumila Rowhouses. landscape.	
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Kuopio Addition. Plan.	
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	Asplund, Gunnar
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Bodegas Guell. Detail.	Berenguer, Antonio
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Faculty of Law; Urbino. Plan.	de Carlo, Giancarlo
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Hospital of S.Pan. Construction. Plan.	Domenech, Luis
Palan de la Musica Catalana. Construction.	
Nirwana-flats. Elevations. Windows.	Duiker, Jan

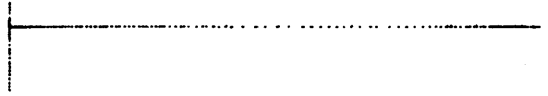


Robert Hoe House; L.I. Plan.	Emerson, William
Samuel Shipley House. Elevations. Winsor House. Roof articulation.	Furness, Frank
Benacerraf House. Plan. Schulman House. Plan.	Graves, Michael
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Richards Medical Center. Contextural fit.	Kahn, Louis
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Ripple Court Addition. Plan. Elevation. Sterling H.S. Extension. Elevation.	MacLaren, J.M.
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Unity Church. Plan. Enclosures.
Talisen II. Plan. Containments. Continuities.

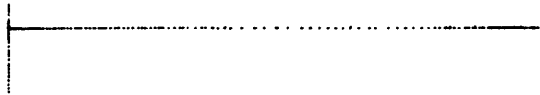
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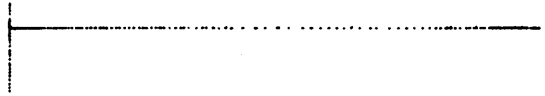
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