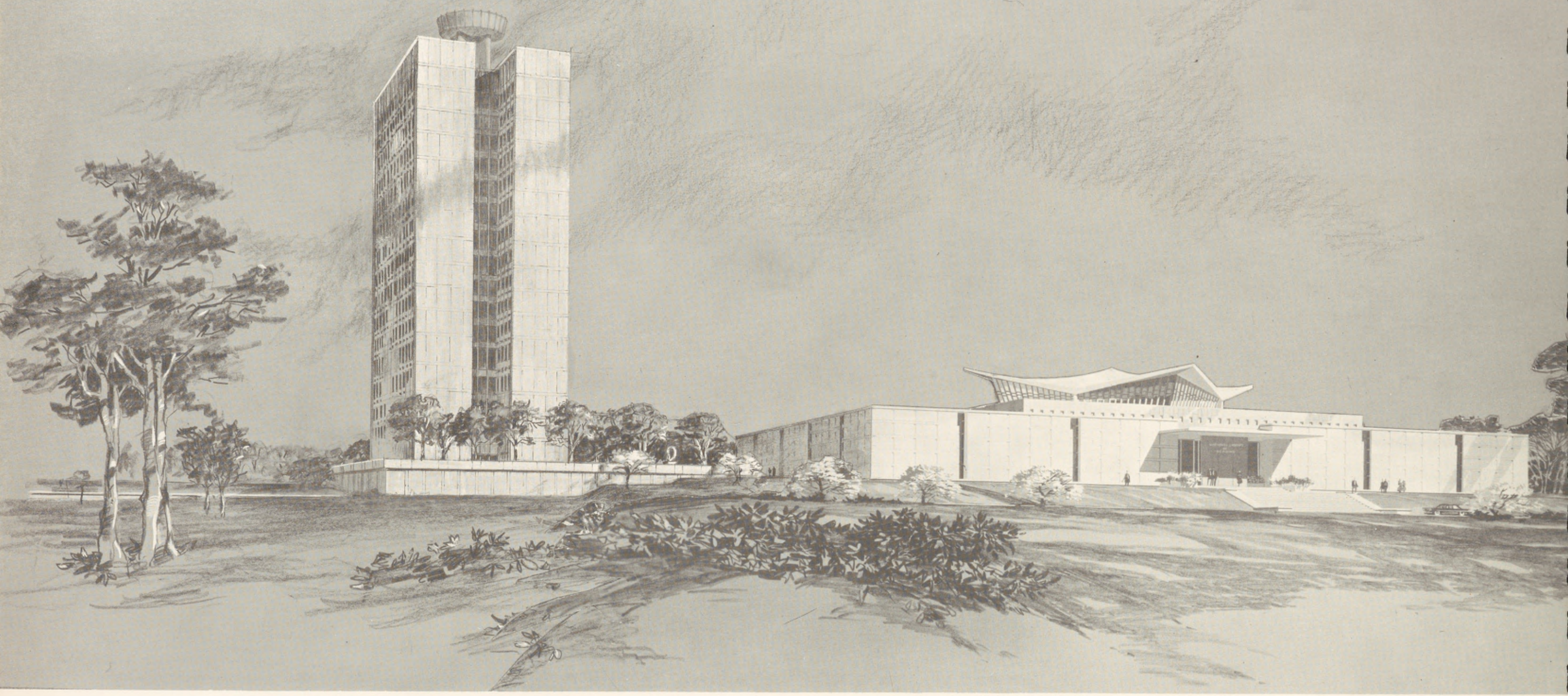
PROPOSED LISTER HILL NATIONAL CENTER
for BIOMEDICAL COMMUNICATIONS and other facilities

NATIONAL LIBRARY OF MEDICINE

FEASIBILITY STUDY

O'CONNOR & KILHAM ARCHITECTS
101 PARK AVENUE NEW YORK N. Y. 1969



NATIONAL LIBRARY OF MEDICINE WITH PROPOSED LHNCBC BUILDING

O'CONNOR & KILHAM ARCHITECTS 1969

PROPOSED LISTER HILL NATIONAL CENTER
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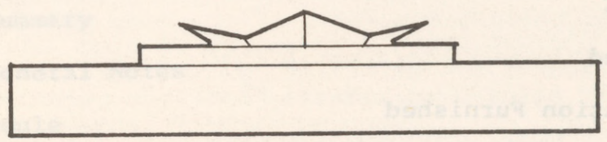
NATIONAL LIBRARY OF MEDICINE



FEASIBILITY STUDY

O'CONNOR & KILHAM ARCHITECTS
101 PARK AVENUE NEW YORK N. Y. 1969

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LIST OF ILLUSTRATIONS

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FEASIBILITY STUDY III

PROPOSED

LISTER HILL NATIONAL CENTER

for

BIOMEDICAL COMMUNICATIONS

AND OTHER FACILITIES

for the

NATIONAL LIBRARY OF MEDICINE

I. SYNOPSIS

A. Summary

1. Feasibility Study I. NLM.

The initial Feasibility Study (1967) (Blue Book) called for the study of requirements for construction of Additional Facilities for the expanding activities of the National Library of Medicine.

The purpose was to accommodate "the total space requirements of the present and planned programs of the NLM in the most efficient manner and making maximum utilization of the present NLM building." The project would have increased the facilities of the NLM by 230,000 sq.ft. to a total of 462,000 sq.ft. gross at a total cost of approximately $10,500,000 as of June 1967, including parking facilities and rehabilitation of the existing National Library of Medicine building to traditional library purposes.

2. Feasibility Study II. NMAC.

Following the designation of the National Medical Audiovisual Center in Atlanta as a component part of the NLM (1 July 1967) a second Feasibility Study (1968) (Grey Book) investigated the alternatives of expansion of the NMAC in Atlanta or its relocation in new construction on the site of the NLM at Bethesda.

The investigation in Atlanta was limited to an expansion of the existing NMAC building. This new construction was, of necessity, over existing parking spaces of the

CDC. The CDC itself already had future plans for the maximum utilization of its restricted site for its own purpose as well as the small amount of adjacent land that might become available. It was not considered advisable at the time of this survey to investigate a new site with a new building for the NMAC.

The NMAC currently occupies 43,800 sq.ft. in the NCDC building outside Atlanta. The 9,100 sq.ft. gross additional has now been given up for 14,000 sq.ft. of rented space nearby.

The conclusions and recommendations of this second report were that the NMAC might preferably be relocated in Bethesda with a total of 153,600 sq.ft. gross at an approximate cost of $5,900,000.

The second study further recommended that the NMAC project be combined with the initial expansion project of the NLM into one integrated structure connected to the existing NLM building in order to realize the economies resulting from consolidation of administrative and other common purpose space.

Budget forecasts and program plans used as the basis for these studies were somewhat optimistic in the light of FY-68/69 restrictions on personnel and fiscal obligations and program growth. In addition some of the non-program facilities, such as cafeteria and parking space, included in the proposed buildings will be incorporated in the program of requirements for the Fogarty International Center, a building to be constructed adjacent to the NLM. For these reasons, and in the interest of federal economy, the NLM decided to examine the feasibility of combining the requirements of both studies in one building, each with reduced program to meet the new economic situation.

3. Feasibility Study III. LHNCBC/NMAC.

In August 1968, by passage of Public Law 90-456, the proposed additional facilities for the NLM in Study I were designated the Lister Hill National Center for Biomedical Communications (LHNCBC). Since then, restrictions on obligations and programs have reduced the building program to a total of 218,000 sq.ft. of new construction at a cost estimated as of June 1969 of $11,121,000.

Initially this third Feasibility Study-1969 (Red Book) was to update the requirements contained in Studies I and II, and explore the combination of the initial LHNCBC project with the NMAC project for location in one building at Bethesda as compared to one for the LHNCBC alone, omitting the NMAC.

Early in the study it became clear the program for the LHNCBC and all other programs for space in the new building would have to be substantially reduced if the NMAC was to be accommodated in this same structure.

Of the possible total of 230,000 sq.ft. gross (149,000 sq.ft. net useable space) only 131,000 sq.ft. would have been available to the new and expanded program of the NLM - the difference being taken care of as now, by rental space, or by assigned space in other N.I.H. buildings. Many program space requirements would have been subject to deferment, all as indicated in Bar Chart Exhibit 1. (Facing Page)

The NMAC program would have been similarly handicapped by requiring supplemental rental space.

4. Revision of Program

In view of these handicaps the NLM decided the NMAC would probably have to remain in Atlanta. Without the NMAC the NLM could have all its basic needs met in accordance with the revised program for the LHNCBC.

This report has now been modified to determine what the space requirements of the LHNCBC without the NMAC would be up to 1974, and what the estimated costs would be as of June 1969, with projections, so that planning can proceed on schedule if funds are authorized.

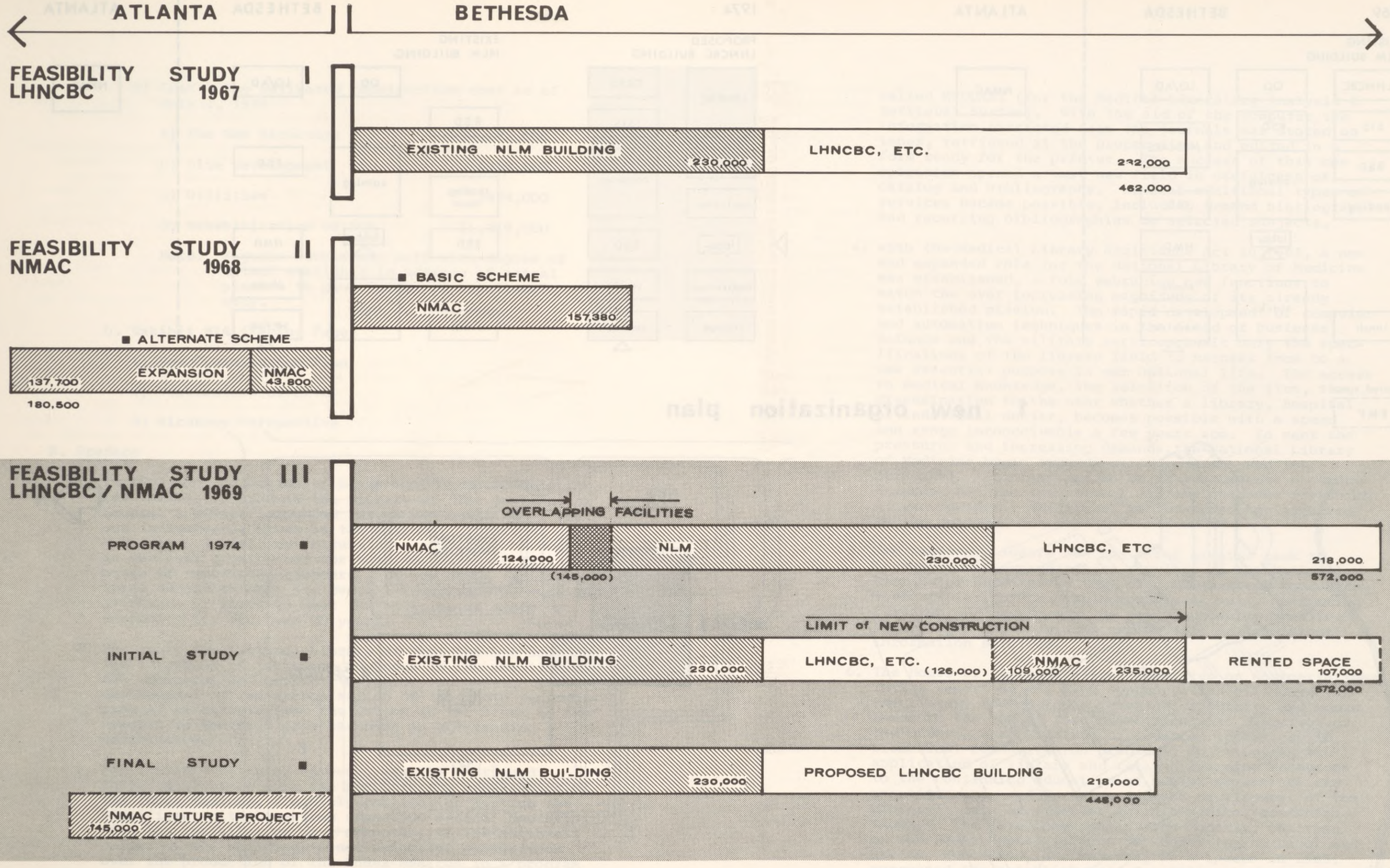
A revised program for the NMAC for its independent expansion in Atlanta is included in the Appendix. The exclusion of the NMAC from the LHNCBC building creates a need that must be met in future years. This third study has determined NMAC space requirements through 1974 - existing facilities are insufficient to meet these requirements. In addition CDC has pressing growth needs that must be accommodated on the CDC site. If NMAC projected requirements outlined in the study are to be satisfied their independent expansion at a separate site in Atlanta must be investigated.

5. Conclusions

a. Estimates & Projections

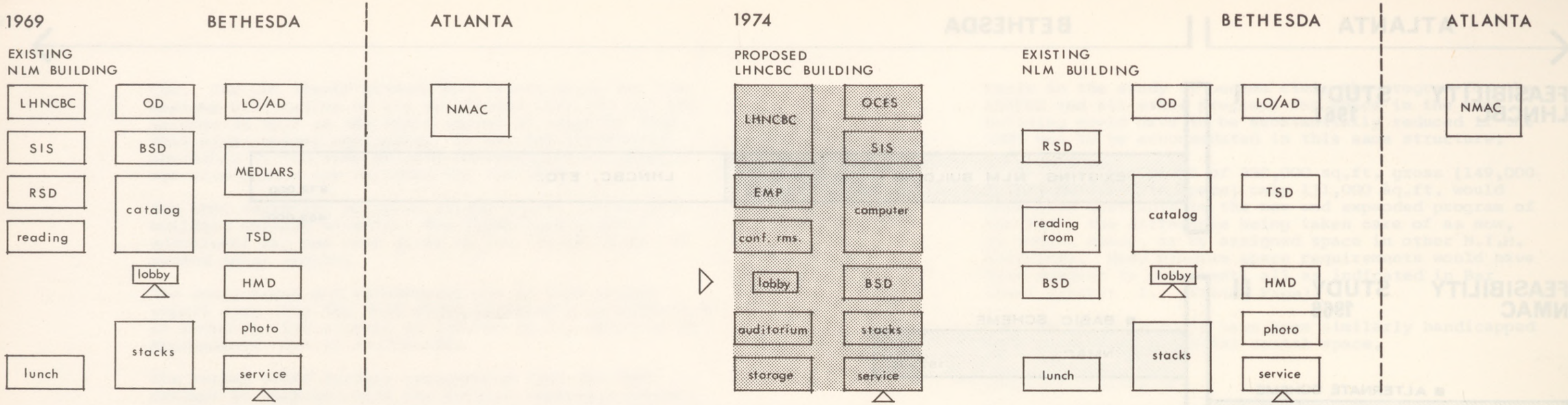
1) Personnel - Assumed projection from 517 in 1969 to 1039 in 1974, including NMAC. (From 391 to 859 in Bethesda alone).

