

AN ADDITION TO THE FOGG ART MUSEUM,
HARVARD UNIVERSITY

By

Constantine Nicholas Thomas

B.S.A.D. Massachusetts Institute of Technology
1975

Submitted in Partial Fulfillment
of the Requirements for the
Degree of

Master of Architecture

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 1977

Signature of the Author

Department of Architecture
June 8, 1977

Certified by

Irene Halasz / Professor of Architecture
Thesis Supervisor

Accepted by

Professor Wayne Andersen, Chairman
Departmental Committee for Graduate Students

Rotch

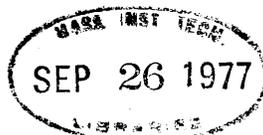


TABLE OF CONTENTS

Title Page	1
Table of Contents	11
Abstract	111
Acknowledgements	iv
Introduction	1
The Building Program and the Problems of Site Selection	2
The Design	5
A. Objectives	5
B. The Existing Building	6
C. The New Building	9
Conclusion	16
Appendix A	18
Appendix B	19
Bibliography	23
Existing Layout of Fogg Art Museum	24
Design	31
Site Map	32
New Building - Site Plan	33
New Building - Plans	34
New Building - Sections	38
Existing Building - Section	41
Existing Building - Plans	42

Abstract

AN ADDITION TO THE FOGG ART MUSEUM, HARVARD UNIVERSITY

Constantine Nicholas Thomas

Submitted to the Department of Architecture on June 8 1977, in partial fulfillment of the requirements for the degree of Master of Architecture

The Program for the Fogg Art Museum (November 1976) calls for an addition to the existing building at 32 Quincy Street, Cambridge, Massachusetts. The need for additional space is shared by all three different functions of the institution, i.e. the Museum, the Department of Fine Arts and the Fine Arts Library.

Based on the aforementioned program, my thesis is a design for an underground addition occupying the site across the street from the existing building on Quincy Street, and a proposal for the reorganization of space in the existing building; a proposed underground passage connects the two buildings. The new addition accommodates the Fine Arts Library, teaching facilities and faculty offices.

The major effort during the design process concerned the physical and organizational linking of the different functions of the Fogg as well as the exploration of the architectural possibilities of an underground building.

Thesis Supervisor: _____

Imre Halasz
Professor of Architecture

ACKNOWLEDGEMENTS

I would like to acknowledge the following people for their contribution and support during my thesis:

Imre Halasz, my advisor, for everything about "Utility, Firmity and Delight";

Wayne Andersen;

Mike Underhill;

Jan Wampler, not only for helpful crits but also for his support during my education at M.I.T.;

Micheline Papadakou Demitri Criezis, and Susan Myers for their help during the final days;

Patti Seidman, Chip Sloan and Jenny Shakespeare, fine roommates and neighbors in thesis rooms 3-442 and 3-444;

Beth Frey, for typing my thesis on Saturday night, instead of Saturday morning or Friday night or Friday morning.

And, of course, the Administration of the Fogg Art Museum, for allowing me to use their program as a basis for my thesis.

INTRODUCTION

The building at 32 Quincy Street, Cambridge, Massachusetts, houses the current functions related to the Fogg Art Museum of Harvard University. These functions are the Museum, the Department of Fine Arts and the Fine Arts Library. The program drafted for the Fogg in November, 1976, is an effort to analyze the existing facilities and functions of the institution and to determine its space needs over a twenty-year period.

Stated in the program is a set of problems related to the physical accommodations currently available to the Fogg; in brief, these problems can be identified as lack of space, overcrowding of the existing facilities, misuse of available space, inadequate security and safety, and others related to climate control within the building. A discussion of specific alternative solutions to these problems is included in the same document.

Having accepted the problem and the goals as given by the institution, in my thesis I have explored a new alternative for the solution to the problem of the Fogg through physical design; at the same time I have tested the feasibility and quality of that new alternative. This exploration concerns a scheme for an underground addition to the Fogg, occupying a site on Quincy Street, directly across from the existing building, and it is intended as a recommendation to the building program previously mentioned.

THE BUILDING PROGRAM AND THE PROBLEM OF SITE SELECTION

The administration of the Fogg Art Museum in conjunction with the Harvard University Planning Office has drafted a detailed program for an addition to the existing building at 32 Quincy Street in Cambridge, Massachusetts. The program meets the Museum's needs for expansion for the next 20 years. Additional space is required for all three of the Fogg's current functions; i.e. the Museum, the Department of Fine Arts, and the Fine Arts Library. A brief summary of the inventory of existing facilities and additional program requirements can be found in Appendix A.

The main concern emphasized in the program is the integration and close interaction of the forementioned three functions. Differing requirements for security and accessibility (i.e. the problem of people moving through the museum during afterhours or the need for a control entrance to the Library) suggest the arrangement of those functions in zones, as is indicated by the program. At the same time, the arrangement of the functional zones must facilitate their close interaction.

The program requires additional space directly related to the Museum (i.e. galleries, curatorial departments, service departments). This additional square footage can occupy exactly the area presently occupied by the existing Library, teaching facilities and faculty offices. Ideally, a new structure should accommodate the latter (i.e. the Fine Arts Library, teaching facilities and faculty offices) and should stand

in close physical proximity to the existing building, while the original structure houses the existing Museum facilities and additional program.

The forementioned document includes a feasibility study of different sites that may become available to the Museum for expansion, and/or buildings which could be converted to new use. Briefly, those options are the following:

- Construction of a new building over the existing underground addition to the Fine Arts Library on the Prescott Street side of the Fogg. This location would allow for a maximum of 60% of the required expansion. Physical proximity to the existing facilities and the fact that the foundation exists for a new building are the major advantages of this option. The overcrowding of the site that would result from the addition of another building, the fact that the new building would work against the organizational principle of the old Fogg, i.e. blocking the view and light from the Prescott Street side, and the fact that this building could not meet the programmatic requirements are the major shortcomings of this option.

- Conversion of the Allston Burr Hall into Library use (book collection) or teaching facilities and faculty offices. Again, this option would partially meet the program.

- Construction of a new building at the Allston Burr site. This would allow for the construction of about 80% of the program. The cost to demolish the existing structure is the major deterrent for this alternative.

· Conversion of the apartment building at 22-24 Prescott Street. This option would only provide about 25% of the program -- faculty offices and seminar rooms.

Directly across from the Fogg on Quincy Street, an area of 44,000 s.f. seems to offer a more viable alternative: the entire programmatic requirements can be accommodated in a site which is adjacent to the Fogg (albeit across Quincy Street). However, this is the court created by three distinguished buildings: Robinson, Emerson, and Sever Halls: the site "belongs" to their architectural territory. This, plus the University's efforts to maintain the balance of un-built and built space in the Yard, seems to prohibit the construction of a new building there.

Considering these issues, the chosen conceptual approach to the problem is that of an underground building. The decision to explore this possibility was based on the following priorities:

To design a building that meets the program requirements for the Fogg's expansion and stands in physical proximity to the existing building.

Not to overload construction on the existing site.

Not to increase the building density in this area of the Yard.

The challenge offered by the architectural problem of an underground building was also a factor that contributed to this decision.

THE DESIGN

A. Objectives

The following objectives were maintained in the design of the new building and the reorganization of the existing one:

To use the existing building with minimal interference.

To handle the existing building in a way that connects the two sides of the site it occupies, or to find ways of connecting Quincy Street and Prescott Street rather than separating them.

To generate clarity of organization between existing and new building.

To create a functional organization and yet have a clear separation of controls.

To reemphasize the architectural congruence of the three buildings on the new site (Sever, Robinson and Emerson Halls) and make the new growth sympathetic and supportive of the existing forms.

Regarding the quality of the design, the intent of the project became the exploration of a design whose character is defined by a well thought-out distribution scheme, a logical arrangement of use spaces and light (particularly top light) as an organizational element.

The proposed underground connection between the old and new building would facilitate the movement of people and objects such as works of art; it became a major determining factor in both the design of the new building and the changes suggested for the existing one, because it con-

nects nodes where many movements and activities converge and depart.

B. The Existing Building

Physical Interventions:

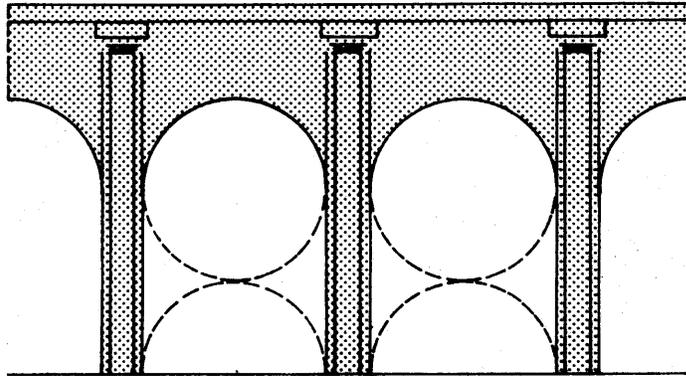
The existing Quincy Street entrance stair leading to the first floor (main floor) of the building at 9' above sidewalk level is removed; an entrance vestibule is introduced at the present basement level (4'-6" below sidewalk level). This rearrangement of the entrance facilitates entry by the wheelchair ramp and brings the entrance closer to the street level and to the level of the underground connection (approximately at the level of the sub-basement of the building). A two-story space creates a visual link between the entrance, sales area and the tunnel.

The existing floor of the court is removed to the new entry level in order to extend the court as a visual link between the various levels of the Museum. It is the essential organizational element of the whole building.

A sensitive formal problem results from the removal of the existing floor of the court, in that it creates a four-story court and disturbs the renaissance proportions that the present formal treatment reflects. (In fact, the court was designed after the facade of the 16th century Monastery of San Biagio in Montepulciano, in Italy.¹) In order to come to terms with the problem, the proportions of the new arches sur-

¹Program for the Fogg Art Museum, Section 2.1

rounding the floor were derived from the renaissance principle that the existing arches of the first floor reflect:

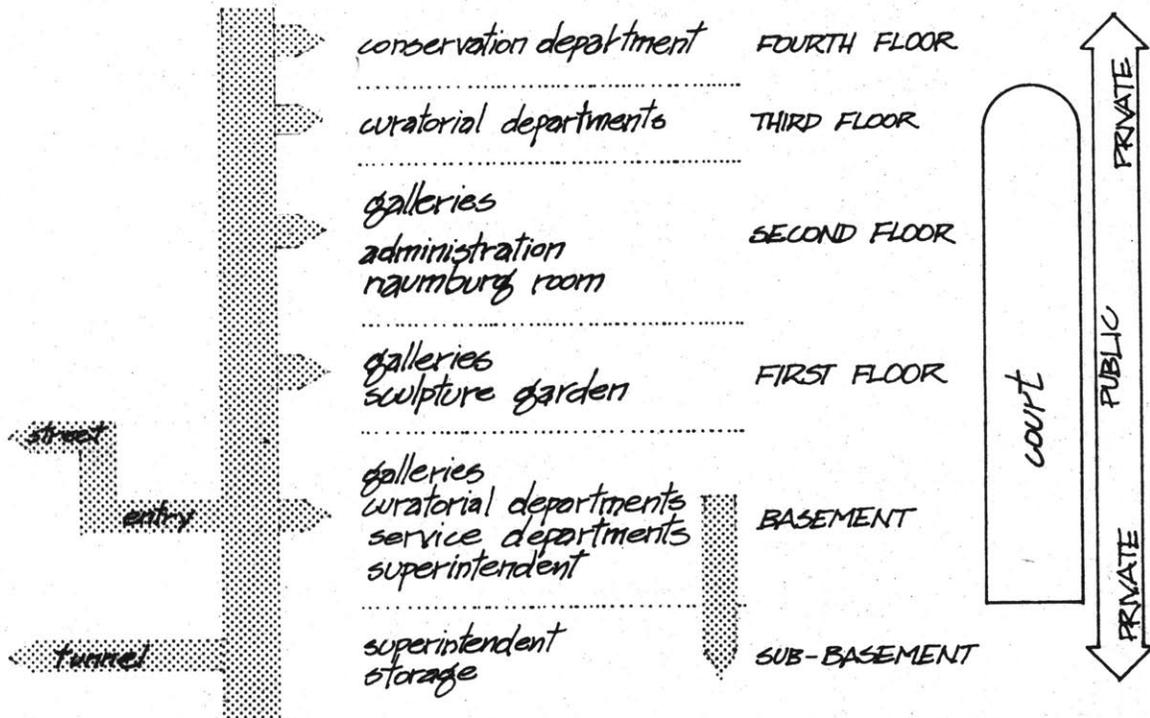


One and a half circles of the same radius can be inscribed in each arch.