2) Space - Increase of floor area from 230,000 sq.ft. (NLM Bldg.) by 218,000 sq.ft. (LHNCBC Bldg.) to a grand total of 448,000 sq.ft. in Bethesda.

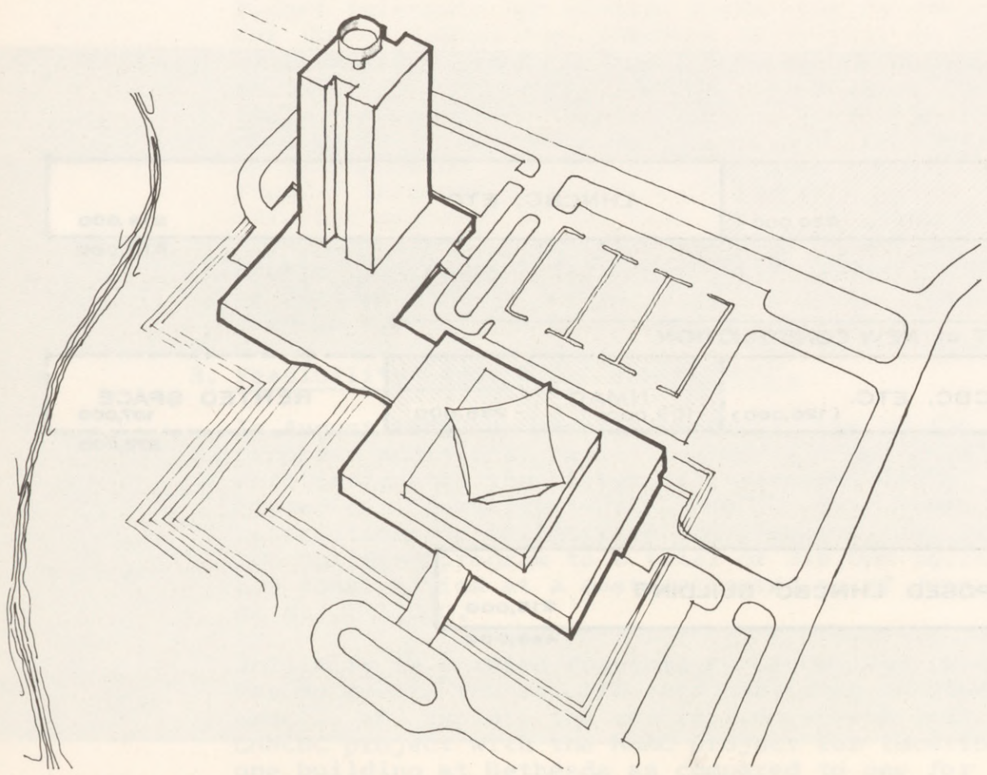


note: gross area of buildings in square feet.

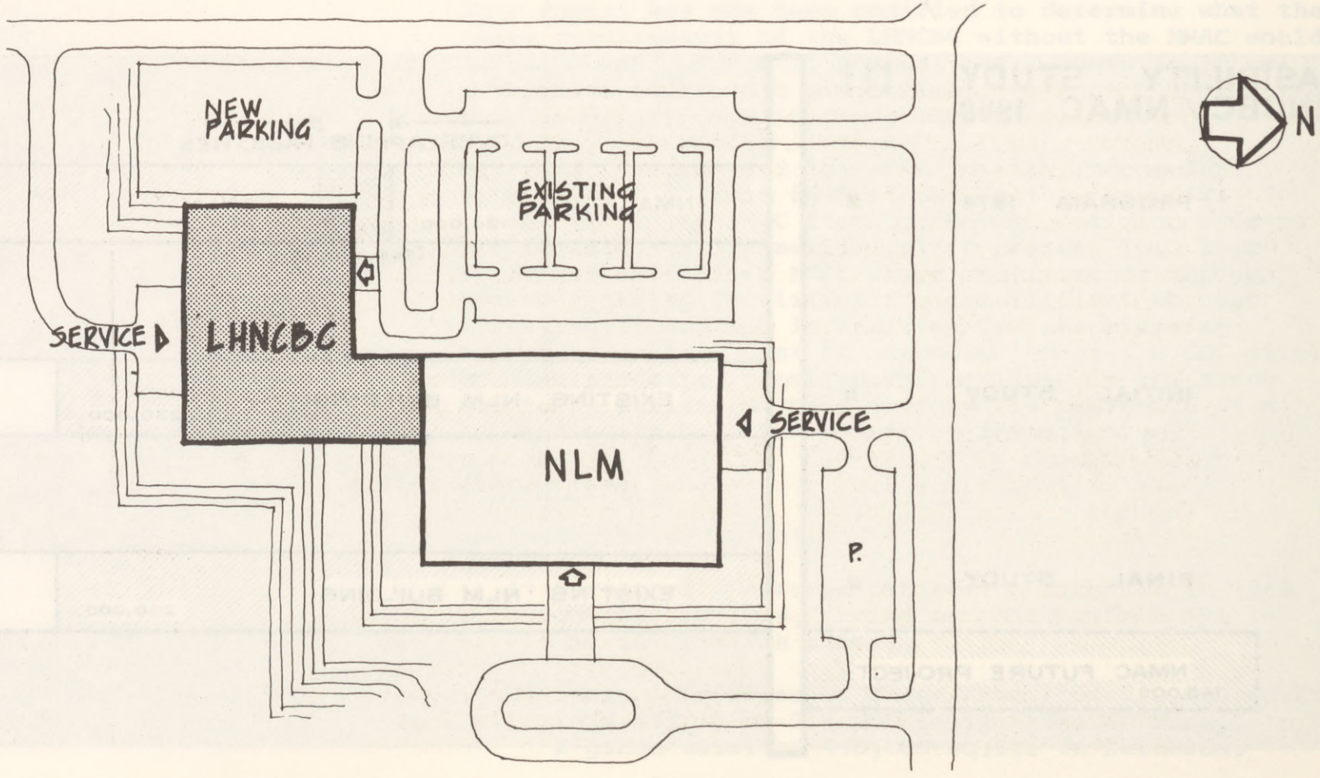
BAR CHART EXHIBIT 1



1 new organization plan



3 birdseye perspective



2 site utilization

EXHIBIT 1A

3) Cost - The estimated construction cost as of July 1, 1969

a) The New Structure	$9,172,000
b) Site Development	$218,000
c) Utilities	$454,000
d) Rehabilitation of NLM	$1,319,000

Note: Figures consistent only with degree of detail available in advance of actual plans - to give "order of magnitude" only.

b. Exhibit #1A (Facing Page)

1) New Organization Plan

2) Utilization of Site

3) Birdseye Perspective

B. Preface

1. In 1962 the collection of books that occupied only a few shelves in 1836 as the Library of "The Surgeon General's Office" expanded into a new building of its own in Bethesda, known as the National Library of Medicine. By its very nature as a collector of books it was ever growing and for some 40 years had felt the pinch of restricted quarters. It now had a facility large enough to meet its overall requirements, with an allowance of space to meet the anticipated stack expansion for the next 20 years.

2. For years the National Library of Medicine had been in the forefront of technical advances in the adoption of new equipment and methods to library purposes. Its development of the mechanization of the photo reproduction of an article from the volume in the stack to its deposit in the mail drop has been an outstanding performance.

3. Particularly notable, however, was the continued technical advance over the years in the preparation of the Index Medicus, a monthly publication listing the significant citations from some 2500 medical journals. With the installation of a computer, in the northwest corner of the building, a new automated system took over the production of the Index Medicus in a program called MEDLARS (for the Medical Literature Analysis & Retrieval System). With the aid of the computer the information extracted from the journals was stored on tapes, retrieved at the proper time and edited in a form ready for the printer. The success of this new operation opened a vast new field in usefulness of catalog and bibliography. Several additional types of services became possible, including demand bibliographies and recurring bibliographies on selected subjects.

4. With the Medical Library Assistance Act in 1965, a new and expanded role for the National Library of Medicine was established, a role embracing new functions to match the ever increasing magnitude of its already established mission. The rapid development of computer and automation techniques in the field of business, science and the military services await only the specifications of the library field to harness them to a new essential purpose in our national life. The access to medical knowledge, the selection of the item, the dissemination to the user whether a library, hospital or individual doctor, becomes possible with a speed and range inconceivable a few years ago. To meet the pressures and increasing demands, the National Library of Medicine began expanding its programs and its personnel. All this had to be at the expense of space intended for the traditional library purposes for which it was founded. Additional rented space was acquired on the outside.

5. The National Library now has a far greater task to accomplish in expanding its services as the National Library of Medicine to that of a bio-medical communications center for the whole country as well, performing research and development on new methods for handling information and providing new as well as traditional information services.

6. The House of Representatives Committee on Appropriations in its report on the 1967 appropriation bill directed the Library to develop a research capability and added funds to the budget for "development and direction of the Library's application of advanced technology to biomedical communication problems; for studying the application of library and related learning resources to the continuing education of health scientists and practitioners; and for planning and development of the Library's role as a center for bio-medical communications." The late Congressman John Fogarty, Chairman of the House Appropriations Sub-Committee on Labor and Health, Education, and Welfare, in a speech in 1965, suggested the establishment of a National Center of Bio-Medical Communications as a component of the Library

which would be closely and continuously concerned with research and development in the bio-medical communication field, providing a national focal point for research in the communications and information processes themselves. This requirement was further recognized by the President's Science Advisory Committee in its report, "Handling of Toxicological Information."

7. In response to a delegation of responsibility from the President to the Secretary of Health, Education and Welfare and subsequently to the National Library of Medicine, the Library is required to develop and operate an action-oriented Toxicological Information Exchange to meet the urgent need for a coordinated, comprehensive, computer-based file of toxicology information.

8. On August 3, 1968 President Johnson signed into law (P.L. 90-456) legislation designating this Planned National Center for Biomedical Communications as the Lister Hill National Center for Biomedical Communications honoring the "Health Statesman" Senator from Alabama.

9. The law had been introduced as Senate Joint Resolution 193 by Senator John Sparkman "to perpetuate the name of the man who has done so much for the health of the nation."

10. Effective 1 July 1967 the National Medical Audiovisual Center (NMAC) of the PHS in Atlanta became a component part of the NLM. To carry out its new assignment as part of the NLM in the bio-medical communication field it will also require substantially increased facilities.

11. In October 1967 a Feasibility Study (II-1968) was authorized to survey the current useage of the NMAC and project its future space requirements, comparing the alternatives of remaining in Atlanta or moving to Bethesda.

12. As a result of Feasibility Study II-1968 it was recommended the NMAC relocate in Bethesda in the NLM site. The main reasons were:

    a. By being in one place duplication of certain administrative and service facilities could be avoided with a resulting saving of space.

    b. Certain educational facilities could be shared such as seminars, auditorium space, equipment, etc., again avoiding space duplication.

    c. The overall services of the LHNCBC would be enhanced and efficiency promoted by having the NMAC as a functioning part of their activities on the same site.

13. It was further recommended, in the interest of greater efficiency and economy, the two projects be combined in one new building for the LHNCBC.

14. With subsequent modifications of program, restrictions on obligations and program growth for all national projects, as well as in the interests of federal economy, it was concluded that the two projects should be examined for possible combination in one building. For this reason Feasibility Study III was authorized 20 November 1968.

    On 5 February 1969, however, it was decided that, because of the strong possibility the NMAC will remain in Atlanta this report, already under way, should be modified accordingly.

II. GENERAL

A. Authorization

Contract No. NLM 69-5 - entered into the 20th day of November 1968 by the United States Government and O'Connor & Kilham, Architects in the City of New York, amended as of 7 March 1969.

B. Character and Extent of Services

1. Project Description:

   Initially a study of the physical requirements and estimated costs for the construction of the proposed additional facilities for the National Library of Medicine combined with the National Medical Audio-Visual Center but amended to omit the NMAC as part of the program.

2. Scope of Work

   ---------- "to combine in one building the requirements of the National Library of Medicine including the National Medical Audiovisual Center, already examined in two previous studies for the purpose of accommodating the total space requirements of the present and planned programs of the National Library of Medicine in the most efficient manner." It is to be noted subsequent cut-backs by the government required extensive re-examination of the programs of these two previous studies.

   Then, by amendment, as noted above, the NMAC was omitted from this project. The program is detailed in the "Scope of Work" furnished as part of the contract as detailed hereinafter in section III.

3. Time of Performance

Complete and delivered by March 21, 1969, an extension of time from March 1, 1969.

C. Background Information

1. NLM

a. Location

The National Library of Medicine is located on Wisconsin Avenue in the SE corner of the National Institutes of Health Reservation in Bethesda, Maryland, across Wisconsin Avenue from the National Naval Medical Center.

b. Existing Building

1) The present building of the NLM was first occupied in 1962 as a traditional medical library. The library was formerly the Armed Forces Medical Library first under way in 1836 as the Library of the Surgeon General's Office. The computer-based Medical Literature Analysis and Retrieval System (MEDLARS I) was installed, with resulting alterations, in 1963.

2) With the Medical Library Assistance Act of 1965 an increase in personnel was authorized commensurate with new program responsibilities - with still further alterations in the plans.

3) Workloads and maintenance requirements have long exceeded the design characteristics of MEDLARS I. Accordingly, the Library determined in 1966 to develop a replacement system, MEDLARS II, which could take advantage of the advances in computer technology to provide an increased capability to the Library's programs. MEDLARS II will be implemented in three phases.

a) Level 1, to be operational by the end of September 1969, will replace the capabilities of MEDLARS I.

b) Level II development is scheduled to begin in mid 1969. Level II will provide for improved support to Library functions.

c) Level III will provide for continued improvements for Library operations with an integration of the system into the biomedical communications network. It is anticipated that the total MEDLARS II will be operational by the end of 1971.

c. Rented Space

In June 1966 commercial space was leased in the Blackwell Building, Bethesda, to accommodate the staff of the Extramural Program.

d. Future Requirements

1) The success of the MEDLARS installation as a tool of bibliographic research, the enlarged scope of collecting activities, the broad responsibilities of the NLM under the Medical Library Assistance Act of 1965 affecting the Extra Mural Program, the center for toxicological information, the authorization to proceed with the development of a sophisticated graphic image storage and retrieval system, the preservation microfilming program, the program of research and development in new system and techniques relating to the intended communication of bio-medical information, are all beyond the scope of the library of 1962 - and all have combined to create an ever increasing demand for space to house the growing staff and their activities - currently met at the expense of the space allowed for the basic library functions of the NLM and the growth of its collection and by renting commercial space.

2) To determine a physical program to best meet these demands and make due allowance for their probable development in space requirements over the next twenty years - as far as it could be reasonably projected - an initial Feasibility Study was authorized and prepared in 1967 (I - Blue Book) developing a requirement of 232,000 sq.ft. gross of new space with plans for renovating in the existing National Library of Medicine at a then estimated cost of $10,500,000. Reference is made to the study for certain details to avoid duplication.

e. Site

In its Master Plan for the NIH campus, additional space contiguous to, and largely to the south of, the NLM has been considered available by the NIH for the projected expansion of the NLM as studied herein.

2. NMAC

a. Location

The main facilities of the National Medical Audio-visual Center are located within the National

Communicable Disease Center complex in the suburb of Decatur, 7 miles northeast of downtown Atlanta, Georgia. The Distribution Center, and the Cataloging and Special Reference functions are located in a rented space nearby.

b. Existing Conditions

1) In 1961, the National Medical Audiovisual Center, then part of the Communicable Disease Center, moved into the newly constructed Building No. 3 of the National Communicable Disease Center complex on Clifton Road in Decatur, Georgia. This 4-story building, consisting of 43,800 gross square feet, was designed to house all the functions of the Medical Audiovisual facility.

2) A substantial portion of the building was specifically designed and equipped for the production of audiovisuals including motion pictures, video tapes, and other audiovisual forms.

3) By 1966 the building was no longer adequate to meet the growing demands of space occasioned by the expansion of programs and activities. A temporary building was leased in Chamblee, Georgia, consisting of 9,100 gross square feet. Acquisition, Retention, Distribution, Cataloging and Special Reference functions were moved out of the building at Decatur and into the Chamblee Annex. At this writing the facilities in the Chamblee Annex have been transferred to larger quarters in rented space closer to the NMAC building.

4) Effective 1 July 1967 this Audiovisual Facility of the Public Health Service became a component part of the National Library of Medicine in Bethesda and was newly designated the National Medical Audiovisual Center.

c. Present Size of NMAC and Proposed Expansion

1) The present National Medical Audiovisual Center employs 126 persons and occupies a net area of 34,010 square feet of useable space.

2) Feasibility Study II - 1968 (Gray Book) proposed an expansion to 91,430 sq.ft. net space for location in Bethesda, reduced to 82,700 sq.ft. net in updating the requirements herein.

3) The initially proposed consolidation in the LHNCBC building would have required a further reduction to 65,000 sq.ft. net or 109,000 sq.ft. gross floor area under the latest program - the balance to be provided in rented space.

d. Site

1) Bethesda. If the NMAC program is consolidated with the expansion program of the NLM it would become a part of the proposed LHNCBC building to the south and connected to the existing NLM.

2) Atlanta. If the NMAC remains in Atlanta, the expansion would presumably be an addition to the East to the space currently held in Bldg. No. 3 of the NCDC, as indicated in Feasibility Study II-1968 - unless a new site is required.

D. The Need

The need to expand the Library's physical facilities to meet its new responsibilities as an active research and development center is now critical. Additional space is required not only to establish the new programs but also to accommodate the expansion of current programs and to permit restoration of original library space to the National Library of Medicine for traditional library purposes.

E. Information Furnished

1. By NLM

a. Statement of Scope of Work for present Study and Amendment.

b. Organization charts.

c. Statement of NLM Organization and Functions.

d. NLM Preliminary Program and Financial Plan 1970-1974.

e. Planning Documents for the Biomedical Communications Network.

f. Request for Proposal on Graphic Image System.

g. Statements on Microfilming Programs and Film Vault Capacity.

h. GSA - HEW Office Space Formula.

2. Information Available to Architects

a. Original plan of NLM as of 1963 and of subsequent alterations to include MEDLARS I installation, Billings auditorium, and lunch room.

b. Plans for MEDLARS II and recent renovations on "C" level.

c. Feasibility Study (1967) New Facility for NLM.

d. Feasibility Study (1968) Expansion and Location NMAC.

e. Program of proposed Fogarty International Center for Advanced Study in the Health Sciences.

F. Meetings

1. October 10th 1968

a. Messrs. Russell, Hill, Styers (NLM), Koester, Stephens (RFPB-NIH) and Chu (O'C & K). Preliminary planning of Study.

2. October 28th 1968

a. Messrs. Hill, McGroarty and others (NLM), Chu and Wright (O'C & K). General information meeting; collection of building field data.

3. November 14th 1968

a. Dr. Cummings, Messrs. Hill (NLM), Kilham and Chu (O'C & K). General policy meeting.

b. Messrs. Waters, Miller, Bagg, Hill (NLM), Kilham and Chu (O'C & K). Meeting on microfilming program and proposed Graphic Image Storage and Retrieval System.

c. Messrs. Asch, Smith, Hill (NLM), Kilham and Chu (O'C & K). Meeting on OCES programs and activities.

d. Messrs. Smith, Costabile, Hill (NLM), Kilham and Chu (O'C & K). On growth of literature collection.

e. Messrs. McCarn, Hill (NLM), Kilham and Chu (O'C & K). On functions and concept of LHNCBC.

4. November 20th 1968

a. Dr. Rice, Messrs. Hill (NLM), Chu and Wright (O'C & K). On functions and concept of SIS.

b. Messrs. Koester, Stephens (NIH), Hill (NLM), Chu and Wright (O'C & K). Parking, Cafeteria and Utilities.

5. December 5th 1968

a. Dr. Leiter, Messrs. Waters, Smith, Hill (NLM), and Chu (O'C & K). Detailed review of requirements of Library Operation Division.

b. Messrs. Parker, Joyce (NLM) and Chu (O'C & K). On projected LHNCBC facilities.

6. December 18th and 19th 1968

a. Messrs. Hill (NLM) and Chu (O'C & K). Detail review of overall program requirements.

7. December 27th 1968

a. Dr. Cummings, Messrs. Adams, Hill (NLM), Kilham and Chu (O'C & K). Review and adjustment of overall program requirements.

b. Mr. Parker (NLM), and Mr. Kilham (O'C & K). On LHNCBC facilities.

8. January 14th 1969

a. Dr. Leiter, Messrs. Smith, Hill (NLM), and Chu (O'C & K). Review of diagrammatic plans of existing building for 1974.

9. January 21st 1969

a. Messrs. Parker, Hill (NLM), and Kilham (O'C & K). Visit to the Goddard Space Center.

10. January 22nd 1969

a. Dr. Cummings, Messrs. Russell, Hill (NLM), Kilham and Chu (O'C & K). Review of schematic plans for 1974. Discussion on modification of NMAC approach.

b. Messrs. McCarn, Parker, Hill (NLM), Kilham and Chu (O'C & K). On LHNCBC after visit to Sterling Institute.

11. March 6th 1969

a. Dr. Davis, Messrs. Hill, (NLM), Kilham and Chu (O'C & K). LHNCBC review.

b. Dr. Cummings, Messrs. Hill (NLM), Kilham and Chu (O'C & K). Final general review.

G. Criteria

1. Existing NLM Bldg.

Rehabilitate as basic National Library of Medicine with functions as originally authorized.

2. New Structure

Develop scheme - a new structure to meet new and expanded requirements of NLM as "Bio-medical Communications Center." (Combined with enlarged activities of the NMAC, this, initially, required the restudy and updating of the program developed in Feasibility Studies I (LHNCBC) and II (NMAC) reducing the overall program to integrate it into requirements of one combined structure).

3. Linkage

Provide proper "linkage" as part of the new construction so combined facilities can operate efficiently as one institution.

4. Relationships

The general shape and design characteristics of the building must be harmonious with or complimentary to the present NLM facility and present and planned structures in the immediate area.

5. Future Projects

Make adequate allowance for future expansion on site with indication of a possible plan.

6. Flexibility

New floor space to be designed with the capability of change of arrangements of partitions and utilities to permit future departmental expansion and/or modification of layout.

7. Fogarty Center

Coordinate NLM program with developments for the adjacent Fogarty Center, particularly in relation to Parking & Eating Facilities.

8. Parking

Coordinate with N.I.H. overall parking program.

9. Fallout Protection

Meet requirements as furnished by the Office of Civilian Defense.

10. Utilities

Coordinate development with N.I.H. to determine what part of NLM project cost will be shared with N.I.H. with particular reference to any required plant expansion where new or extended utilities are required.

III. SURVEY

A. Requirements

1. Feasibility Study.

The Contract of Nov. 20, 1968 stated: "Independently and not as an agent of the Government, the contractor will perform a study to combine in one building the requirements of the National Library of Medicine including the National Medical Audiovisual Center, already examined in two previous studies for the purpose of accommodating the total space requirements of the present and planned programs of the National Library of Medicine in the most efficient manner."

As amended 7 March 1969 (prior verbal notification) the NMAC was omitted from the project on the assumption it would remain in Atlanta.

2. Scope

"Specifically, the contractor will:

a. Update analysis of current and projected space needs contained in the two previous studies dealing with NLM building requirements.

b. Through consultation with NLM officials and study of documents to be supplied adjust total space requirements program for 1974 developed in two previous studies to reflect current NLM growth and program plans.

c. Through consultation with NLM and NIH officials adjust total space analysis performed in previous studies and total space requirements program for 1974 to reflect the exclusion of some non-program facilities.

d. On the basis of the foregoing analyses, adjustments and consultations describe a recommended approach to the location, size and general design characteristics of a new NLM facility subject to the following constraints and using information developed in the two previous studies to the maximum extent possible.

1) The location of the facility will be within the area contiguous to the NLM considered available for this purpose in the Master Plan for the National Institutes of Health. The Contractor will consult with the Chief, Research Facilities Planning Branch of the National Institutes of Health and take appropriate cognizance of total site planning and development for the NIH campus.

2) The general shape and design characteristics of the building must be harmonious with or complimentary to the present NLM facility and present and planned structures in the immediate area.

3) The dependence of the NLM on the NIH for utilities (electricity, chilled water, hot water, etc.) must be taken fully into account.

e. The analysis and recommendation required above will be consolidated in a final report which contains suitable graphic analysis, diagrammatic sketches, line perspectives and models which effectively describe relationships between specific activities and gross space requirements for those activities. The report will also contain general construction cost estimates based on similar projects performed elsewhere, but not reflecting precision cost estimating techniques usually associated with detailed design and specifications. The cost estimate will include the cost of utilities and their extension from NIH, appropriate landscaping and conversion of space in the present NLM building. One hundred and fifty (150) copies of this report will be provided."

Following the amendment it was agreed a schedule of the requirements of the NMAC as a separate building would be included in the Appendix.

3. Delivery

Preliminary Report - on or before January 7, 1969.

Final Report - on or before March 1, 1969,
extended to March 21, 1969.

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NMAC
NATIONAL MEDICAL AUDIOVISUAL CENTER

- ADB — AQUISITION DISTRIB. & REFER. BRANCH
- ESB — EDUCATIONAL SYSTEMS & DEVELOP. BRANCH
- PB — PRODUCTION BRANCH

LHNCBC
LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS

- RDB — RESEARCH & DEVELOPMENT BRANCH
- NEB — NETWORK ENG COMMUNICATION & OPERATIONS BRANCH
- NPB — NETWORK PLANS & MANAGEMENT BRANCH
- CPB — CUSTOMERS PRODUCTS & SERVICES DEVELOP BRANCH

1969 ORGANIZATION CHART EXHIBIT 2

B. Activities of NLM

1. Activities

The National Library of Medicine:

a. Assists the advancement of medical and related sciences through the collection, dissemination, and exchange of information important to the progress of medicine and health;

b. Serves as a national medical information resource for medical education, research, and service activities of Federal and private agencies, organizations, institutions, and individuals;

c. Publishes and distributes guides to medical literature and audiovisual materials in the form of catalogs, indexes, and bibliographies;

d. Develops, produces and disseminates indexes and bibliographies;

e. Develops, produces and disseminates audiovisual materials and systems and other aids to medical education, research and practices;

f. Supports the translation and publication of biomedical literature;

g. Provides support for medical library development and for training of biomedical librarians and other health information specialists;

h. Conducts and supports research in techniques and methods for recording, storing, retrieving, and communicating health information;

i. Provides technical consultation services and research assistance.

2. Organization

See Exhibit 2. (Facing Page)

3. Departmental Activities

a. Office of the Director - OD.

1) Directs and coordinates library activities.

2) Advises the Surgeon General on PHS policy relating to the management and control of biomedical communication media.

3) Studies, identifies and defines needs in biomedical communications.

4) Provides the secretariat for the NLM Board of Regents.

b. Office of Public Information and Publications Management - OPI.

1) Provides information services for the biomedical community and for the general public on NLM programs, services and products and on biomedical communications through press releases, pamphlets, exhibits and other media.

2) Coordinates the publication and distribution of NLM publications.

c. Office of Administrative Management - OAM.

Provides overall management and administrative services for the Library.

d. Office of Computer and Engineering Services - OCES.

1) Performs systems analysis in collaboration with user organizations to determine requirements for data processing support, and performs systems analysis and computer programming for the implementation of data processing systems.

2) Provides data processing technical interface with Medlars Centers.

3) Maintains operating systems.

4) Operates and maintains digital computer phototypesetting and related data processing storage retrieval and transmission equipment.

5) Establishes production schedules and performs production control for NLM machine based operations.

6) Produces and distributes magnetic tape to MEDLARS Search Centers and other authorized users in the United States and abroad.

e. Office of the Associate Director for Library Operations - LO.

1) Administers the Library's direct operations.

2) Analyzes and evaluates direct operations in relation to program needs.

3) Plans and administers a national biomedical library network.

f. Office of the Associate Director for Extramural Programs - EMP.

1) Administers programs to augment and strengthen the health sciences libraries of the nation and to improve biomedical communications through grants to, or contracts with, non-federal and private institutions.

2) Analyzes and evaluates extramural programs in relation to program objectives and national needs to achieve balanced and effective support.

3) Provides grants management, grants processing, and administrative management services.

g. Office of the Associate Director for Specialized Information Services - SIS.

1) Coordinates the development and operation of specialized information services throughout the NLM.

2) Plans, develops and operates a national toxicological information system.

3) Develops and administers a program to organize and analyze published information on the effects of drugs and chemical on man, and prepares special bibliographies and reports on that subject.

h. National Medical Audiovisual Center - NMAC-Atlanta

1) Office of the Associate Director for Audiovisual Telecommunications.

a) Plans, directs, coordinates, and evaluates a national program in biomedical audiovisual and telecommunications; and

b) Provides program management support for the National Medical Audiovisual Center.

2) National Medical Audiovisual Center (Atlanta).

a) Operates the central facility in the Public Health Service for the development, production, distribution, evaluation, and utilization of motion pictures, videotapes, and other audiovisual forms.

b) Coordinates a comprehensive audiovisual program for the Service to assure maximum responsiveness and economy of funds and manpower.

c) Provides consultation and assistance in the development of specialized audiovisual activities.

d) Encourages the production, dissemination, and utilization of medical films and other audiovisuals in the schools of health professions and elsewhere.

e) Operates a national clearing house and archival program.

f) Acts as a national/international film and videotape center for the distribution and exchange of biomedical audiovisuals.

i. Lister Hill National Center for Biomedical Communications - LHNCBC.