On the first floor, the transfer of the Library to the new building offers the opportunity to remove the partition that presently separates the Library offices from the court and thereby open up the view toward the Prescott Street outdoor area of the Fogg; this way the outdoor area can become a sculpture garden. A new door is introduced on the exterior wall to make the outdoor area accessible from the Museum.

Distribution/Functional Zones:

The previously mentioned physical interventions facilitate the rearrangement of the building in public and private zones. The following diagram illustrates the new arrangement:



Spaces accessible to the public, i.e. galleries, exhibition spaces and the sculpture garden occupy the public zone of the building. These spaces are distributed over the basement level, first and second floors. Curatorial Departments occupy the next more remote zones, i.e. the third floor, and the area presently occupied by the Library Visual Collections where skylights introduce natural light and partial views of Prescott Street. The Conservation Department occupies the fourth floor, as dictated by existing installations and definite plans already made by the Museum's administration. The Library stack area in the sub-basement becomes available for the storage of works of art not on permanent display, and also for other service departments.

C. The New Building

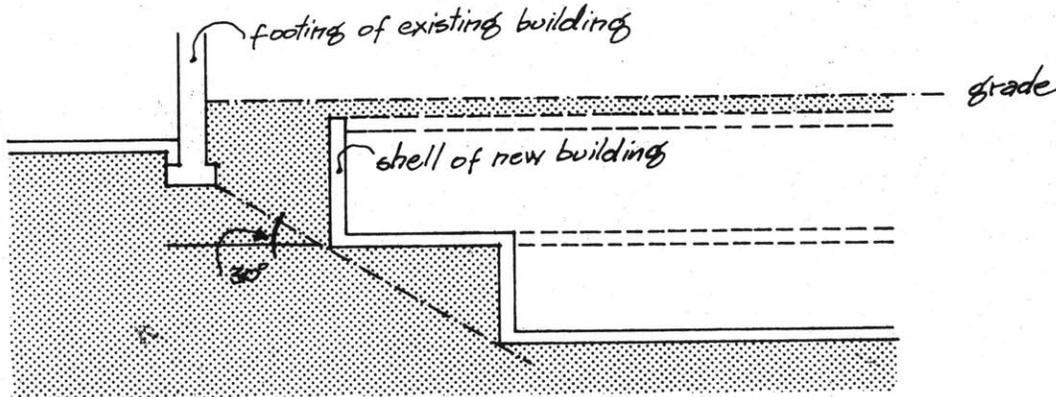
Engineering Feasibility:

The soil conditions of the site and the stability of the surrounding buildings present the main engineering problems of constructing a building there. The available soil data (Appendix B) are the results of boring tests made in the adjacent site of Pusey Library. They indicate that the water table starts at around 10'-5"; water creates a problem of uplift which can be solved by anchoring the building down to the rock, and partially by relying on the weight of the structure. Small bay sizes are recommended in order to provide more points of anchoring and thereby a more uniform distribution of tensile stresses.

Rock starts at about -33'; building below this level entails dangers to the surrounding buildings because of blasting required to remove the rock. An effort was made not to go far below this level (the lowest level of the proposed building is at -35'-6") in order to avoid extensive blasting.

Finally, the stepped section of the "shell" of the building approximates the 30° line from the footings* of the surrounding buildings, required to maintain the distribution of loads, so that cracking would not develop in these buildings:

*The surrounding buildings rest on spread footings.



Images and precedent which contributed to the building's form:

The most powerful image that influenced me at the outset was one from a recent visit to the underground grotto of Melissani at Cephalonia, Greece; in a landscape generously covered by vegetation, a steep tunnel led to the shimmering surface of an underground lake, lit by natural light introduced through an oculus above; the top light was filtered down to an infinitely varied range of hues, thereby giving an enigmatic and at the same time poetic definition of space.

On the other hand, the handling of underground or cave dwellings by vernacular architecture (for example, Santorini, Chinese sub-terranean dwellings) offered a rich vocabulary of forms that seemed to provide an exciting area of exploration. The experience of Roman and Renaissance architecture provided a wide range of clues as to the refinement and proportion of these forms.

Introduction of light:

The organization of the new building is largely determined by the different elements that introduce natural light into it. Those elements reflect a hierarchy of sizes, depending on the level of organization or use for which they are intended.

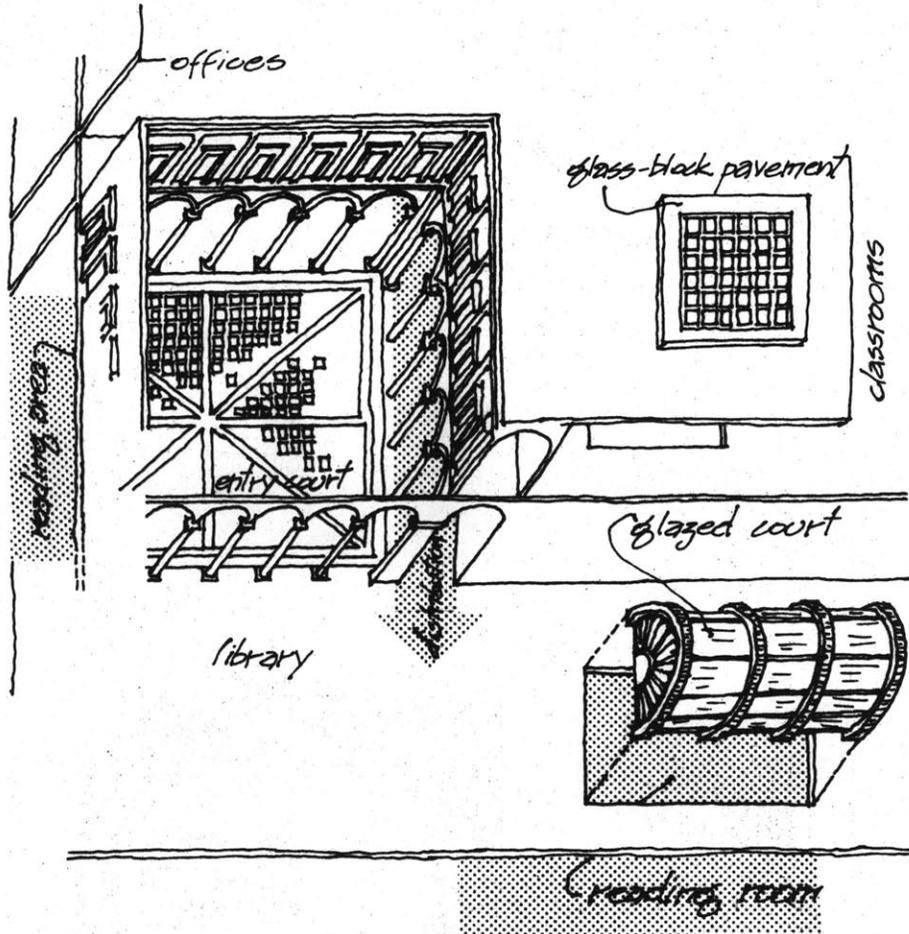
A large open court, which serves as the major access into the building, is the primary reference of the main circulation spine of the building and departmental offices. The court's glass block pavement introduces light to part of the reading area of the Library on the level below (and also serves as a metaphor for a mosaic).

A glazed court lights the larger part of the reading area and organizes the Library.

Another area paved with glass block lights a two-story space that is the focus for a number of classrooms and a mezzanine level; light fixtures on the pavement above introduce light during the evening. This area is the major social node of the building and can be used for lounging, reading, informal encounters between classes, screenings and lectures for large audiences during after hours and gala events.

Finally, a system of skylights over more private work spaces and offices reach out for light and for some, a glimpse of Sever Hall.

The following diagram illustrates the overlapping of use spaces relating to these organizational elements:



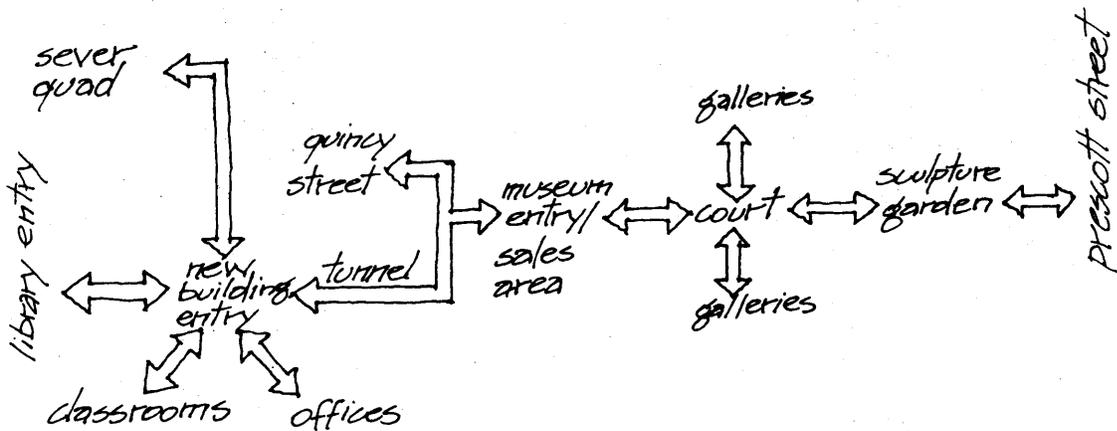
Functional zones, distribution:

The new building accommodates the Fine Arts Library, teaching facilities and faculty offices. The new four-story structure immediately implies a vertical hierarchy of "dark" to "light" spaces; thus, the two lower levels are mostly occupied by the Library bookstacks, storage and mechanical space, while the two upper levels accommodate various work

spaces or more public amenities.

The second level down (connected with the Fogg through the tunnel) becomes the main distribution level, the "piano nobile" of the building, while the top level is related to it as a mezzanine level.

The requirement for a controlled entrance to the Library dictated its location in a more private zone behind the offices and teaching facilities which have less strict accessibility requirements. Thus, the entrance to the Library is the end (or beginning depending on the direction of travel) to the sequence of major three-dimensional nodes within the new building; and consequently the end of the node system of the entire Museum which begins at the outdoor area on the Prescott Street side of the existing building. This system of interconnected nodes is illustrated in the following diagram.



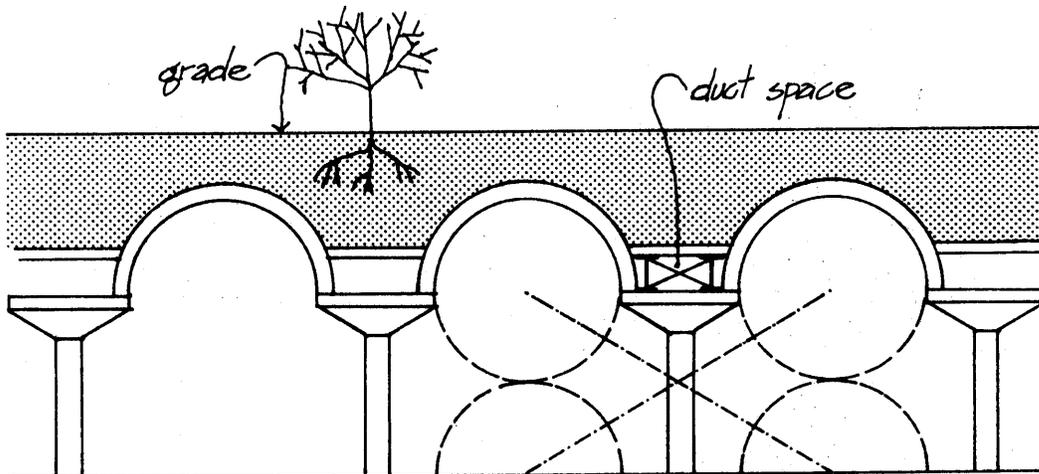
Selection of the vault:

The selection of the vault was based on these considerations:

The distribution of loads makes the vault appropriate for an underground structure carrying earth.