1) Designs, develops, implements, and manages a Biomedical Communications Network.

2) Assists the biomedical community in identifying and developing products and services for dissemination through the network.

3) Develops networks and information systems to improve health education, medical research, and the delivery of health services.

4) Applies technology to the improvement of biomedical communications.

5) Represents DHEW in Federal activities related to information communications activities.

6) Serves as the focal point in the Department for development and coordination of biomedical communications,systems, and network projects.

4. Growth of Activities - 5 year plan - 1970-74

In accordance with the reorganization of health activities in the Department of Health, Education, and Welfare, the National Library of Medicine will continue to serve as the Department's vital center for health communications and related scientific information systems development.

Objectives:

a. Support, strengthen, and encourage the development of the Nation's health information resources.

1) The NLM has developed a health information network concept which involves public and private health information resources and activities in an integrated national system.

2) The NLM will support and strengthen biomedical libraries and related institutions, build on and strengthen existing relationships between institutions involved in health communications, and take steps to enhance the role of the library as a learning resource center.

b. Expand and improve current library services at the NLM to provide back up to the national network and regional services to the Middle Atlantic area.

The NLM will serve as the ultimate backstop in the national medical library network. To do this, NLM will expand levels of bibliographic, reference, and loan services. The Library will also serve as the regional medical library for the Middle Atlantic area.

To achieve this objective during the period 1970-1974, intramural efforts will be directed toward:

1) Converting the present computerized Medical Literature Analysis and Retrieval System (MEDLARS) to an enlarged and expanded capability second-generation system (MEDLARS II);

2) Application of new techology to graphic image storage and retrieval and the development and installation of a prototype system; and,

3) Continued development and conversion of traditional library operations to automated systems.

All efforts must be conducted concurrently for maximum effectiveness. The main thrust (and heaviest funding requirements) of MEDLARS II development will occur during the period 1969-1972, while the mechanization of library operations and graphic image storage and retrieval development activities will occur in 1970 and 1971.

c. Provide rapid dissemination of biomedical information through audiovisual modes.

To accelerate the transfer of biomedical information and to augment existing media and human resources, present audiovisual capability will be upgraded and new modes will be developed for use in schools of the health professions, for continuing education of health scientists and practitioners, and for upgrading the health knowledge of the general population.

The main effort in achieving this objective will come from activities of the National Medical Audiovisual Center directed toward manpower development and training and improved communication of health information.

Direct funds will be used to provide:

1) Demonstration projects which can serve as prototypes for the utilization of new audiovisual concepts and media applications.

2) Technical assistance and advice to schools of the health professions in developing audiovisual capabilities and applying new technology.

3) Regional training conferences and seminars.

4) Expansion and systems integration of audio-visual material cataloging and bibliographic services with MEDLARS.

d. Develop and operate a computer-based national toxicological information system.

The NLM will develop and operate a comprehensive information system on toxicology, promote concensus on standards for use in health related information systems and respond to incoming requests for stored information, directly or by referral, and provide or arrange repackaging of stored material.

The first phase of this effort which is now in progress and will extend through 1970 is concerned with program planning and systems engineering and development to be accomplished through closely directed and monitored contracts to identify potential users of the system, identify sources of information to be used in compiling data banks, and develop specifications for a computer-based information system.

Later phases of the toxicology information program effort will be directed to experimental and pilot provision of services, system installation and actual operations.

e. Develop and operate a research and development program in biomedical communications.

The LHNCBC will design and develop communications systems, apply technology to operational problems and apply advanced communications technology along with other relevant technologies to implement a comprehensive public health services information network.

During the 1970-1974 period a highly skilled staff of information scientists and systems specialists will plan, design, and develop with contractual support a health information network. Also, during the first three years of the period the LHNCBC will be involved in the development of the full range of MEDLARS II technical capabilities, systems engineering and technical design of the computer-based toxicology information program, and the design and development of communications linkages between components of the emerging national medical library network.

5. Photographs

Photographs 1 thru 18 on pages 32 & 33 show various aspects of existing conditions and activities at the NLM as noted by captions.

C. Present Conditions

1. Project Location - Site Plan of N.I.H. - 1969
See Exhibit 3, facing page.

This plan shows the location of the project in the southeast corner of the National Institute of Health Reservation on Wisconsin Avenue in Bethesda. The existing NLM is indicated by Number 38.

The plan further indicates:

a. New Virus Laboratory #41.

b. Site of proposed Fogarty International Center for Advanced Study in the Health Science #45.

c. Buildings with Eating Facilities within the Reservation - indicated by symbol "C".

2. Project Site Plan of N.L.M. - See Exhibit 4, page 18.

a. Nearby parking areas of N.I.H. Additional parking areas under study by N.I.H.

b. Existing Utilities subject to new connections. Steam and chilled water are in tunnel - electricity in conduit. Water & sewage are public utility, use of which is negotiated for directly by NLM.

11 BOILER PLANT & REFRIGERATOR PLANT
38 NATIONAL LIBRARY OF MEDICINE
41 NEW VIRUS LABORATORY
45 PROPOSED FOGARTY CENTER
(C) EATING FACILITIES

EXISTING BUILDINGS

FUTURE BUILDINGS

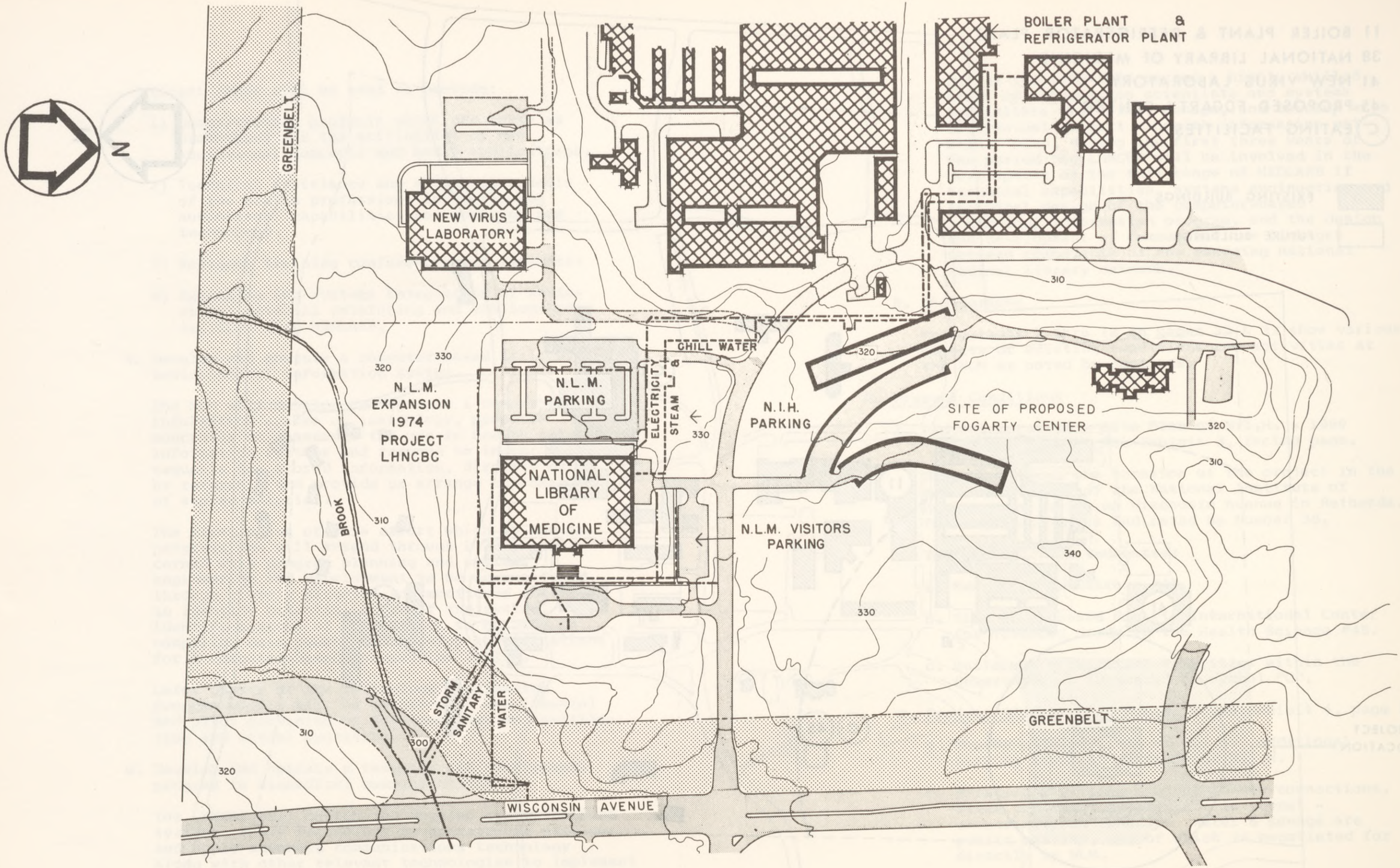
N

PROJECT LOCATION

0 100 200 300 400 500

1969 SITE PLAN OF NIH

EXHIBIT 3



NLM SITE PLAN EXHIBIT 4

c. N.L.M. Parking (West). An interim use of space reserved for major stack expansion now full to capacity.

d. NLM Parking - Visitors (North). Too small for present conditions.

e. NLM expansion site (southwest) proposed for this project.

f. "Greenbelt". Area surrounding N.I.H. Reservation. To be kept free of buildings or screening structures.

3. Facilities off N.I.H. Site

a. Blackwell Building, Bethesda. Space rented.

b. NMAC - Atlanta.

4. Lunch Room Facility. "A" Level

To be retained for box lunches from home, particularly for public working in library on Sundays when usual eating facilities are closed. New facilities to be available at proposed Fogarty Center.

5. Utilities

a. Water - Public Utility (Washington Suburban Sanitary Commission) - direct connection.

b. Sanitary Sewer - Public Utility (Washington Suburban Sanitary Commission) - direct connection.

c. Storm Water - direct outlet to brook.

d. Steam - obtained from N.I.H. Central Power Plant, Bldg. #11.

e. Chilled Water - obtained from N.I.H. Central Power Plant, Bldg. #11.

f. Electricity - connected to present feeders serving N.L.M.

g. Telephone - Chesapeake & Potomac Telephone Co.

6. Foundation Conditions

Solid rock - as indicated by borings available from construction of NLM and present new Virus Laboratory.

7. Zoning, Codes, and Controls

a. National Capital Planning Commission.

b. Montgomery County Zoning Ordinance (1960) does not place restrictions on government buildings.

c. National Building Code (N B F U).

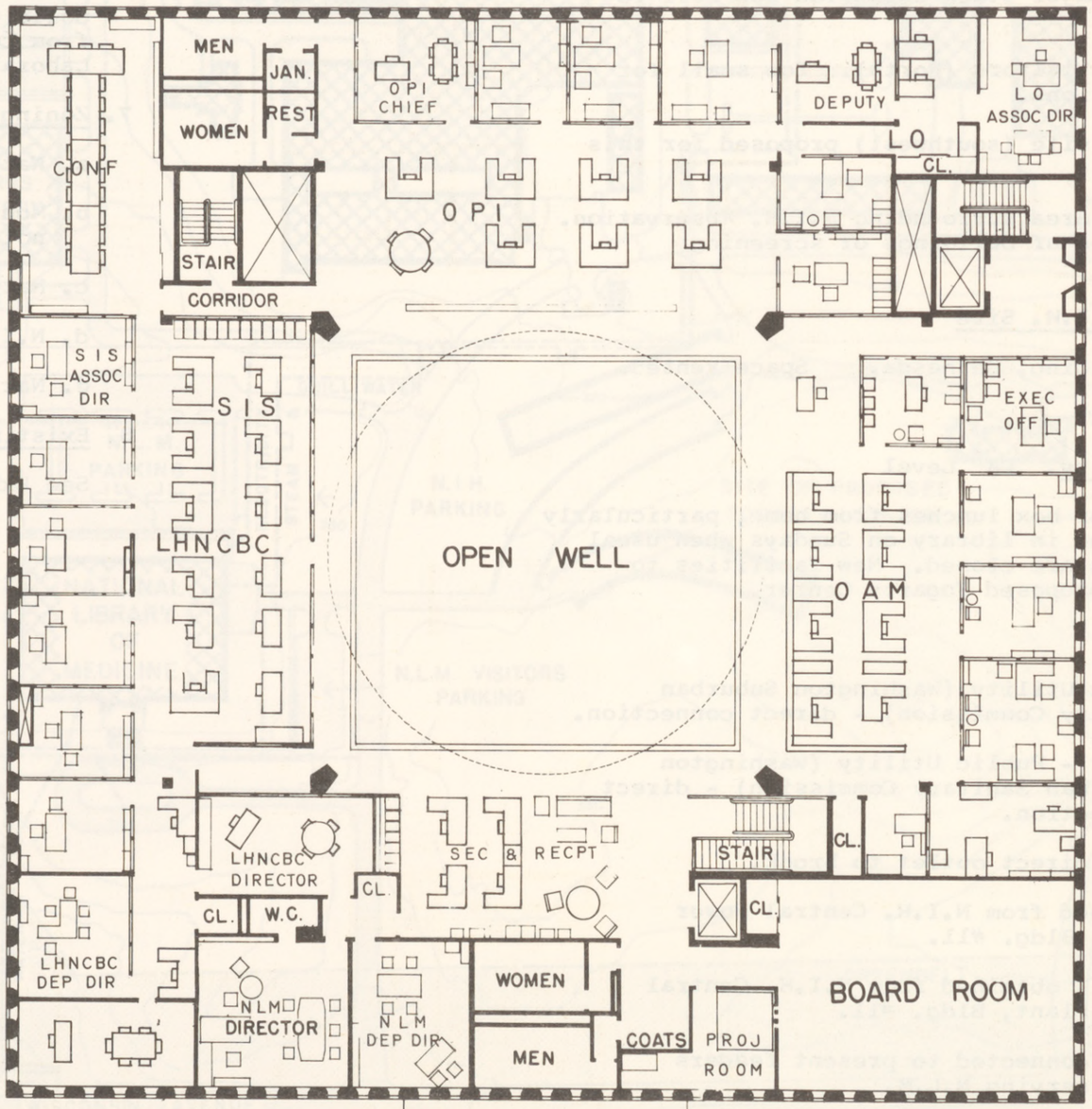
d. N.I.H. Office Committee on Fire Safety.

e. National Electrical Code (N B F U).

8. Existing Floor Plans of NLM

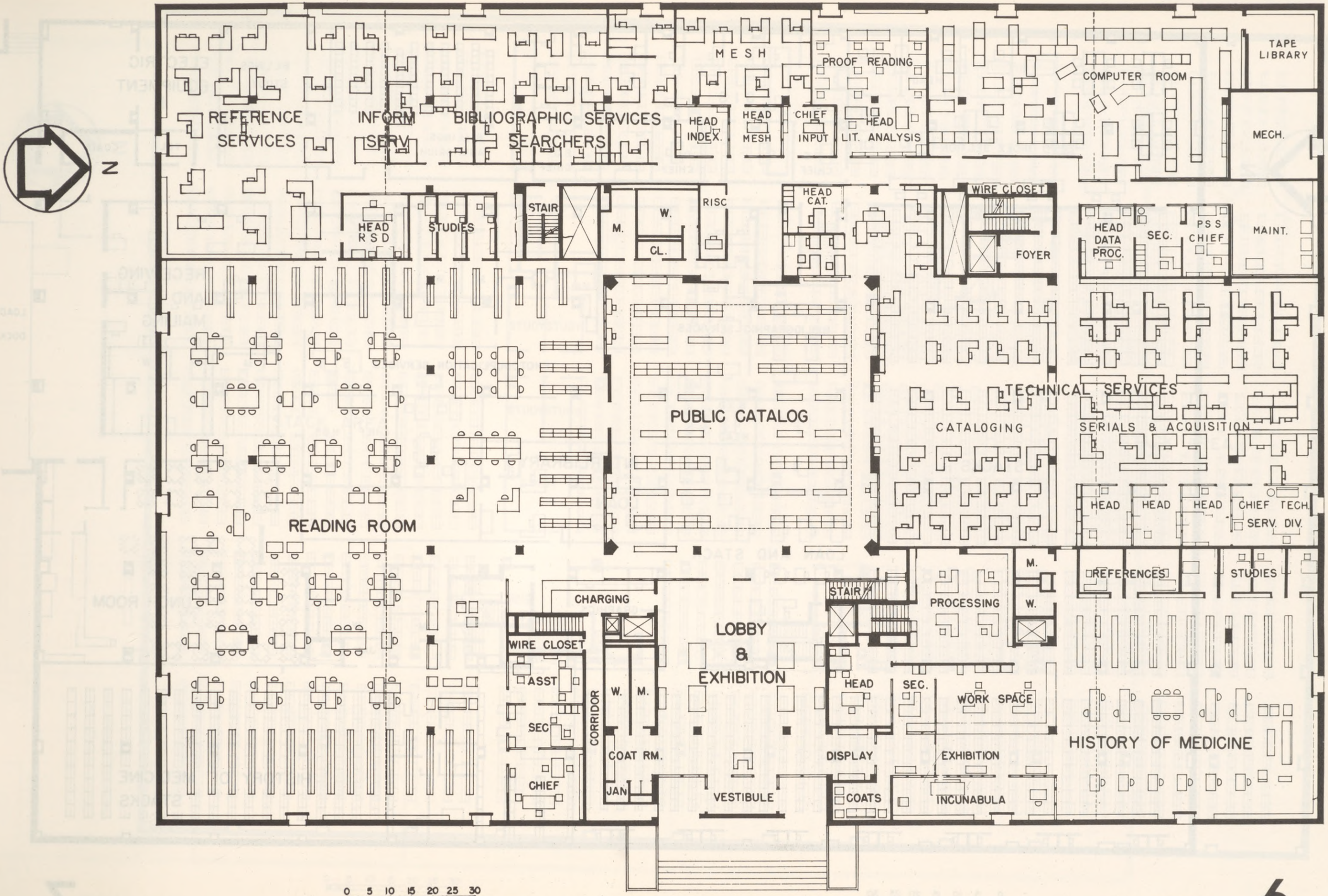
See Exhibits 5 through 9, pages 20 through 24, following.

N



0 5 10 15 20 25 30

1969 MEZZANINE FLOOR PLAN **EXHIBIT 5**



1969 FIRST FLOOR PLAN EXHIBIT 6

N

HEAD

BSD INDEX SECTION

SIS

PS CHIEF

DL CHIEF

FO CHIEF

BILLINGS AUDITORIUM

BILLINGS STUDY

ELECTRIC EQUIPMENT

TEL

COATS

STACKS

BIBLIOGRAPHIC SERVICES

M

W

PHOTODUPLICATION SERVICES

RECEIVING AND MAILING

LOADING DOCK

BSD HEAD

INTERLIBRARY LOAN

CHIEF

NBS

LOAN AND STACK

GRAPHICS

M

W

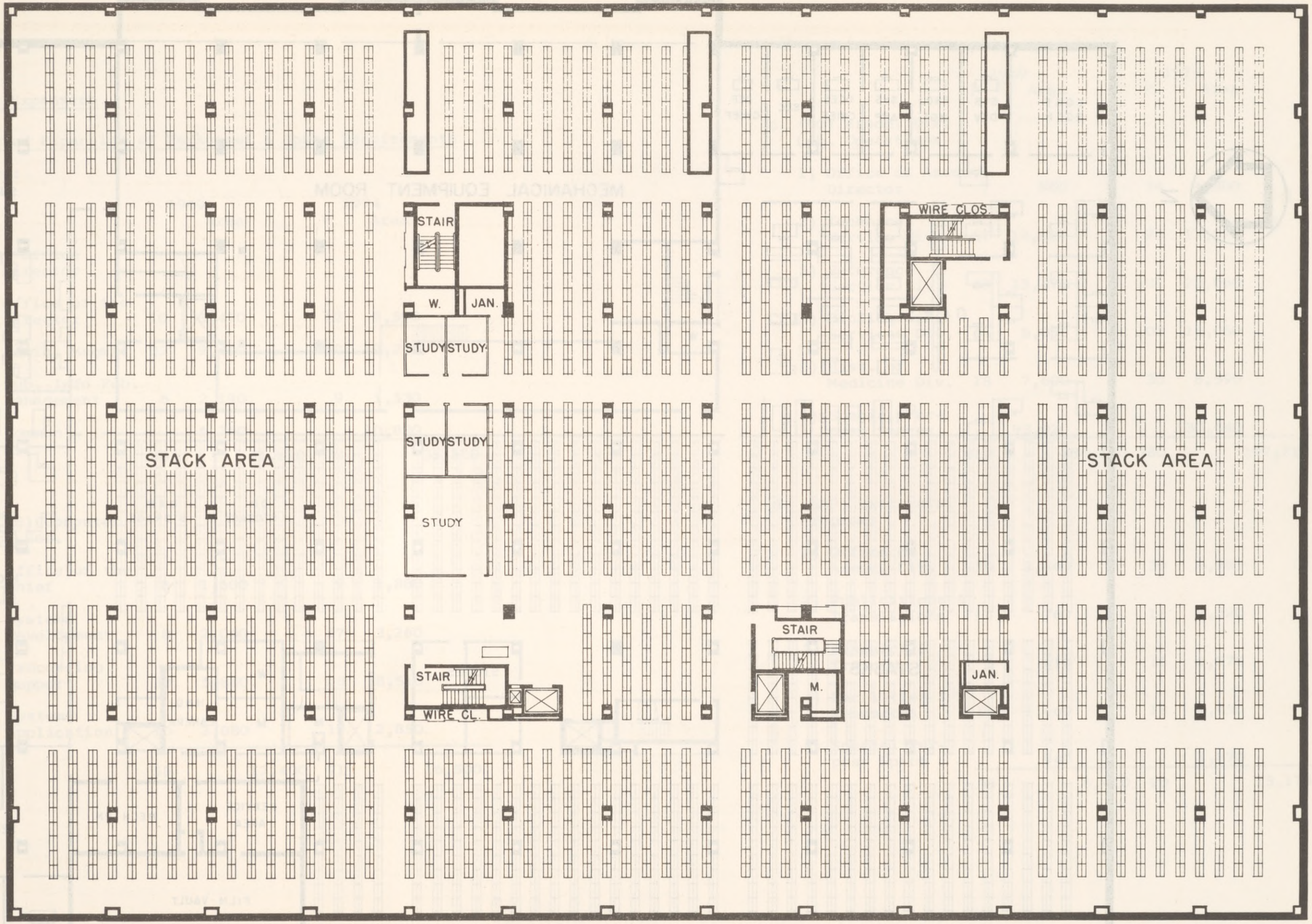
JAN.

LUNCH ROOM

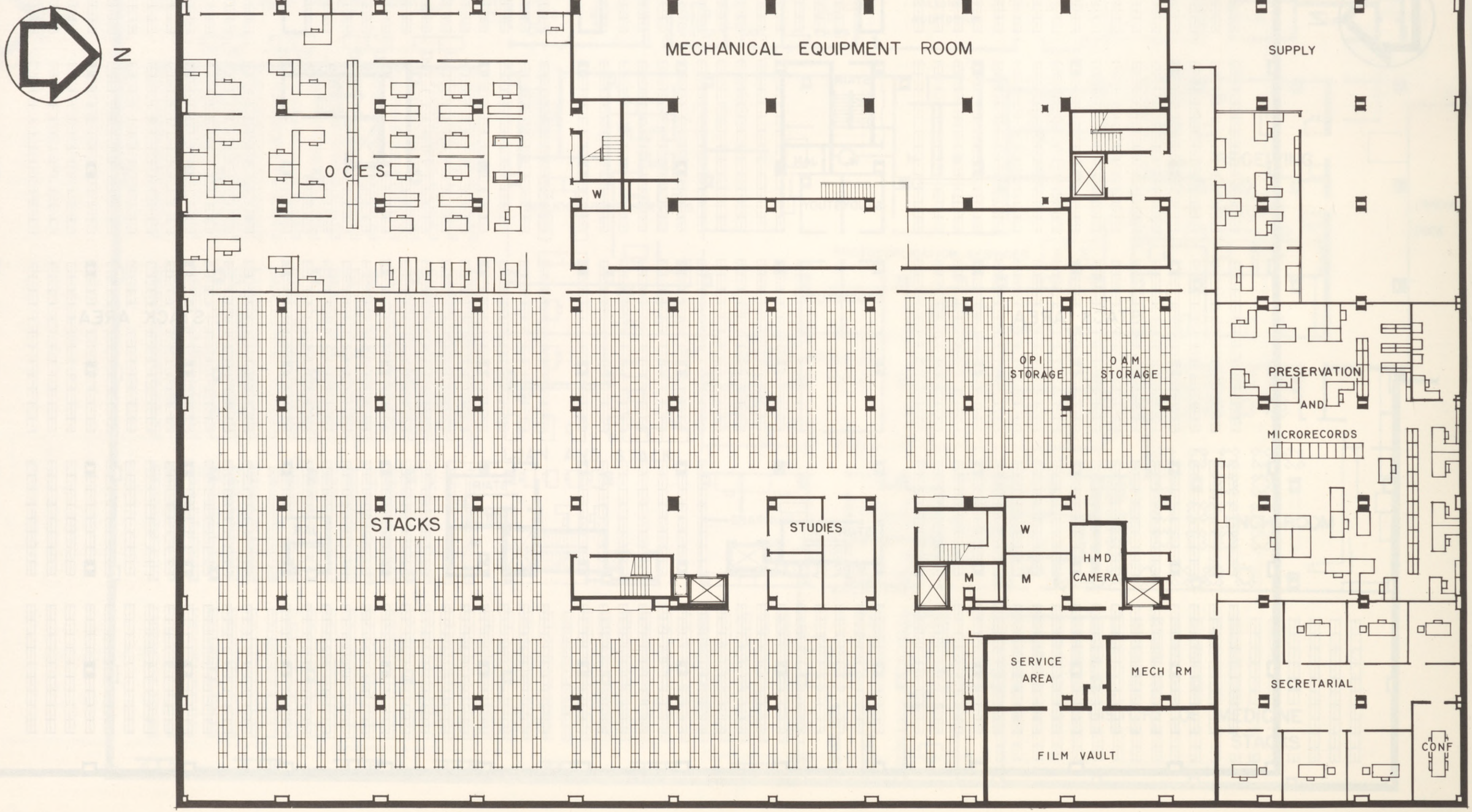
HISTORY OF MEDICINE STACKS

0 5 10 15 20 25 30

1969 A LEVEL PLAN EXHIBIT 7



1969 B LEVEL PLAN EXHIBIT 8



1969 C LEVEL PLAN EXHIBIT 9

D. Five Year Expansion

1. Projected Expansion of Personnel & Space Requirements

Summary:

	1969 P	1969 Area	1974 P	1974 Area
a. (OD) Office of Director				
1) Office of the Director	10	3,470	13	3,590
2) Admin. Mngmt.	32	9,430	50	19,240
3) Pub. Info Pub. Management	6	2,190	9	1,530
4) Common		6,260		10,820
	48	21,310	72	35,180
b. (OCES) Computer Eng. Ser.				
1) Office of the Chief	8	1,600	9	1,880
2) Systems Development	8	2,040	17	3,260
3) Processing Support	32	5,880	28	8,510
4) Systems Application	10	2,880	17	2,850
	58	12,400	71	16,500
c. (LO) Assoc. Dir. Lib. Operations				
1) Office of Assoc. Director	7	960	34	4,300
2) Technical Service Div.	57	12,820	93	17,070
3) Reference Service Div.	69	13,470	121	22,060
4) Bibliographic Services Div.	61	8,050	102	15,050
5) Hist. of Medicine Div.	18	7,600	30	8,590
6) Special Purpose Spaces		93,020		130,640
	212	136,020	380	197,710
d. (EMP) Extramural Programs				
1) Office of Assoc. Dir.	19	2,440	36	4,360
2) Publications & Translations	4	760	18	2,220
3) Research & Training	3	610	18	2,270
4) Facilities & Resources	12	1,660	18	2,450
5) Special Purpose Space		940		1,870
	38	6,410	90	13,170

	1969 P	1969 Area	1974 P	1974 Area
e. (SIS) Specialized Info Services				
1) Office of Assoc. Dir.	3	650	20	2,560
2) Toxicology Info Exchange	1	180	60	7,690
3) Services Development	9	1,050	47	5,950
4) Drug Literature Program	7	630	19	2,310
5) Common Space		580		1,800
6) Other Personnel		140		
	20	3,230	146	20,310
f. (LHNCBC) Lister Hill Nat. Center				
1) Office of Director	5	980	11	3,190
2) Plans & Management	2	300	17	2,370
3) Research & Development	2	410	17	7,660
4) Network Engineering	3	700	35	20,310
5) Customer Products & Services	3	450	20	4,520
6) Reference Facility	0	0		2,500
7) Antenna Facility			0	2,050
	15	2,840	100	42,600
TOTALS a, b, c, d, e, f.	391	182,210	859	325,470

For complete breakdown see Appendix I.