It bears relevance to precedent.

The space between the vaults can be used for planting and mechanical ducts; this, as well as the proportioning system employed, is illustrated in the following diagram:



Relationship to ground:

The priorities set in handling the landscape that the new building generates were:

Not to disturb the scale of the space defined by the three buildings.

To maintain the visual axes between buildings facing each other.

Not to obstruct the views of these buildings.

To provide clear movement patterns through the site.

To provide new planting.

In the new multileveled landscape that the building generates, an effort was made to generate a variety of spaces related to the visual and organizational elements that the site and the buildings provide.

CONCLUSION

An underground structure in the Sever Quad site can accommodate the programmatic requirements for the Fogg's expansion. In the proposed scheme, the total area of the building is 75,000 gross square feet. The Library (including the area covered by the mechanical room) occupies 55,000 g.s.f. of this area. 20,000 g.s.f. are occupied by teaching facilities, offices and major distribution (including the area of the open court).

In addition to the advantage of offering adequate space, this alternative allows the new addition physical proximity to (and organizational continuity with) the existing building. This would be greatly beneficial to the institution, as indicated in the program.

This scheme clearly involves a number of risks and/or disadvantages, such as:

The cost involved in constructing an underground building.

The technical difficulties of dewatering the site and blasting to remove the rock, especially with regard to the stability of the surrounding buildings.

The loss of some remarkable trees that exist on the site.

The risk of a new landscape character generated on the campus.

An underground structure, though, can generate a viable environment for uses such as a library, without increasing the building density in the area. The advantages suggested in this thesis plus the existence

of a workable precedent found in the Pusey Library (the underground addition to the Weidener Library), makes such a solution worth considering in the Fogg's program.

APPENDIX A

Summary of Program Requirements

Space Function	Net Square Feet		
	Existing	Program	Proposed Additional Space
Galleries	14,386	22,291 to 34,726	7,905 to 20,340
Curatorial Departments	6,419	13,330	6,911
Service Departments	15,632	29,118	13,486
Teaching Facilities	5,136	8,158	3,022
Teaching & Support Staff Office	3,174	6,010	2,836
Fine Arts Offices	28,102	49,990	21,888
TOTAL	72,849	128,897 to 141,332	56,048 to 68,483

APPENDIX B

Available Boring Data from the Pusey Library Site

BORING REPORT **C. L. GUILD DRILLING & BORING CO., INC.** BORING REPORT
 BRAintree, MASS.

TO HALEY & ALDRICH, INC. CAMBRIDGE, MASSACHUSETTS
 SITE LOCATION PROPOSED PUBLIC LIBRARY -- HARVARD UNIVERSITY -- CAMBRIDGE, MASSACHUSETTS
 SCALE 1" = 8 FT. REFERENCE DATUM TO BE FURNISHED BY OTHERS

BORING NO. 101

ELEV. 40.5'	0'0"	1-2-3-4
TOPSOIL TRACE FINE GRAVEL	2'0"	3-4-18-20
FINE SAND LITTLE	4'0"	
FINE TO MEDIUM GRAVEL	5'0"	13-17-17-20
LITTLE SILT	7'0"	
FINE SAND SOME FINE TO MEDIUM GRAVEL LITTLE SILT	10'0"	20-20-37-39
	12'0"	
FINE SAND SOME SILT TRACE OF FINE GRAVEL	15'0"	20-30-37-44
	17'0"	
HARD SANDY BLUE	20'0"	13-27-22-17
	22'0"	
CLAY LITTLE FINE TO MEDIUM GRAVEL	25'0"	8-10-16-18
	27'0"	
- TILLISH -	30'0"	9-14-37
	31'6"	77-10**
	32'3"	
DECOMPOSED ROCK		
CORED ROCK RUN NO. 1 RECOVERY 30"	C	
CORED ROCK RUN NO. 2 RECOVERY 56"	C	
CORED ROCK RUN NO. 3 RECOVERY 60"	C	
CORED ROCK RUN NO. 4 RECOVERY 56"	C	
BOTTOM OF BORING 52.5'		
- REQUIRED DEPTH -		

BORING NO. 102

ELEV. 42.6'	0'0"	1-2-2-2
SAND, GRAVEL LOAM & BRICK - FILL -	2'0"	2-2-2-2
SAND, GRAVEL LOAM & CINDER - FILL -	4'0"	
FINE SILTY SAND TRACE OF FINE TO MEDIUM GRAVEL	5'0"	5-9-10-23
	7'0"	
WATER	10'0"	9-26-32-36
10.5'	12'0"	
HARD SANDY YELLOW CLAY TRACE OF FINE TO MEDIUM GRAVEL	15'0"	14-23-31-61
	17'0"	
19.0'	20'0"	5-9-13-18
HARD SANDY BLUE	22'0"	
SILTY CLAY TRACE	25'0"	9-13-25-19
FINE TO MEDIUM GRAVEL	27'0"	
	30'0"	
- TILLISH -	30'6"	21-49-58-46
	32'6"	
	35'0"	15-35
	36'0"	85
36.5'	36'6"	
38.0'	38'0"	100**
38.5'	38'6"	
	38'9"	
	38'15"	
CORED ROCK RUN NO. 1 RECOVERY 60"	C	NOTE 1 - CORED TILL & DECOMPOSED ROCK
CORED ROCK RUN NO. 2 RECOVERY 60"	C	NOTE 2 - TILL & DECOMPOSED ROCK
CORED ROCK RUN NO. 3 RECOVERY 60"	C	NOTE - USED HOLLOW STEM AUGERS & AW RODS & NW CASING.
CORED ROCK RUN NO. 4 RECOVERY 60"	C	**DENOTES USE OF 300LB. WEIGHT WITH O.E.R.
BOTTOM OF BORING 58.5'		
- REQUIRED DEPTH -		

NOTE - HOLE CAVED AT 17.5' & DRY.
 AW - HOLLOW STEM AUGERS & AW RODS & NW CASING
 I - 2 THRU 4 - 72


PRELIMINARY

INDICATES MUD LOST IN THIS LAYER OF SOIL. FOOTAGE OF BORING THIS SHEET EARTH - 69.5' -- CORED - 41.5'
 WATER READING INDICATES SURFACE OF WATER AT COMPLETION OF BORING UNLESS NOTED OTHERWISE. FIGURES IN LOG COLUMN INDICATE NUMBER OF BLOWS TO DRIVE. 2" SPLIT SAMPLER 6 INCHES WITH 140 LB. WEIGHT FALLING 30 INCHES UNLESS OTHERWISE SPECIFIED.
 SHEET 2 OF 6 FOREMAN CH & TRAFFIC CLASSIFICATION BY CH, TP, PC & HVU JOB NO. 13096

BORING REPORT **C. L. GUILD DRILLING & BORING CO., INC.** BORING REPORT
 BRAintree, MASS.

TO **HALEY & ALDRICH, INC.** CAMBRIDGE, MASSACHUSETTS
 SITE LOCATION **PROPOSED PUSEY LIBRARY - HARVARD UNIVERSITY - CAMBRIDGE, MASSACHUSETTS**
 SCALE 1" = 8 FT. REFERENCE DATUM TO BE FURNISHED BY OTHERS

BORING NO. **105** BORING NO. _____ BORING NO. **105-CONT'D-** BORING NO. _____

0.0'	ELEV. 44.5'		
0.5'	SLACK TOP	016	12 - 14
	SAND & GRAVEL	116	
	- FILL -		
1.0'	FINE TO MEDIUM SAND LITTLE FINE TO COARSE GRAVEL	510	11 - 17 - 18 - 22
	LITTLE SILT - DISCOLORED -	710	
1.5'	FINE TO MEDIUM SAND SOME SILT LITTLE FINE GRAVEL	1010	19 - 31 - 57 - 63
	LITTLE CLAY	1210	
2.0'		1510	15 - 27 - 42 - 42
	HARD SANDY BLU CLAY TRACE OF FINE GRAVEL - TILLISH -	1710	
		2010	17 - 24 - 41 - 44
		2210	
2.5'	FINE TO MEDIUM SAND SOME FINE TO MEDIUM GRAVEL SOME SILT LITTLE CLAY - TILLISH -	2310	19 - 23 - 29 - 33
		2510	
3.0'	FINE SAND SOME CLAY	3010	37 - 42 - 92*
	RECOMPOSED ROCK	3116	
3.5'	CORED ROCK RUN NO. 1 RECOVERY 60"		C
4.0'	CORED ROCK RUN 2 REC. 27"		C

40.5'	CORED ROCK RUN NO. 3 RECOVERY 48"	C
44.5'	CORED ROCK RUN NO. 4 RECOVERY 60"	C
49.5'	CORED ROCK RUN NO. 5 RECOVERY 60"	C
54.5'	CORED ROCK RUN NO. 6 RECOVERY 60"	C
59.5'	CORED ROCK RUN NO. 7 RECOVERY 60"	C
64.5'	BOTTOM OF BORING 64.5'	
	- REQUIRED DEPTH -	

NOTE - USED HOLLOW STEM AUGERS & AW RODS & NW CASING.
 *DENOTES USE OF 300LB. WEIGHT WITH SPOON.

PRELIMINARY

1 - 6 THRU 12 - 72

INDICATES MUD LOST IN THIS LAYER OF SOIL FOOTAGE OF BORING THIS SHEET **EARTH - 32.5' - CORED - 32.0'**
 WATER READING INDICATES SURFACE OF WATER AT COMPLETION OF BORING UNLESS NOTED OTHERWISE. FIGURES IN LOG COLUMN INDICATE NUMBER OF BLOWS TO DRIVE **2" SPLIT SAMPLER 6** INCHES WITH **140** LB. WEIGHT FALLING **30** INCHES UNLESS OTHERWISE SPECIFIED.
 BY **5** OF **6** FOREMAN **TP & FC** CLASSIFICATION BY **TP, FC & RVB** JOB NO. **13096**

BORING REPORT **C. L. GUILD DRILLING & BORING CO., INC.** BORING REPORT

BRAINTREE, MASS.

TO HALEY & ALDRICH, INC. CAMBRIDGE, MASSACHUSETTS
 SITE LOCATION PROPOSED PUSEY LIBRARY - HARVARD UNIVERSITY - CAMBRIDGE, MASSACHUSETTS
 SCALE 1" = 8 FT. REFERENCE DATUM TO BE FURNISHED BY OTHERS

BORING NO. 106 BORING NO. _____ BORING NO. 106 - CONT'D - BORING NO. _____

ELEV. 52.5'	0'0"	2 - 1 - 2
SANDY TOPSOIL	1'6"	2
SEE NOTE 1	2'0"	
	5'0"	12 - 26 - 27 - 28
FINE TO MEDIUM	7'0"	
SAND SOME	10'0"	13 - 31 - 50
FINE TO MEDIUM	11'6"	
GRAVEL	15'0"	23 - 26 - 50
LITTLE SILT	16'6"	
LITTLE CLAY	20'0"	16 - 24 - 35 - 46
	23'0"	
HARD SANDY YELLOW CLAY & LITTLE FINE TO COARSE GRAVEL	25'0"	5 - 9 - 18 - 29
- TILLISH -	22'0"	
- TILL -	30'0"	34 - 47 - 69
INTERMIXED WITH	31'6"	
DISCOMPOSED ROCK	32'6"	9 - 70**
	33'6"	
CORED ROCK RUN NO. 1 RECOVERY 60"		
CORED ROCK RUN NO. 2 RECOVERY 42"		
CORED ROCK RUN NO. 3 RECOVERY 48"		
CORED ROCK RUN NO. 4 RECOVERY 50"		

50.5'	CORED ROCK RUN NO. 5 RECOVERY 55"	C
55.5'	CORED ROCK RUN NO. 6 RECOVERY 55"	C
60.5'	CORED ROCK RUN NO. 7 RECOVERY 60"	C
65.5'	BOTTOM OF BORING 65.5'	
	- REQUIRED DEPTH -	

NOTE - 1 - FINE SAND SOME SILT
 SOME CLAY LITTLE FINE TO
 MEDIUM GRAVEL.

NOTE - USED HOLLOW STEM AUGERS &
 AW RODS & NW CASING.

**DENOTES USE OF 300LB. WEIGHT WITH O.E.,R.

NOTE - INSTALLED WELL POINT TO A DEPTH OF
 32.5', USED ONE 1-1/4" x 2' POINT & 31.0'
 OF 1-1/4" PIPE.

PRELIMINARY

1 - 10 THRU 13 - 72

*INDICATES MUD LOST IN THIS LAYER OF SOIL FOOTAGE OF BORING THIS SHEET EARTH - 33.5' - CORED 32.0'
 WATER READING INDICATES SURFACE OF WATER AT COMPLETION OF BORING UNLESS NOTED OTHERWISE. FIGURES IN LOG COLUMN INDICATE
 NUMBER OF BLOWS TO DRIVE 2" SPLIT SAMPLER, 6 INCHES WITH 140 LB. WEIGHT FALLING 30 INCHES UNLESS OTHERWISE SPECIFIED.
 SHEET 6 OF 6 FOREMAN TP & EC CLASSIFICATION BY TP, EC & RVH JOB NO. 13095

BIBLIOGRAPHY

Brawne, Michael. The New Museum. New York: Praeger, 1965.

Kahn, Louis I. Light is the Theme.

Lurcat, Andre. Formes, Composition et Lois d' Harmonie, Vol 5. Paris: Vincent, Freal & Cie, 1957.

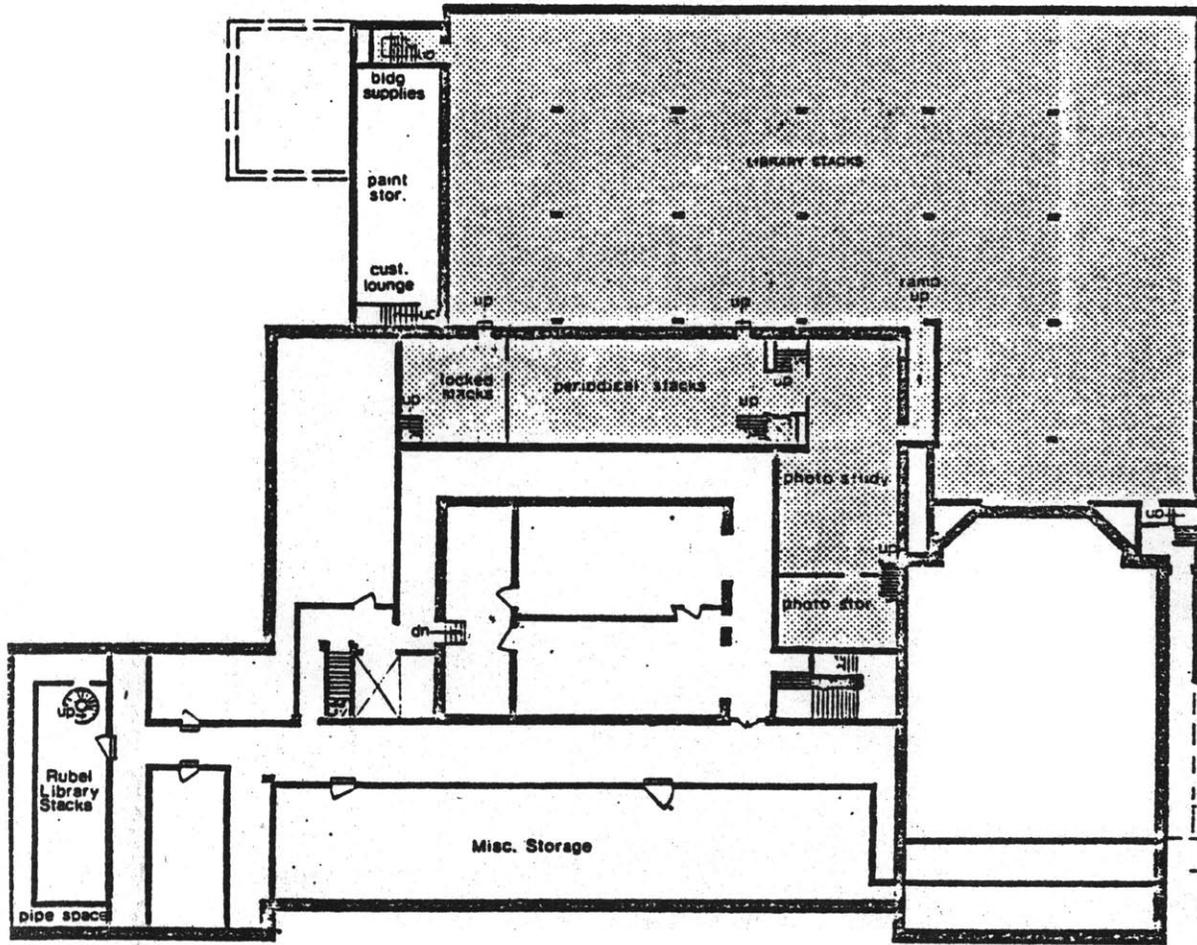
McGrath, Raymond and A.C. Frost. Glass in Architecture and Decoration. London: The Architectural Press, 1961.

Program for the Fogg Art Museum. November, 1976.

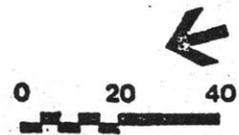
Scully Jr., Vincent. Louis Kahn. New York: George Brazillier, Inc., 1962.