2. Types of Space Required

For the purposes of estimating costs at this time the following general categories of space have been determined.

a. Office space - offices, work rooms and conference rooms with normal requirements.

b. Technical spaces - office type work spaces with additional power outlets and/or mechanical system to provide for special lighting, use of special audiovisual or camera equipment, etc.

c. Laboratory space - work space with special requirements for plumbing, mechanical, electric and/or other services. Photographic dark rooms for example.

d. Classroom space - places of assembly for conferences, seminars and instructional purposes.

e. Special purpose space - space specifically designed for and equipped for special purposes such as computer space and Communication Network Center.

f. Storage space.

3. Departmental space allocations. See Exhibits 10 & 11. Pages 27 & 28.

a. With the construction of the LHNCBC certain non-traditional library departments will move to the new center permitting expansion of certain library and NLM administration within the existing building. However, additional space for "traditional" library departments will still be required in the new building.

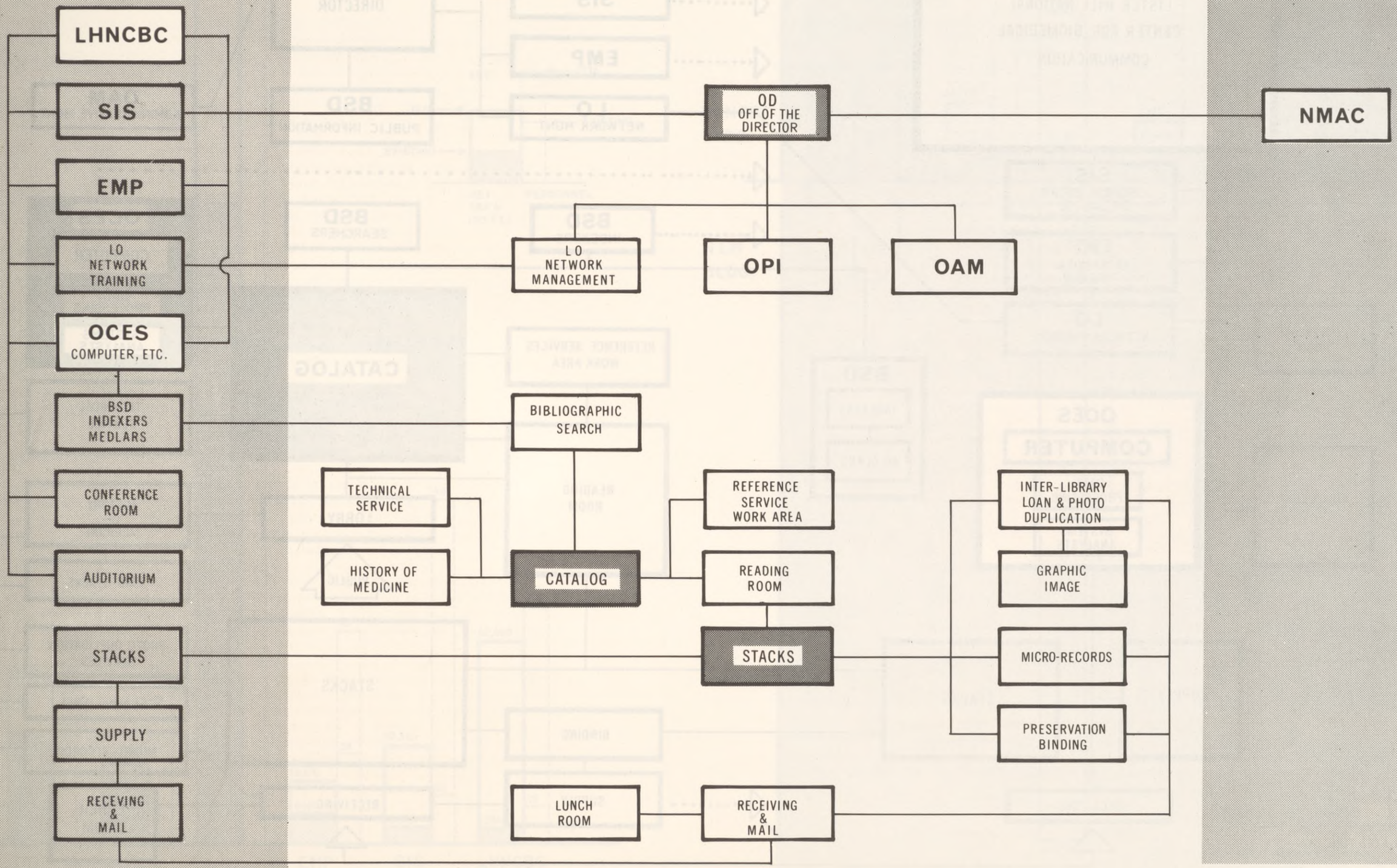
b. Some stack space will be required and more will be made available in the new structure to take care of expansion for 20 years until 1989, with provision reserved for major stack expansion taking place at a later date in the area immediately west of the NLM building, as originally intended. It is now used for parking.

c. Exhibit 12, page 29, shows the expanded program in diagrammatic form and indicates those facilities which will remain in the NLM and which will be located in the new LHNCBC.

FACILITIES IN NEW BUILDING.

FACILITIES IN EXISTING BUILDING.

FACILITIES IN ATLANTA.



ORGANIZATIONAL RELATIONSHIP DIAGRAM **EXHIBIT 10**

FACILITIES IN NEW BUILDING

LHNCBC
LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATION

SIS
SERVICES INFORM. SPECIALIZED

EMP
EXTRAMURAL PROGRAM

LO
NETWORK TRAINING

CONFERENCE ROOM

PUBLIC

AUDITORIUM

OCES
COMPUTER
DATA PROCESSING
SYSTEMS ANALYSTS

BSD
INDEXERS
MEDLARS

SUPPLY

STACKS

RECEIVING

SYMBOLS

RELATED FUNCTION

FUNCTION TO BE RELOCATED IN NEW BUILDING

CURRENT FACILITIES

LHNCBC

SIS

EMP

LO
NETWORK MGNT

OD
DIRECTOR

BSD
PUBLIC INFORMATION

OAM
ADMINISTRATIVE MGNT

BSD
INDEXERS

BSD
SEARCHERS

OCES
COMPUTER
DATA PROCESSING
SYSTEMS ANALYSTS

REFERENCE SERVICES WORK AREA

CATALOG

TECHNICAL SERVICE

READING ROOM

LOBBY

HISTORY OF MEDICINE

PUBLIC

HMD STACKS

STACKS

PHOTO DUPLICATION SERVICES

GRAPHIC IMAGE

BINDING

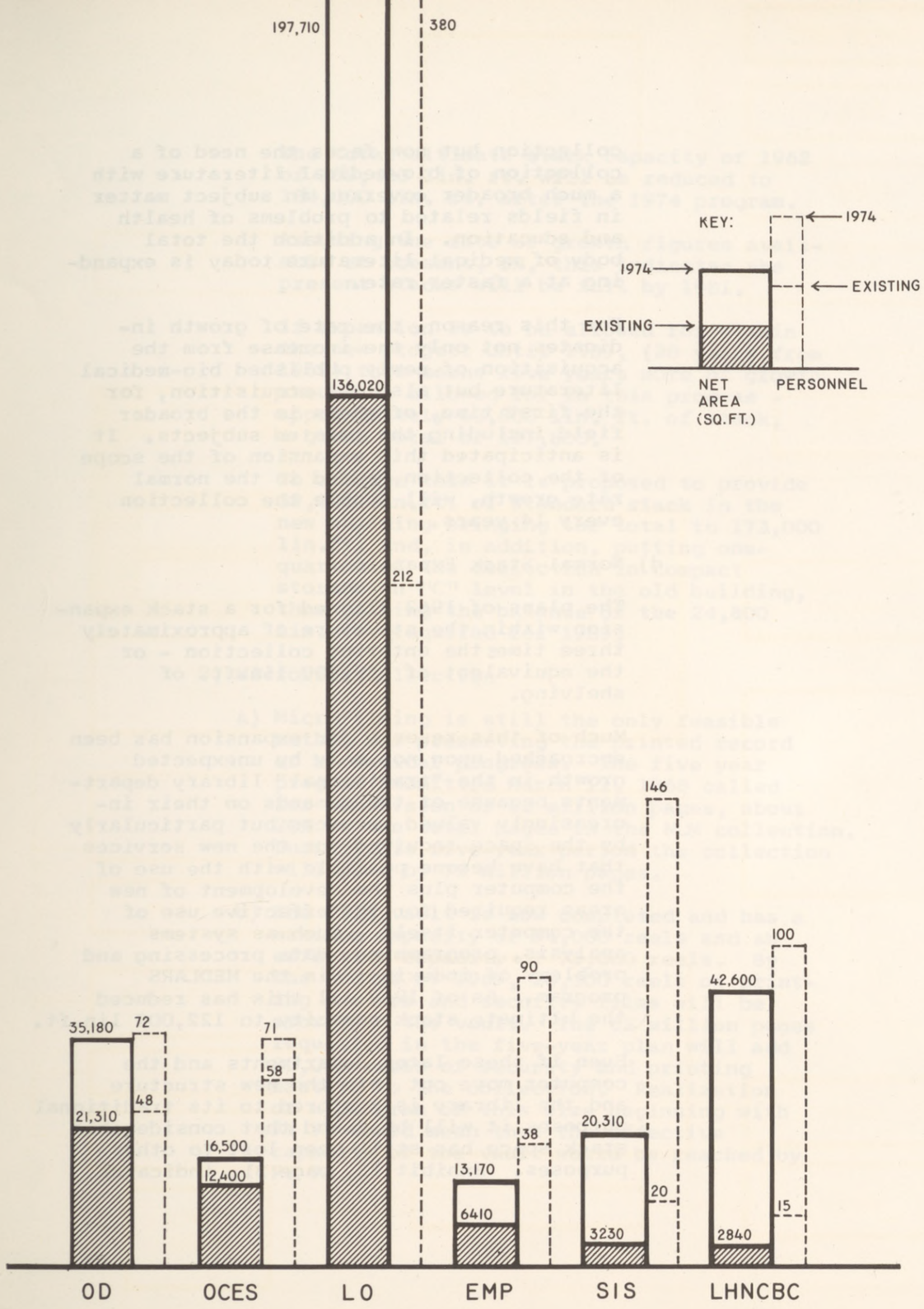
MICRO-RECORDS

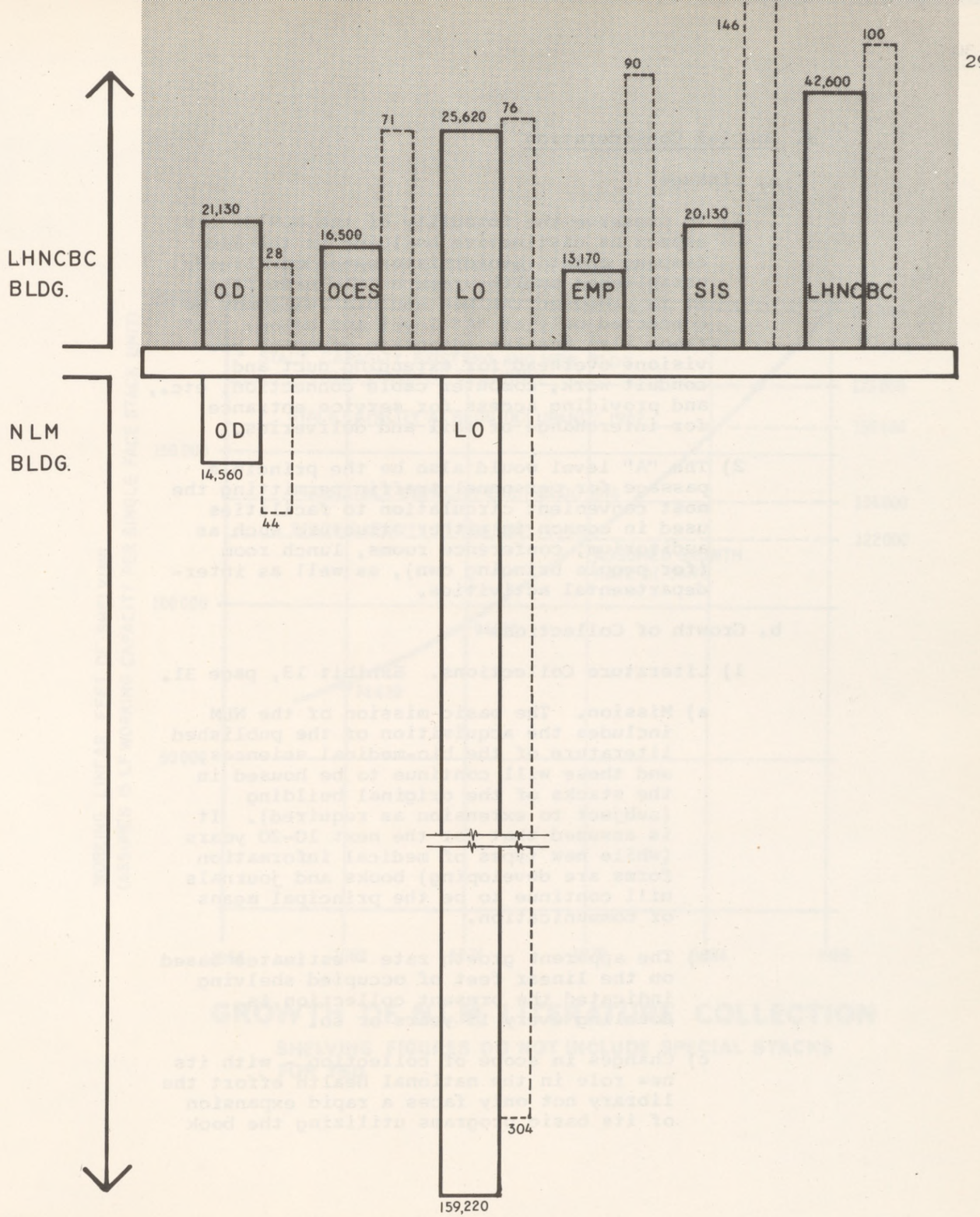
SUPPLY

RECEIVING

LUNCH ROOM

PHYSICAL RELATIONSHIP DIAGRAM EXHIBIT 11





PROPOSED NLM PROGRAM FOR 1974 (BETHESDA) **EXHIBIT 12**

4. Special Consideration

a. Linkage

1) To preserve the integrity of the NLM in its aspect as distinctive building on the NIH campus, and to avoid disturbance of already established public areas on the main floor, it is proposed the new and old buildings be connected only at "A" level and below. "A" floor also has the advantage of space provisions overhead for extending duct and conduit work, computer cable connection, etc., and providing access for service entrance for interchange of mail and deliveries.