EXISTING LAYOUT OF FOGG ART MUSEUM

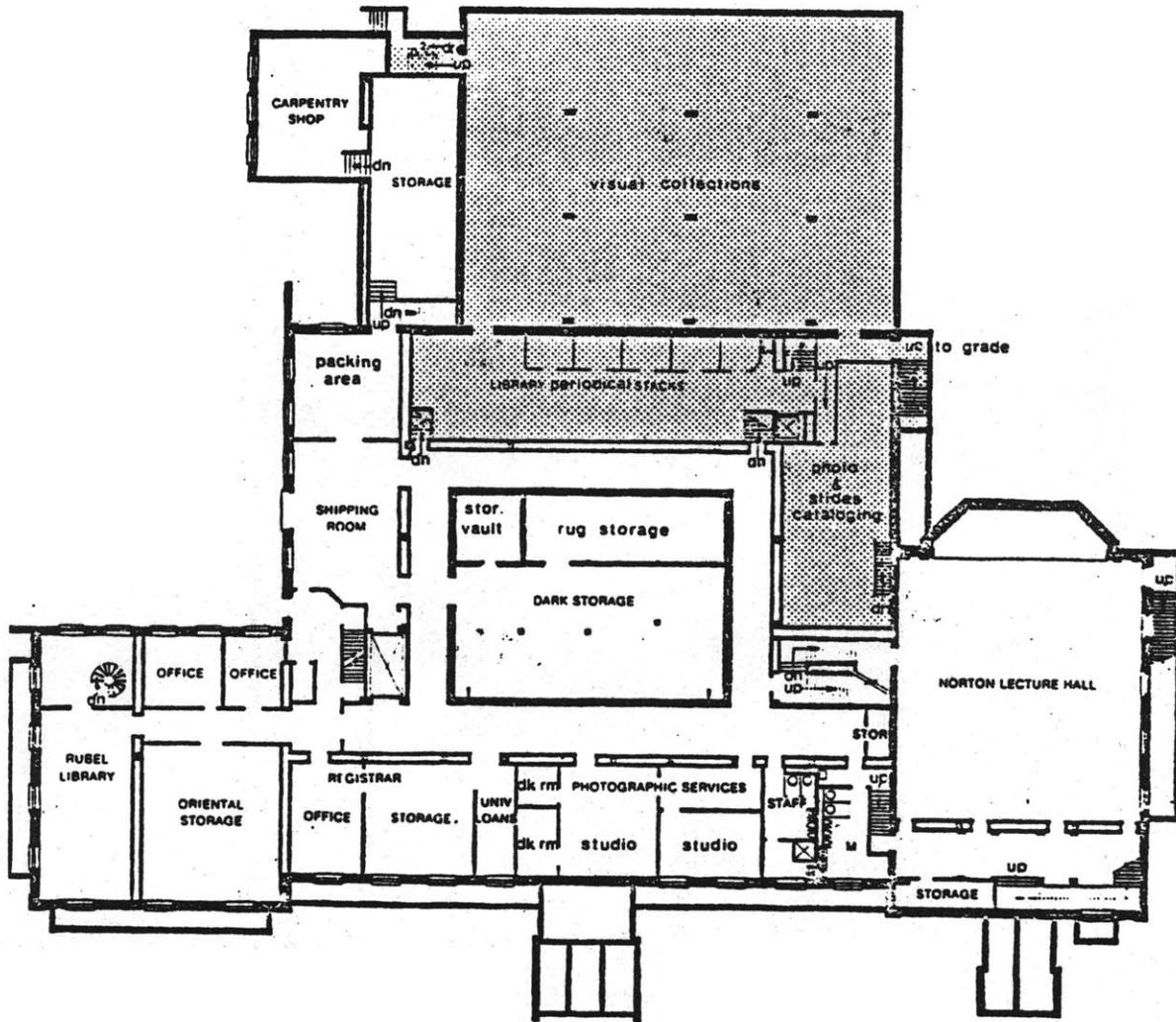
SUB-BASEMENT



 FINE ARTS LIBRARY



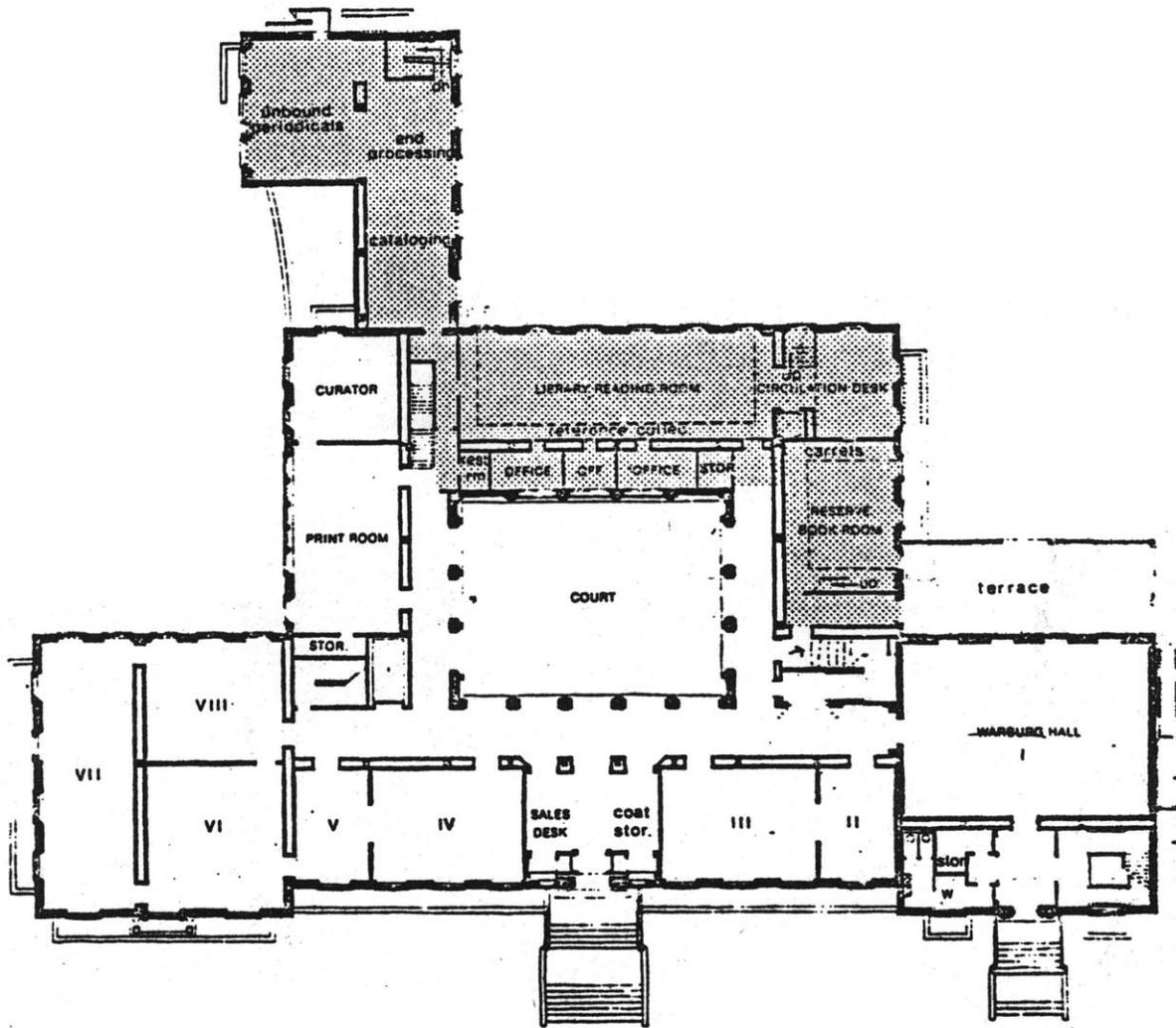
BASEMENT



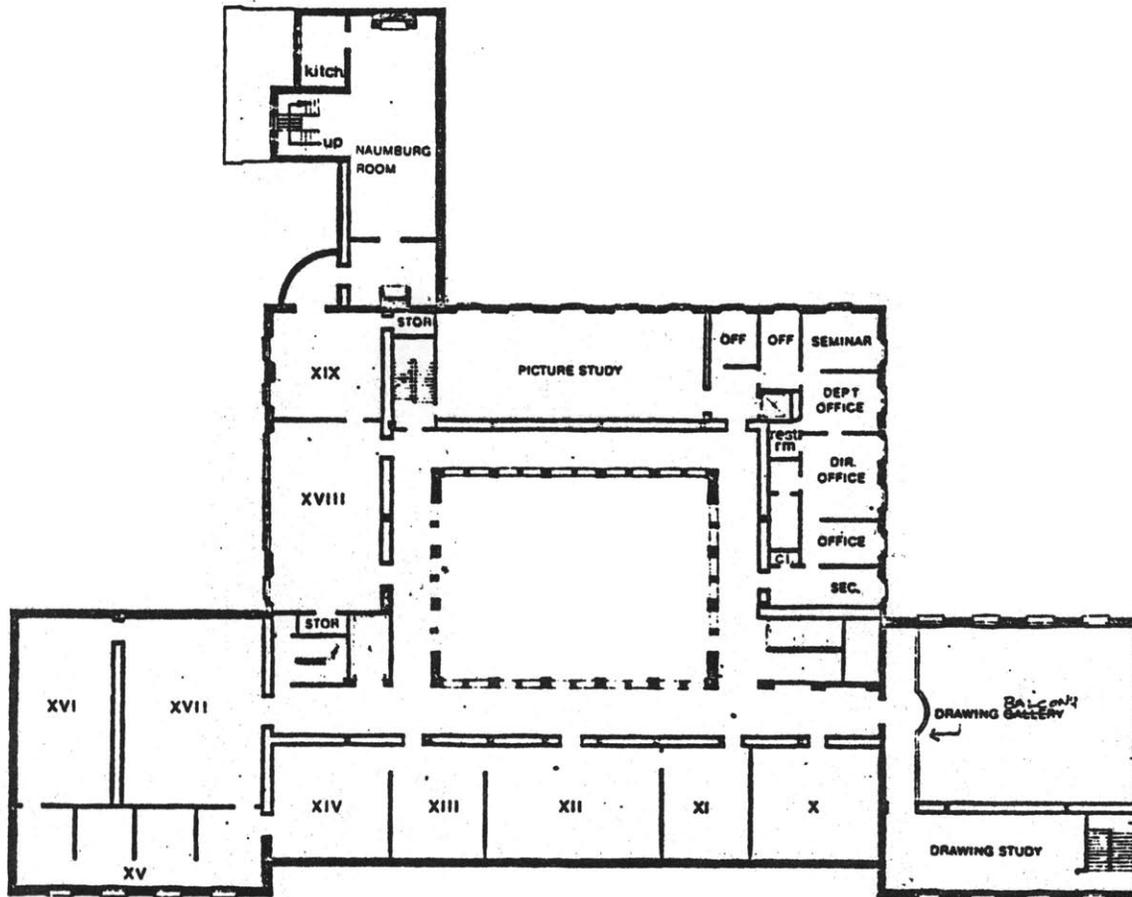
 FINE ARTS LIBRARY MEZZANINE LEVEL



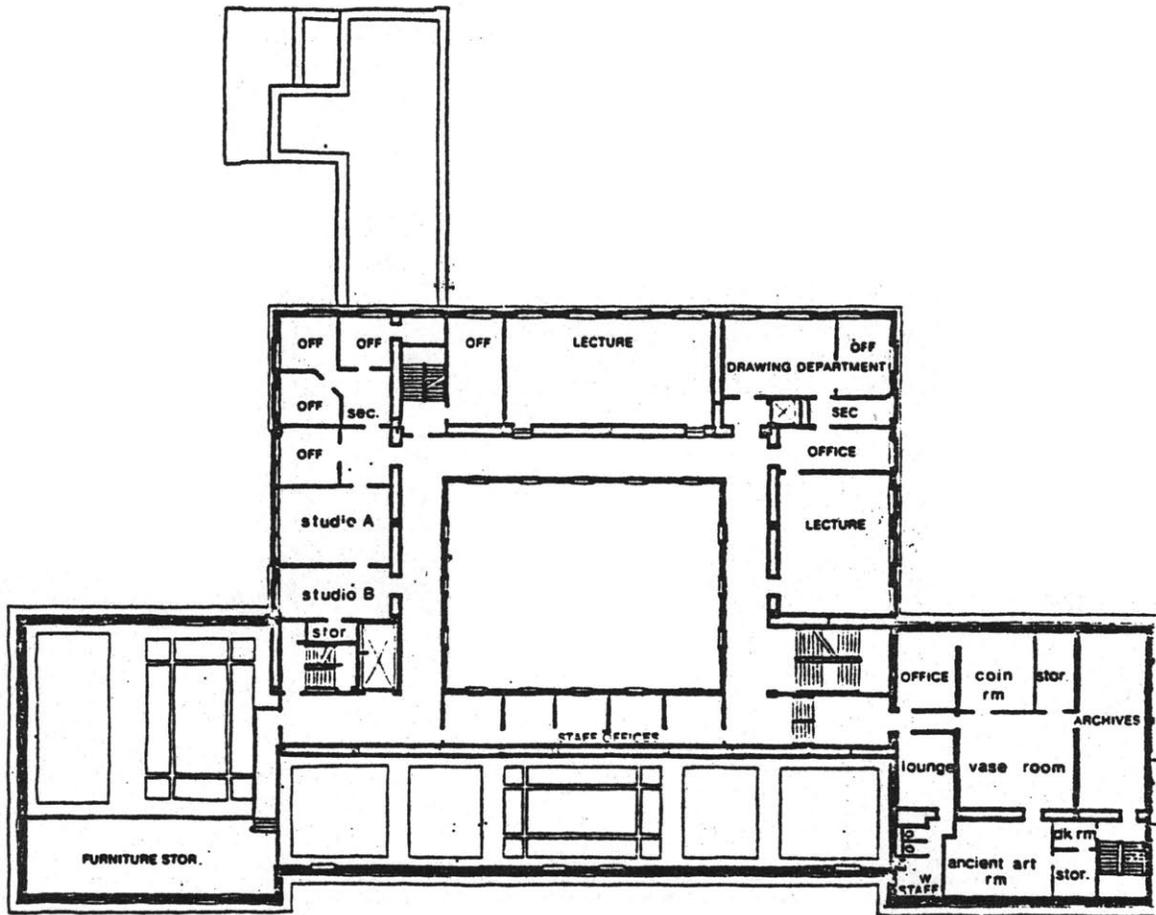
FIRST FLOOR



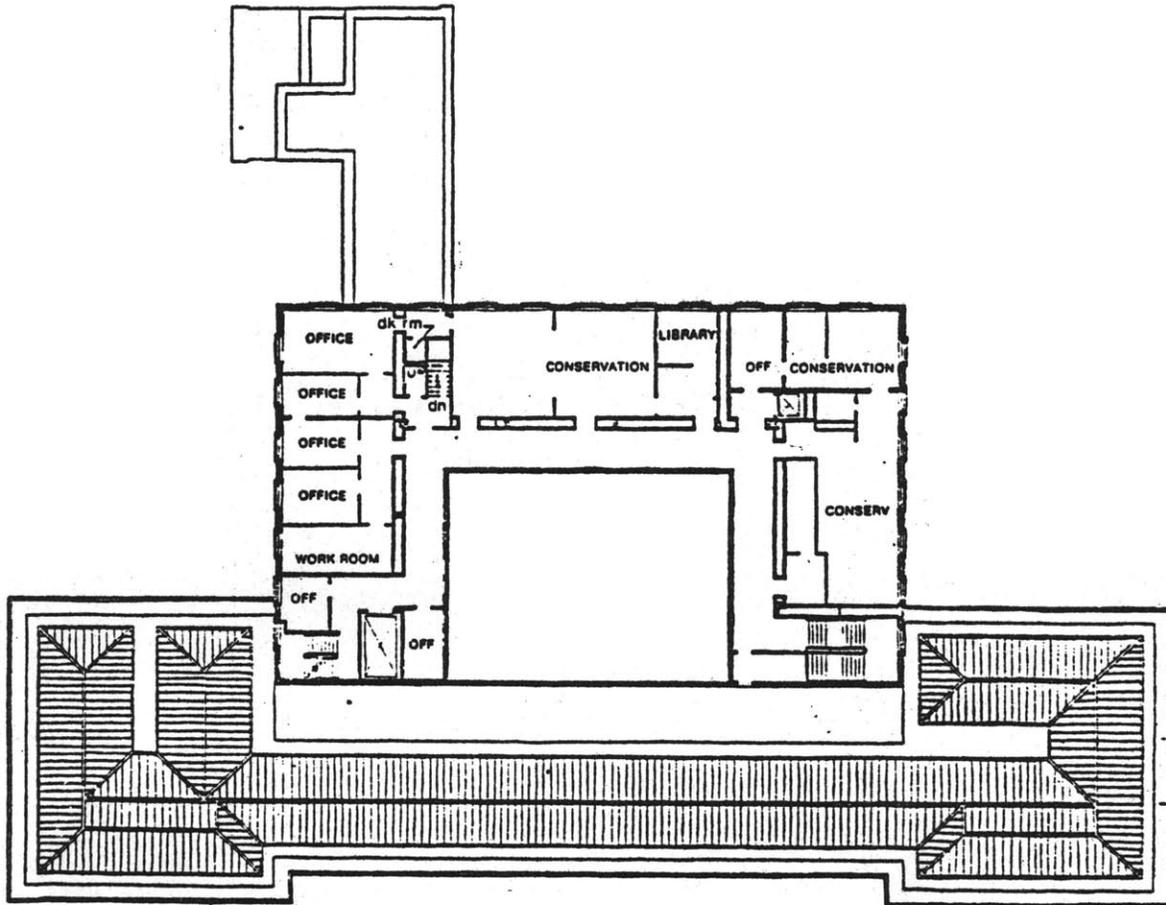
SECOND FLOOR



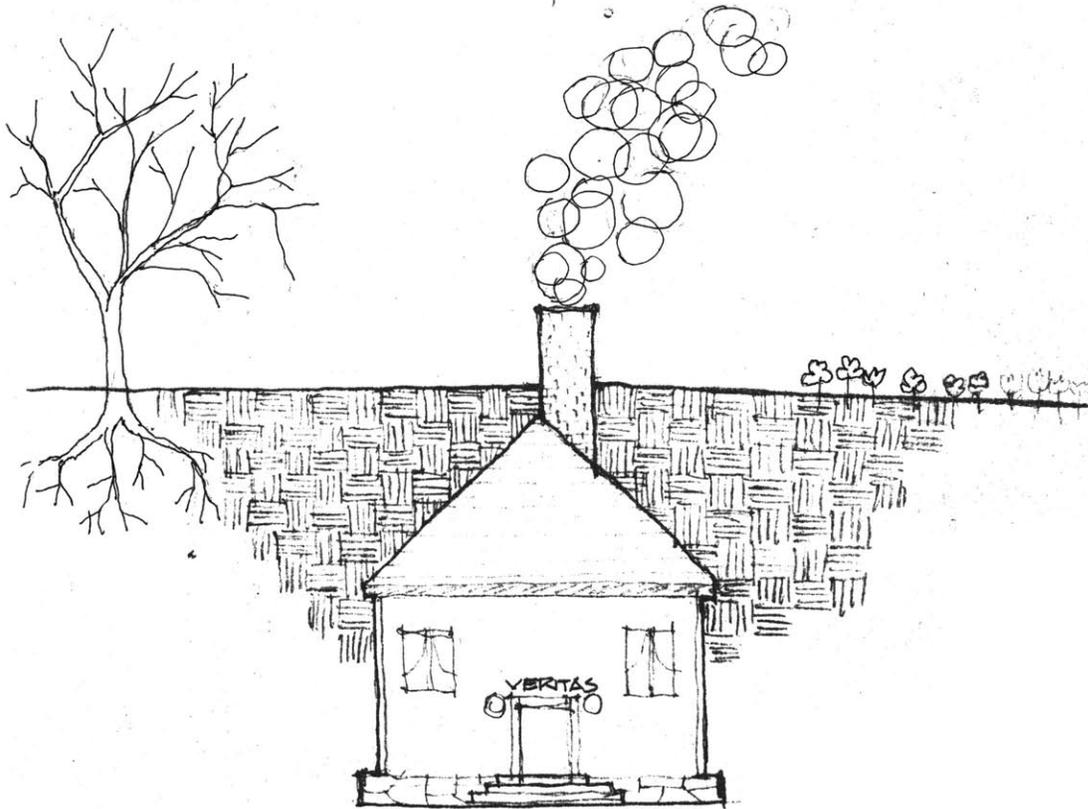
THIRD FLOOR



FOURTH FLOOR

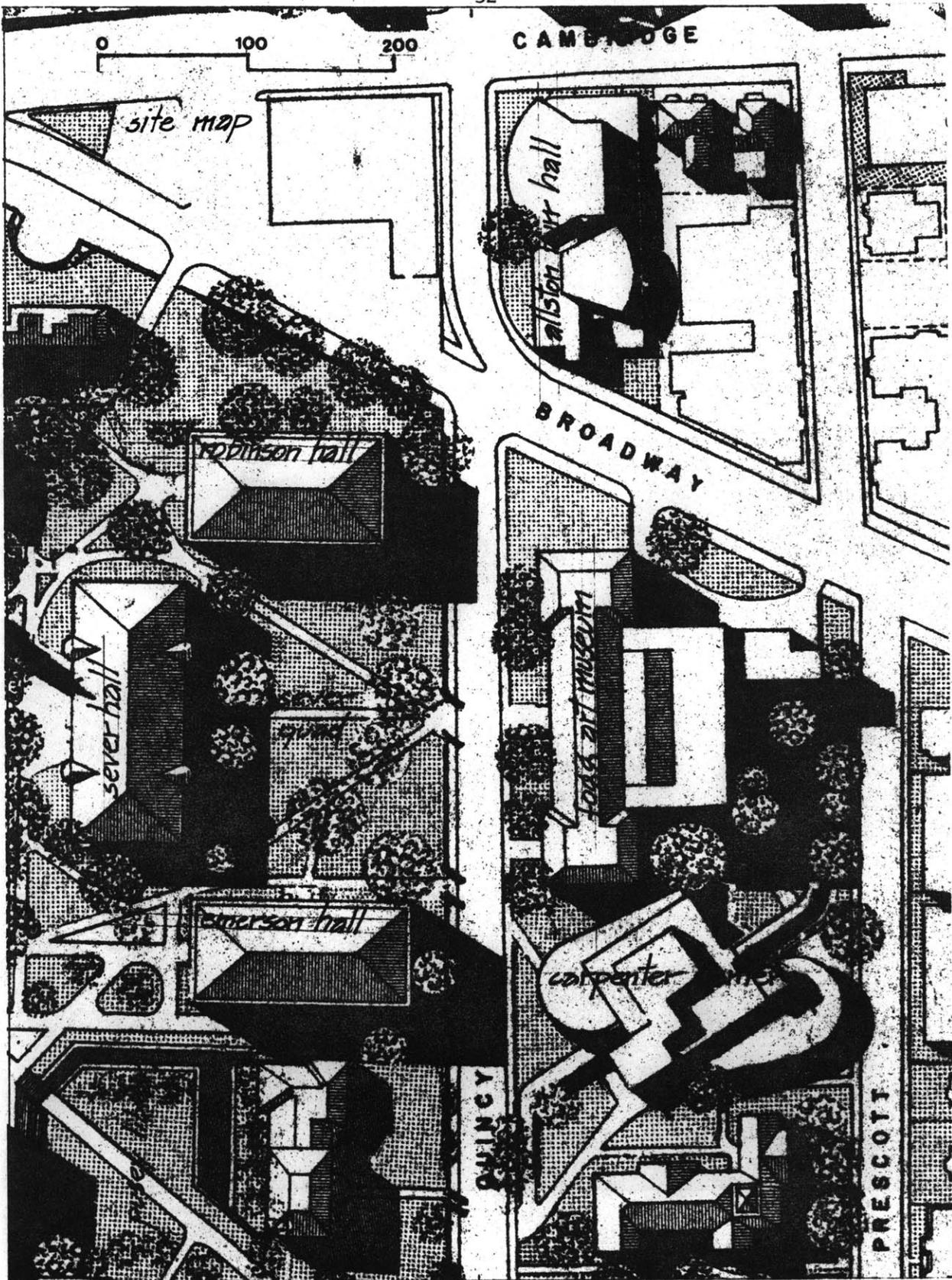


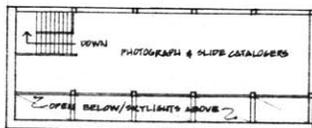
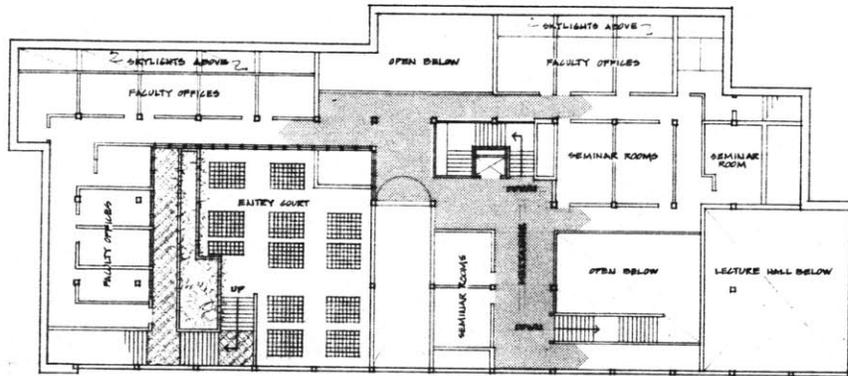
DESIGN



AN UNDERGROUND ADDITION
TO THE FOLG ART MUSEUM
HARVARD UNIVERSITY

LICHT, MEHR LICHT!



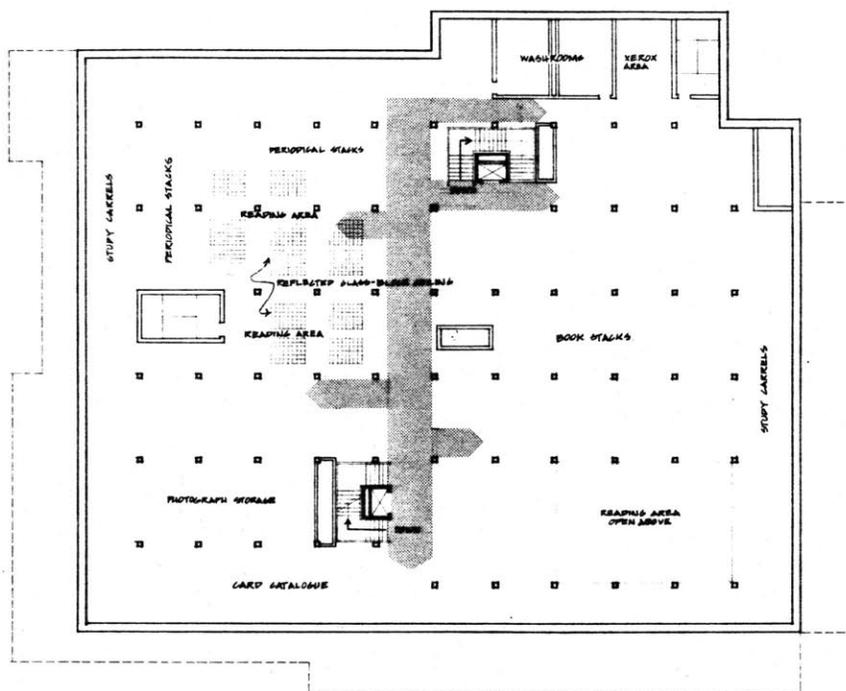


FOGG ART MUSEUM
THESIS SPRING 1977
CONSTANTINE N. THOMAS

NEW ADDITION

plan at ~6'-6"



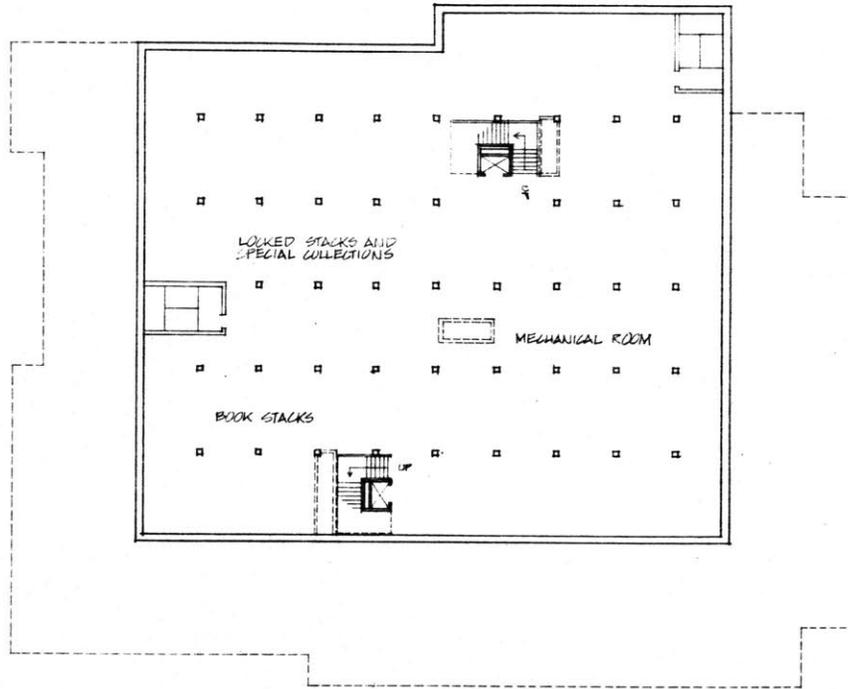


FOGG ART MUSEUM
THESIS SPRING 1977
CONSTANTINE N. THOMAS

NEW ADDITION

plan at -26'-6"