2) The "A" level would also be the principle passage for personnel traffic permitting the most convenient circulation to facilities used in common in either structure such as auditorium, conference rooms, lunch room (for people bringing own), as well as interdepartmental activities.

b. Growth of Collections

1) Literature Collections. Exhibit 13, page 31.

a) Mission. The basic mission of the NLM includes the acquisition of the published literature of the bio-medical sciences, and these will continue to be housed in the stacks of the original building (subject to extension as required). It is assumed that for the next 10-20 years (while new types of medical information forms are developing) books and journals will continue to be the principal means of communication.

b) The apparent growth rate - estimates based on the linear feet of occupied shelving indicated the present collection is doubling every 15 years or so.

c) Changes in scope of collection - with its new role in the national health effort the library not only faces a rapid expansion of its basic programs utilizing the book collection but now faces the need of a collection of bio-medical literature with a much broader coverage in subject matter in fields related to problems of health and education. In addition the total body of medical literature today is expanding at a faster rate.

For this reason, the rate of growth indicates not only the increase from the acquisition of newly published bio-medical literature but also the acquisition, for the first time, of books in the broader field including the related subjects. It is anticipated this expansion of the scope of the collection, added to the normal rate growth, will double the collection every 14 years.

d) Normal Stack Expansion

The plans of 1962 allowed for a stack expansion within the structure of approximately three times the entering collection - or the equivalent of 159,400 lin.ft. of shelving.

Much of this reserve for expansion has been encroached upon not only by unexpected growth in the "traditional" library departments because of the demands on their increasingly valued services but particularly by the space required for the new services that have become possible with the use of the computer plus the development of new areas required for the effective use of the computer itself - such as systems analysis, programming, data processing and problems of indexing - in the MEDLARS program. As of 1969 all this has reduced the ultimate stack capacity to 122,000 lin.ft.

Even if these later departments and the computer move out into the new structure and the library is restored to its traditional purposes it will be found that considerable stack space has still been lost to other purposes. Exhibit 13, page 31, indicates

the total ultimate stack capacity of 1962 of 159,400 lin. ft. will be reduced to 134,000 lin. ft. after the 1974 program.

Assuming the rate of growth figures available at present, 5%, this indicates the present stacks will be full by 1981.

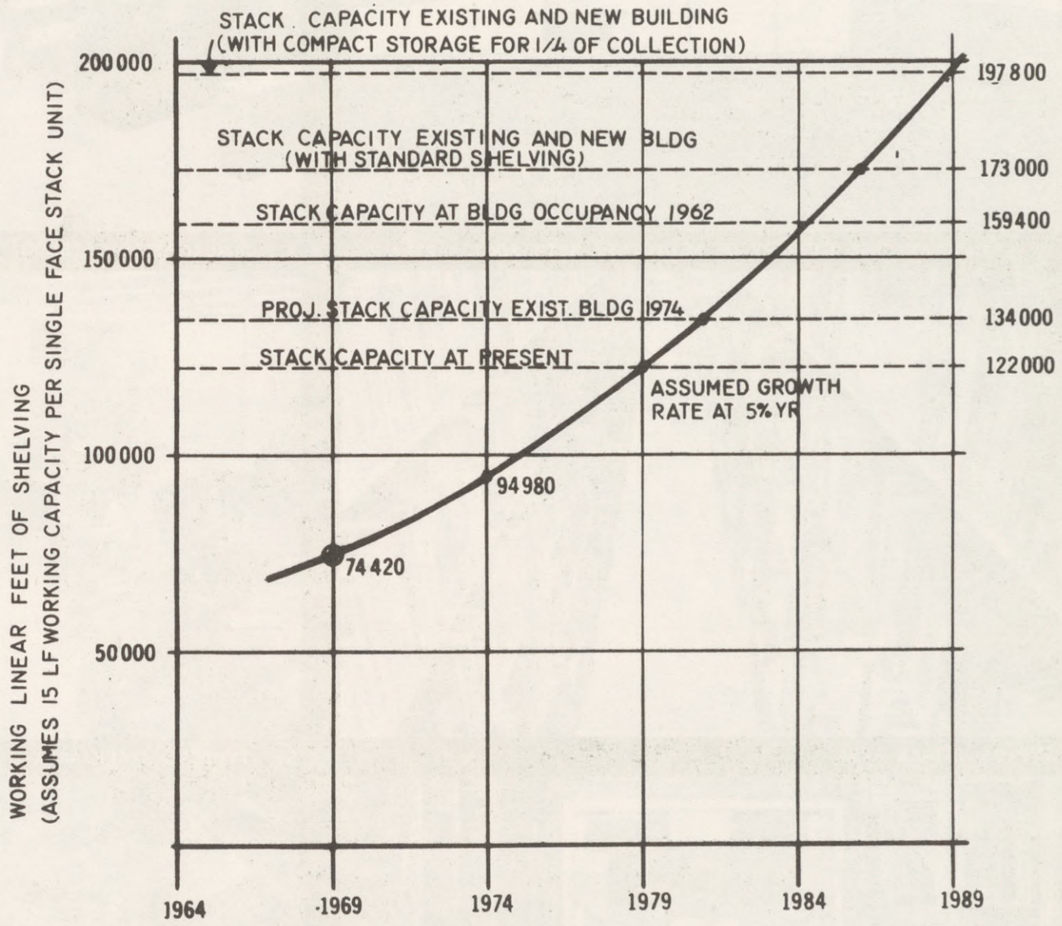
If expansion is to be allowed for within the new project until 1989, (20 years from 1969) this means five years more of growth should be allowed for in this program - approximately 63,800 lin. ft. of stack, a grand total of 197,800.

To achieve this it is proposed to provide 39,000 lin.ft. of standard stack in the new building bringing the total to 173,000 lin.ft. and, in addition, putting one-quarter of the collection in compact storage on "C" level in the old building, thus gaining the balance of the 24,800 lin. ft. required for 1989.

2) Microfilm Collection

a) Microfilming is still the only feasible method for preserving the printed record of biomedical progress. The five year program submitted March 11, 1968 called for conversion of 62 million pages, about 20% of the total pages in the NLM collection. During this five-year period the collection will grow by 75 million pages.

b) The film vault is now completed and has a maximum capacity of 94,000 reels and an effective capacity of 75,000 reels. By the end of FY 1969, 20,300 reels of printing masters and security films will be stored in the vault. The 62 million pages requested in the five-year plan will add 80,000 reels of security and printing masters to the collection. Realization of a program of this size beginning with FY 71 would mean that the effective capacity of the vault would be reached by FY 74.



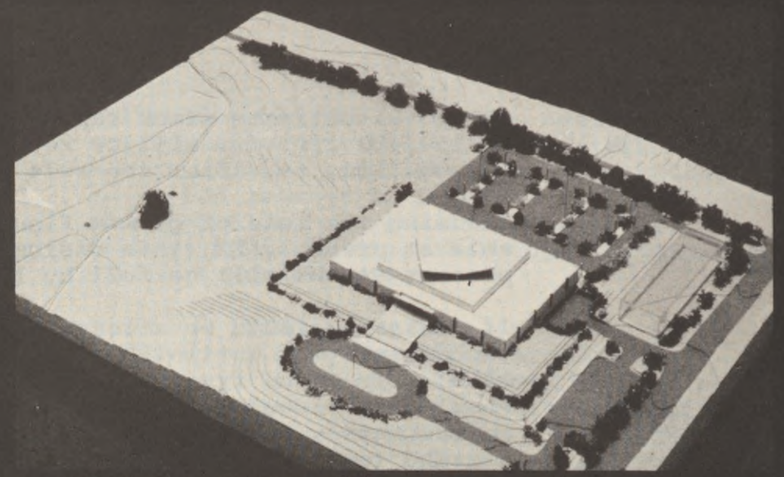
GROWTH OF N.L.M. LITERATURE COLLECTION

SHELVING FIGURES DO NOT INCLUDE SPECIAL STACKS FOR TSD

EXHIBIT 13

1. EXISTING NATIONAL LIBRARY OF MEDICINE, BETHESDA, MARYLAND

2. PUBLIC CARD CATALOG



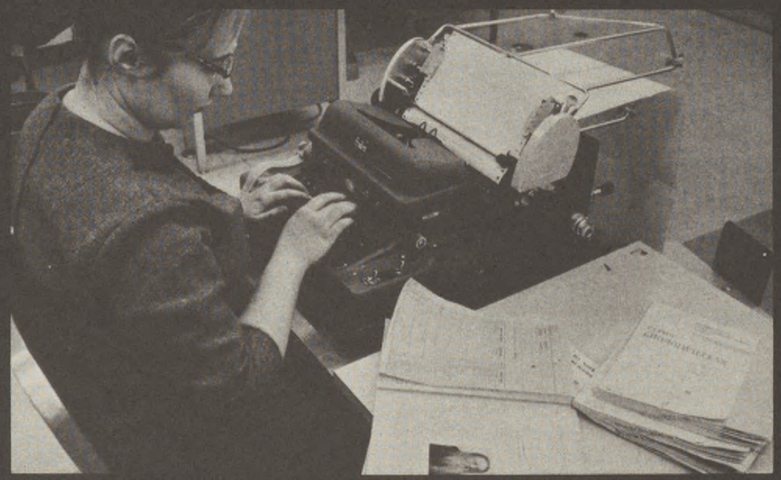
3. EXISTING N.L.M. SITE MODEL

4. TYPICAL STACK AREA

5. TYPICAL STAFF AREA

6. READING ROOM - CARREL TYPE SEATING

7. MOVABLE CAMERA WITHIN STACK - PHOTOGRAPHY FROM PAGE TO MICROFILM

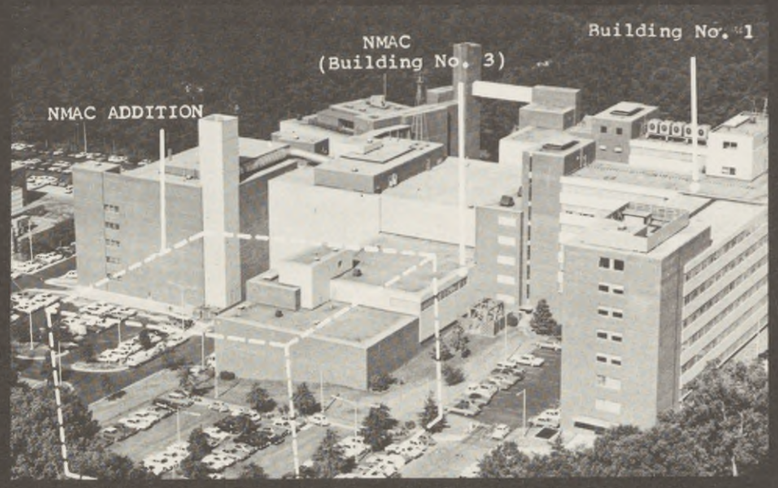


8. PUNCH PAPER TAPE DATA-INPUT TYPEWRITER – MEDLARS

9. MEDLARS INSTALLATION - CONSOLE & PAPER TAPE READERS

10. EXISTING PARKING - FUTURE BOOKSTACKS

11. EXTERIOR NLM - FUTURE JUNCTURE OF TERRACE



12. ATLANTA. CDC COMPLEX OF NMAC

13. FILM DISTRIBUTION - NMAC

14. SEMINARS AND WORKSHOPS - NMAC

15. TELEVISION STUDIO - NMAC

16. INDEX MEDICUS

CEREBROVASCULAR SUBJECT

stimulation and temperature on the contractility of the rat myocardium injured by anoxia. Krofta K, et al. **Physiol Bohemoslov** 14:238-40, 1965
Cit. no. 1335642

The resistance of the myocardium to anoxia in animals acclimated to simulated altitude. Poupa O, et al. **Physiol Bohemoslov** 14:233-7, 1965
Cit. no. 1335641

Polycythaemia in neoplastic diseases. Penington DG. **Proc Roy Soc Med** 58:488-90, Jul 65
Cit. no. 1273333

Coronary artery enlargement in the hypoxic white rat. Kerr A Jr, et al. **Proc Soc Exp Biol Med** 119:717-8, Jul 65
Cit. no. 1331646

Radiation response of mammalian cells grown in culture V. Temperature dependence of the repair of x-ray damage in surviving cells (aerobic and hypoxic). Elkind MM, et al. **Radiat Res** 25:359-76, Jun 65
Cit. no. 1210742

Influence of moderate hypoxia in one lung on the distribution of the pulmonary circulation and ventilation. Arborelius M Jr. **Scand J Clin Lab Invest** 17:257-9, 1965
Cit. no. 1277755

Blood sludging and tissue destruction in burns. Berkeley WT Jr. **Southern Med J** 58:1182-4, Sep 65
Cit. no. 1341730

Management of diabetic patients during surgery. Packovich MJ, et al. **Surg Clin N Amer** 45:975-82, Aug 65
Cit. no. 1257102

Untoward ophthalmic and neurologic events of anesthesia. Terry HR Jr, et al. **Surg Clin N Amer** 45:927-38, Aug 65
Cit. no. 1257076

Anaesthesist 13:337-40, Oct 64 (Ger)
Cit. no. 1277203

[Construction and use of the hyperbaric oxygen chamber] Rodewald G, et al. **Anaesthesist** 14:100-3, Apr 65 (Ger)
Cit. no. 1271451

[On the problem of the hepatotoxicity of halothane. Animal experiments with special reference to hypoxia doses] Schweikert CH, et al. **Anaesthesist** 14:74-9, Mar 65 (Ger)
Cit. no. 1210033

[On evaluation of the contractility of the myocardium. The duration of systole and its correlation under different hemodynamic and myocardial conditions] Hegglin R, et al. **Arch Kreislaufforsch** 46:17-27, Mar 65 (Ger)
Cit. no. 1236653

[The determination of anoxia tolerance in rat heart-lung preparations and the influence of coronary agents on them] Kukovetz WR. **Arzneimittelforschung** 14:1104-7, Oct 64 (Ger)
Cit. no. 1367702

[Hypoxia and metabolic disturbances in plasma cell interstitial pneumonia of premature and undernourished infants] Varga F, et al. **Cesk Pediat** 20:317-9, Mar 65 (Ger)
Cit. no. 1274041

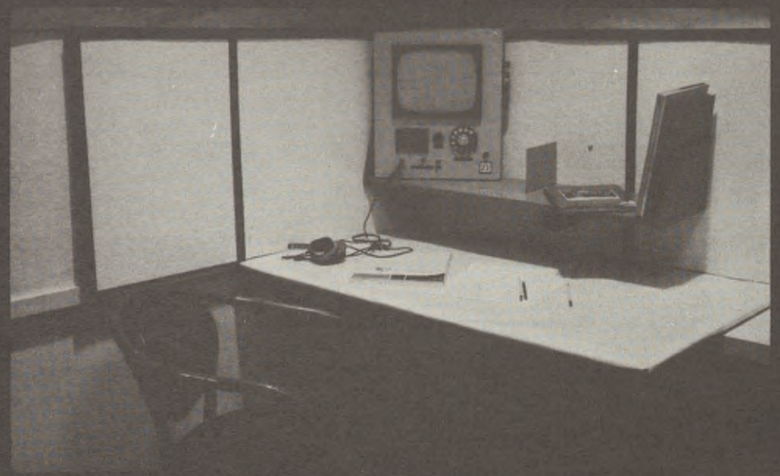
[Direct cortical stimulus-response, impulses and polyneuronal activities during hypoxia] Wieck HH. **Deutsch Z Nervenheilk** 186:299-322, 5 Oct 64 (Ger)
Cit. no. 1311627