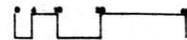


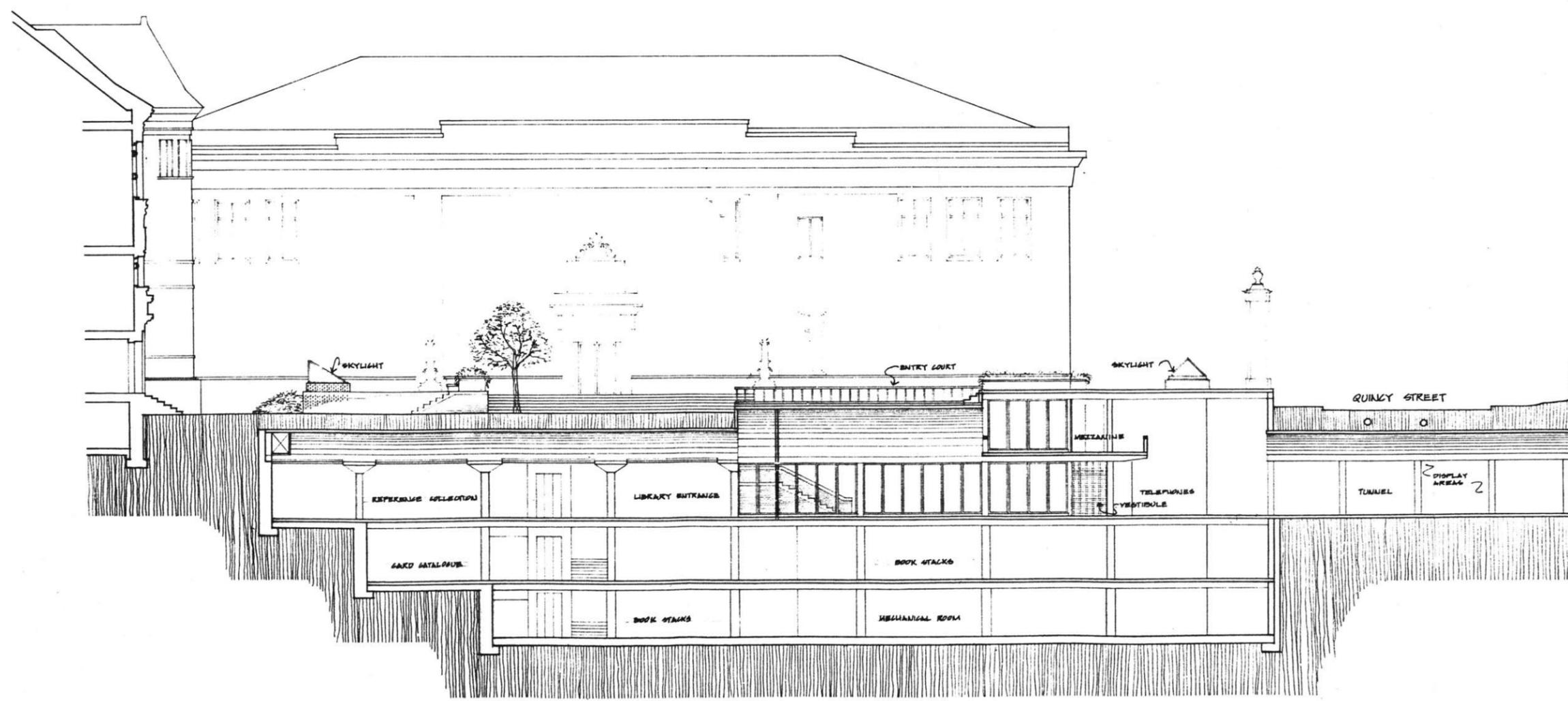


FOGG ART MUSEUM
THESIS SPRING 1977
CONSTANTINE N. THOMAS

NEW ADDITION

plan at -35'-6"

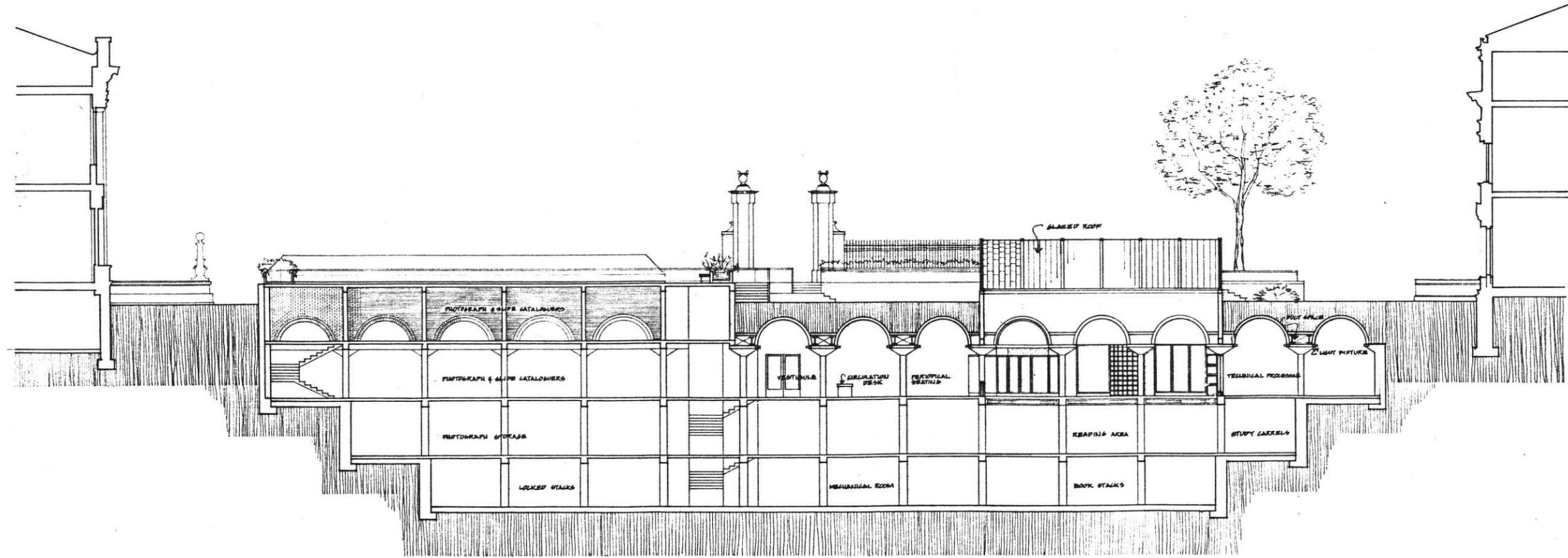




NEW ADDITION
section B-B

FOGG ART MUSEUM
SPRING 1977
CONSTANTINE N. THOMAS

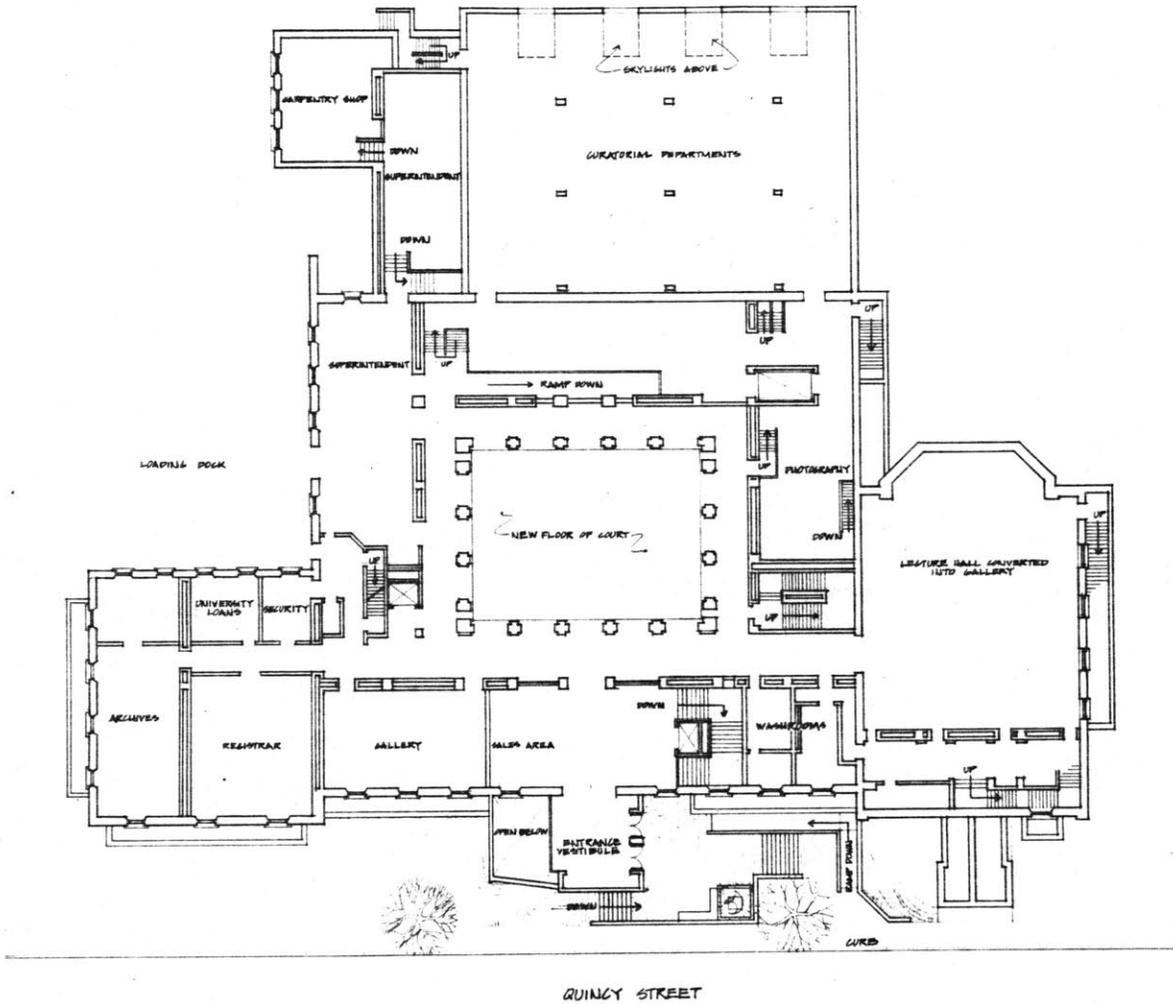




NEW ADDITION
section C-C

FOGG ART MUSEUM
THESIS
CONSTANTINE N. THOMAS

SPRING 1977



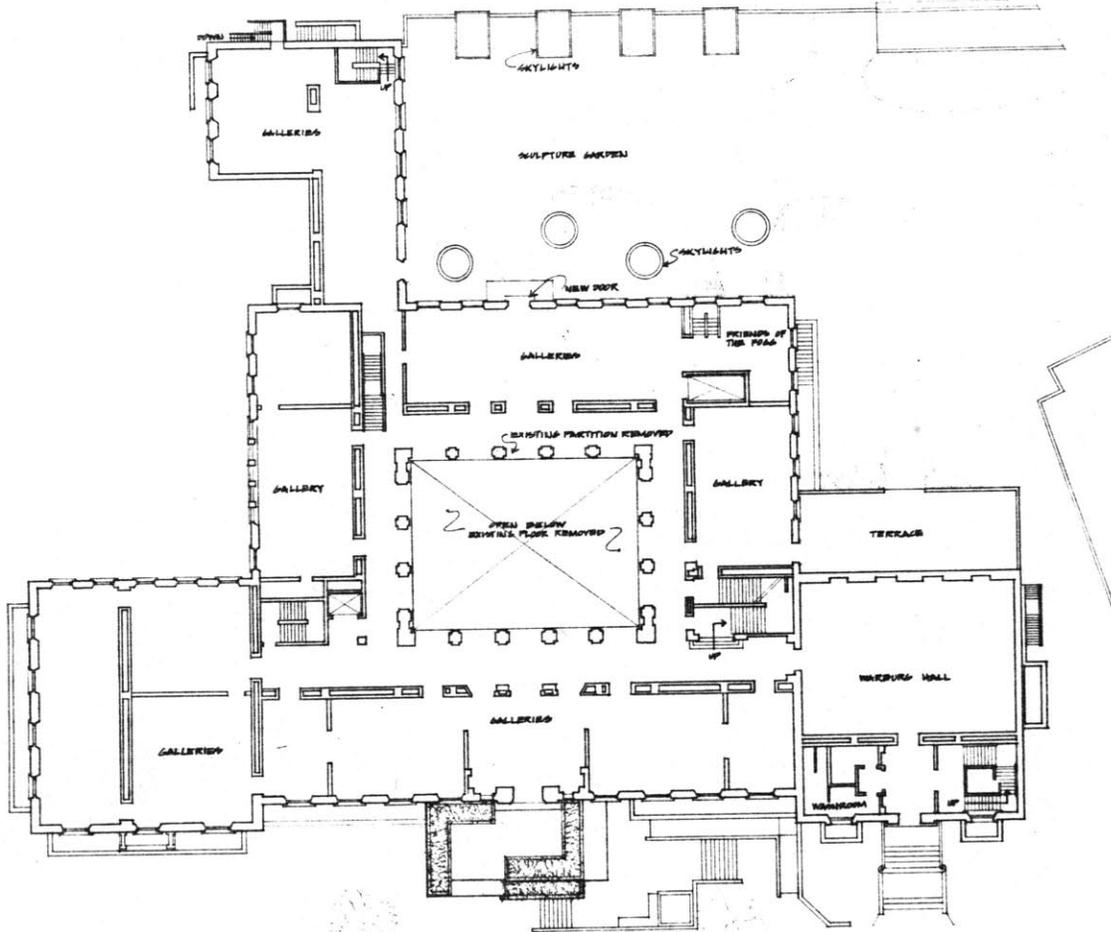
FOGG ART MUSEUM
THESIS SPRING 1977
CONSTANTINE N. THOMAS

EXISTING BUILDING
basement



PRESLOTT STREET

CURB

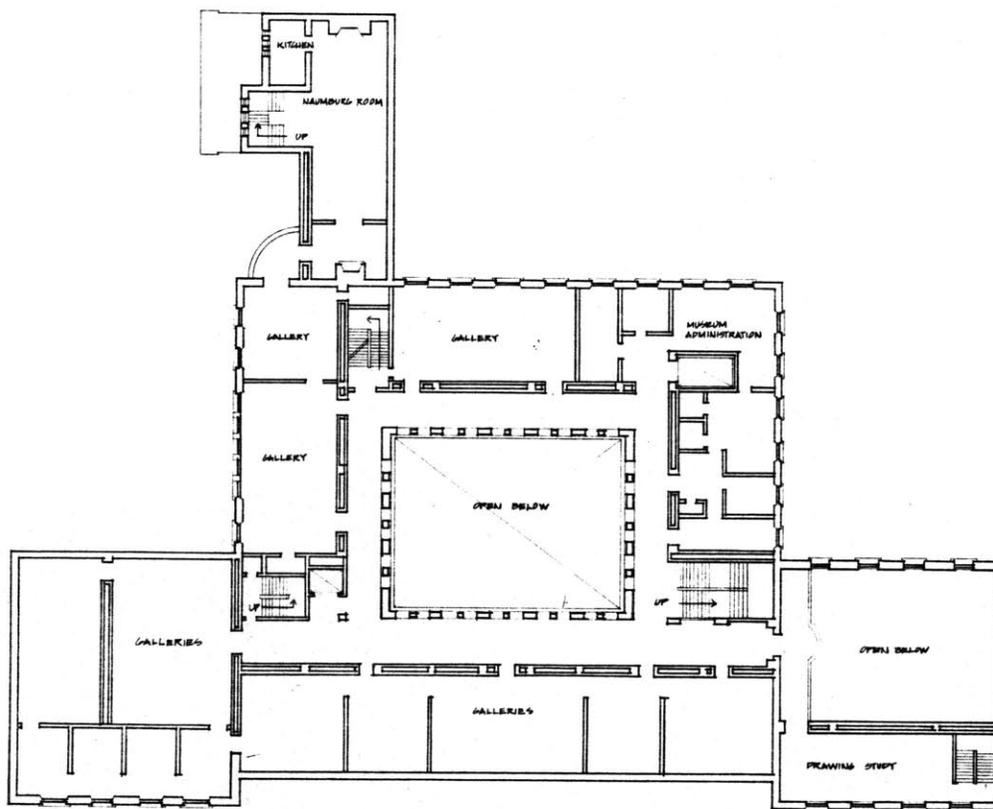


FOGG ART MUSEUM
THESIS **SPRING 1977**
CONSTANTINE N. THOMAS

EXISTING BUILDING

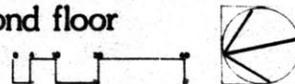
first floor

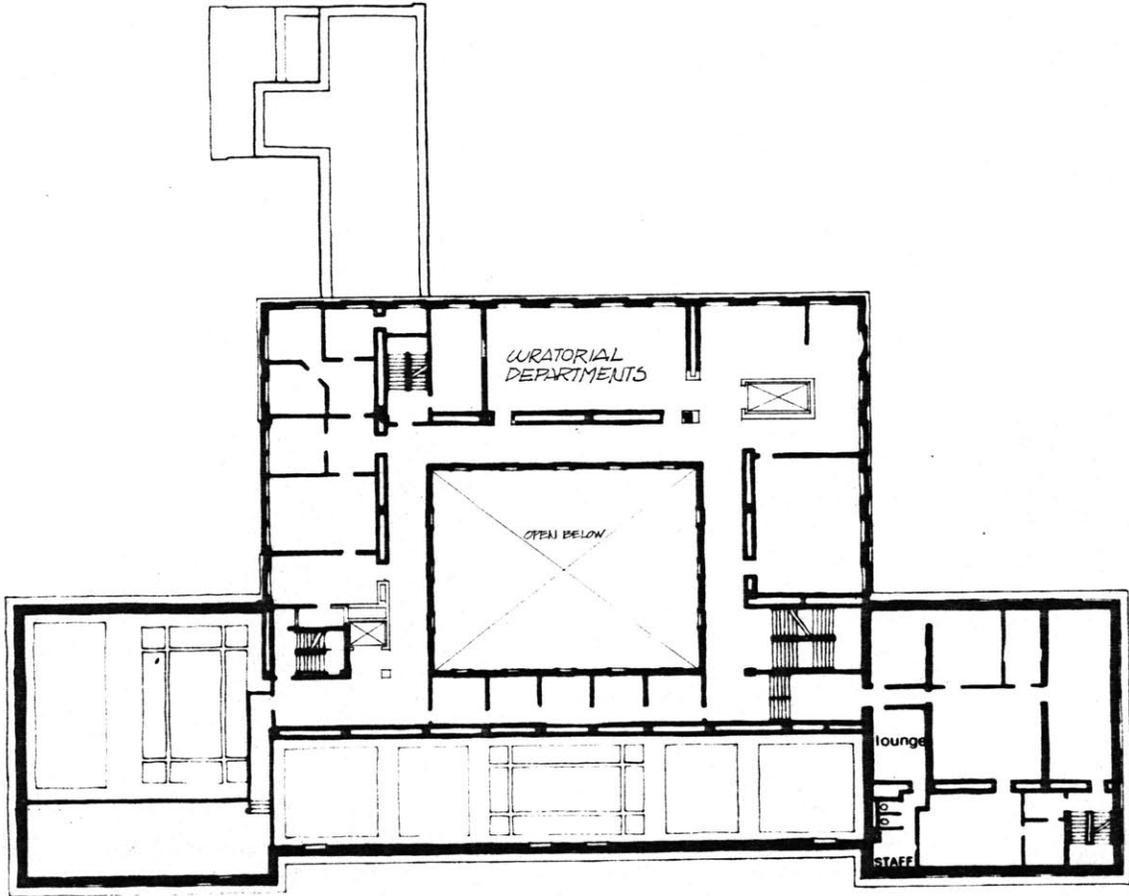




FOGG ART MUSEUM
THESIS SPRING 1977
CONSTANTINE N. THOMAS

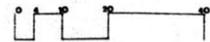
EXISTING BUILDING
second floor

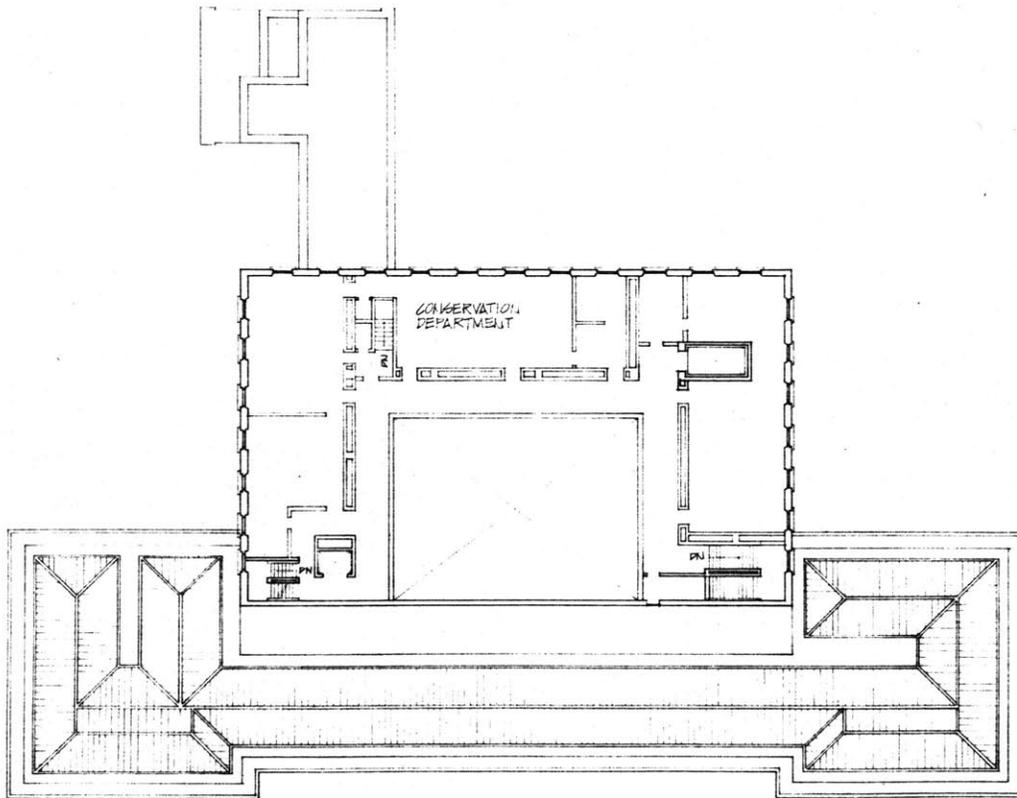




FOGG ART MUSEUM
THESIS SPRING 1977
CONSTANTINE N. THOMAS

EXISTING BUILDING
third floor





FOGG ART MUSEUM
THESIS SPRING 1977
CONSTANTINE N. THOMAS

EXISTING BUILDING
fourth floor