[Isthmus blockade and hypoxia as causes of chronic recurrent and acute tryptic pancreatitis] Wanke M. **Gastroenterologia (Basel)** 103:103-18, 1965 (Ger)
Cit. no. 1210367

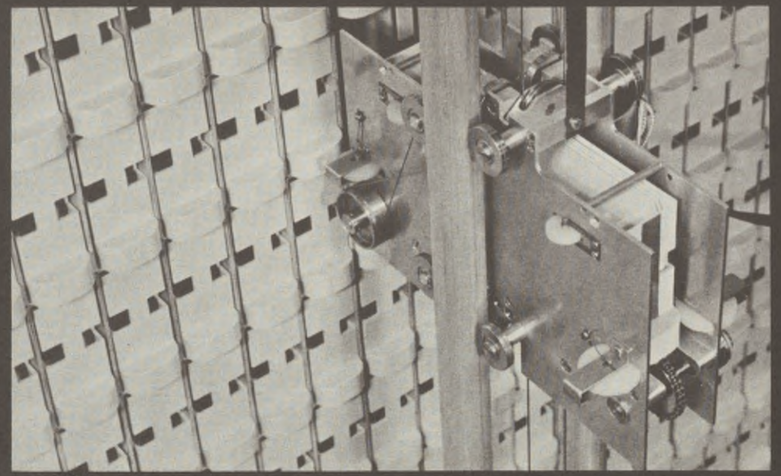
[The influence of O2 deficiency on the development of

17. SAMPLE PAGE, INDEX MEDICUS

18. CONVERTING CARD CATALOG TO COMPUTER TAPE. WESTERN RESERVE.



19. MOCK-UP OF AUDIO-VISUAL CARREL



20. EX. GRAPHIC IMAGE STORAGE & RETRIEVAL - "SELECTRIEVER"

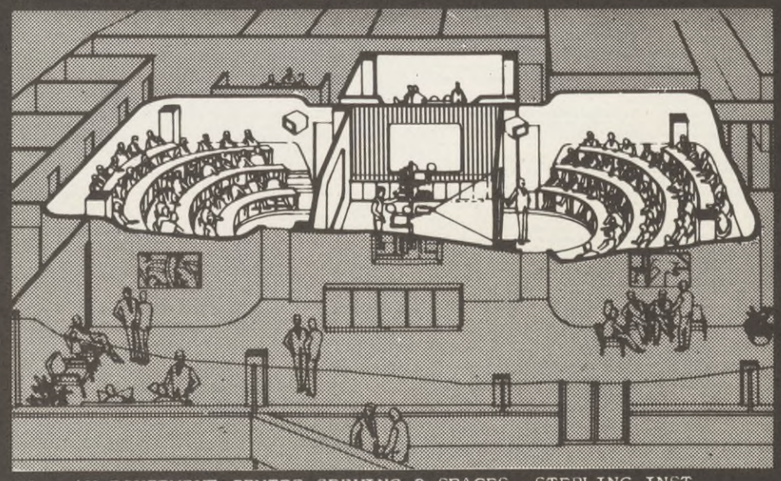
21. CONSOLE ASSEMBLY, M.I.T. LIBRARY COMPUTER ACCESS.

22. COMPARISON OF STANDARD AND COMPACT STACK.

23. ELECTROCOMPACT STACK. AMERICAN UNIV. WASHINGTON D.C.

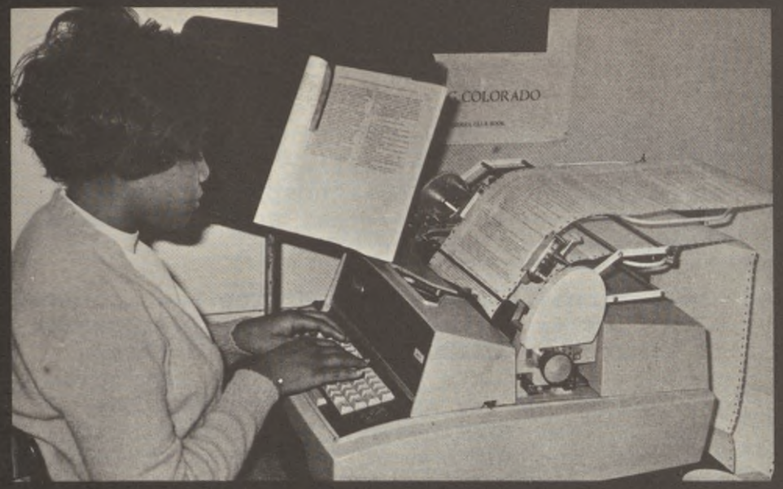
24. PROJECT RISC AT NLM.

25. AV INSTRUCTIONAL EQUIPMENT CONTROL CENTER.

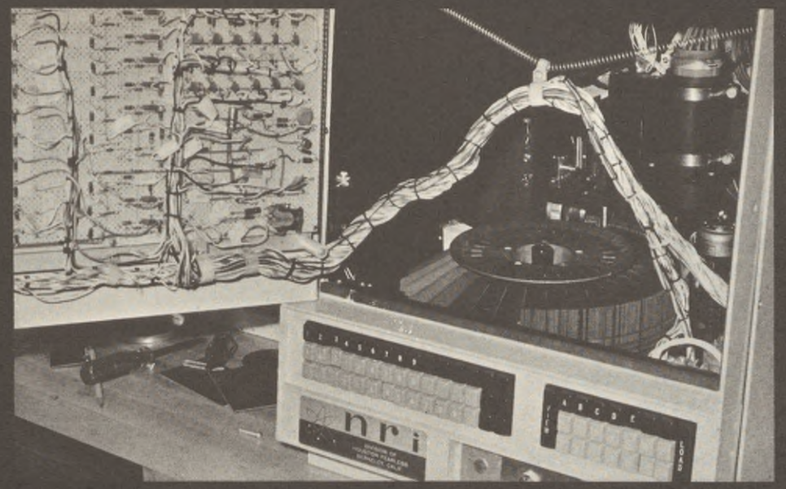


26. AV EQUIPMENT CENTER SERVING 3 SPACES. STERLING INST.

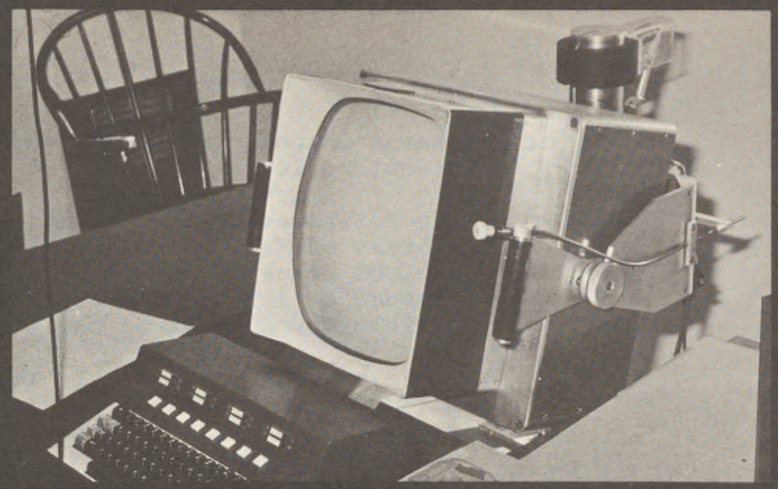
27. PROPOSED TERRACE - LHNCBC



28. COMPUTER INPUT. M.I.T. LIBRARY



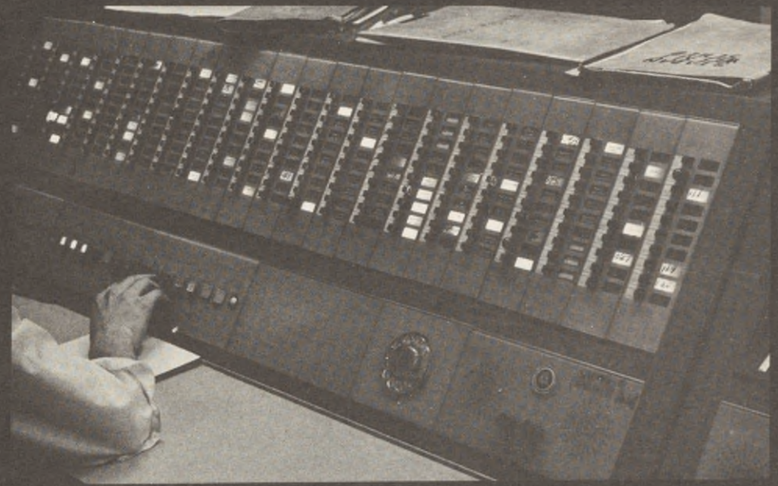
29. GRAPHIC IMAGE STORAGE & RETRIEVAL. M.I.T.



30. CONSOLE MOCK-UP FOR LIBRARY AT M.I.T.

31. MEDICAL RESEARCH CENTERS SERVED BY N.L.M.
(MEDLARS CENTERS FLAGGED)

32. INTERNAL CONTROL CENTER, GODDARD SPACE CENTER



33. COMMUNICATIONS NETWORK CONTROL. GODDARD.

34. MODEL, LHNCBC, FROM WISCONSIN AVE. S.E.

35. MODEL, LHNCBC, FROM S.W.

36. MODEL, LHNCBC, SHOWING FUTURE EXPANSION.

c. Automated Graphic Image Storage, Retrieval and Print-out Device.

1) The Reference Services Division of the National Library of Medicine presently receives over 150,000 requests annually to lend copies of journal articles to other libraries. An article may consist of one to one hundred pages.

2) Their present objective is to obtain an automated system capable of rapidly locating desired documents in microform from a file, and making a distribution copy of the requested items. The initial purpose of the system will be to speed up service to readers. Current journal articles that are in heavy demand will be photographed and stored in the system for quick retrieval from any of the several display units that will be installed within the building.

3) The basic file should have the capacity to store between 140,000 and 200,000 articles and be capable of producing output copy of at least 500 articles in an 8 hour shift in either direct enlargement prints or on a composite roll of film.

d. Network Engineering & Communications Center

1) One of the principal responsibilites of the Lister Hill Center for Biomedical Communications is the design, development, implementation and management of the Biomedical Communications Network.

2) Current efforts in the linkage of computer systems into networks continues the development first of the use of the individual computer, then followed by computer systems.

3) The proposed linking of libraries, information centers, medical schools, hospitals and research centers through communications will constitute the network.

4) The network control and management will be exercised from the Center.

5) The various services of the network will be available on a decentralized basis and accessible through local hospitals, medical societies, clinics, medical schools, medical libraries, and private offices.

6) The National Library of Medicine has isolated five cluster points of health activity which if linked via communications would interconnect some forty percent of the physician population of the nation. These are Los Angeles, New York-Boston, Washington, D.C., Atlanta, and any one of the cities of Chicago, Houston, or Detroit.

e. Communications Laboratories Facilities

Related to the Communications Central would be a small series of laboratories where equipment and methods can be screened, tested, and evaluated, including demonstration areas for visitors. Alternate or more advanced systems could be set up with means of connection 'on line' to the Communications Center for performance tests, program substitutions, or as a back-up, etc.

These laboratories would also maintain technical and quality control of broadcasts, maintain and service equipment, and assemble programs.

Photo 24, page 34, of the RISC installation now in use in the NLM is also an example of the experimentation in advance of an essential part of the future Communications Center.

f. Audiovisual Equipment

1) The NLM is already making increasing use of Audiovisual equipment with a particular view to gaining experience for the grant program that will become possible with the new LHNCBC.

2) The microfilm program is not only concerned with the preservation of documents but also with the putting of certain medical literature into a form that can be utilized as the first step in adaptation to requirements of various printing, facsimile or storage & retrieval devices as may be used.

3) Audiovisual machines using single concept films are now available in the reference reading room.

4) A T.V. installation in the corner of the same reading room permits dial access to certain programs.

g. Audiovisual Production Facilities. NMAC.

1) the NMAC in Atlanta, now a part of the NLM, has the studios and other facilities for the production of audiovisuals, including motion pictures, video tapes, and other audio-visual forms. It also acquires pertinent material from other sources. Its work includes a catalog filing and distribution service. In addition it includes a rapidly developing audiovisual planning system concerned with Educational studies and development.

2) It serves as a focal point for the production, utilization and distribution of all audio-visual forms in support of the mission of the Public Health Services through the NLM.

3) Photographs 13, 14, and 15, page 33 illustrate present film distributions, instructions and production facilities.

IV. DEVELOPMENT

A. Program as of 1974 - Bethesda

1. Schedules

For the Program in tabular form - personnel and areas - see Exhibits 14 and 14A, pages 38 & 39. For detailed breakdown see additional tables in Appendix I.

2. Diagrammatic Plans

a. For comparison of space utilization in NLM Building as of 1969 and after revision to "traditional uses" in new program of 1974 see Exhibits 15 through 19, pages 40, 42, 44, 46 and 48.

b. For diagrammatic plans and sections of proposed utilization of space in new LHNCBC see Exhibits 15A through 19A, pages 41, 43, 45, 47 and 49.

3. NMAC - Atlanta

a. Program schedule as of 1974 for a new building, or with addition to old, totaling 96,600 net sq. ft. See Appendix II.

b. If NMAC moves to Bethesda.

Because certain requirements, particularly in administration and service areas, could be consolidated with existing departments of the NLM, thereby avoiding duplication of services, the NMAC program could be reduced by 13,900 sq.ft. to 82,700 net sq.ft.

c. If NMAC remains at Decatur.

If the NMAC remains at Decatur in the NCDC building, 34,200 sq.ft. will be taken care of in the existing structure leaving approx. 61,400 for construction in a new addition.

d. New Building. NMAC.

If a new site and funds become available to the NMAC, as of 1974, it will require the complete program of 96,600 net sq.ft.

NLM - PROGRAM SUMMARY 1974 BETHESDA	1969			1974			MAIN BLDG. 1974			LENCBC BLDG. 1974			REMARKS
	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	
I. (O.D.) Office of Director													
A. Office of Director	10	3470		13	3590		11	3130		2	400		
B. Admin. Management	32	9430		50	19240		25	3870		25	15700		
C. Pub. Info. Pub. Management	6	2190		9	1530		8	1240		1	530		
D. Common Space	-	6260		-	10820		-	6320		-	4500		
	48		21,310	72		35,180	44		14,560	28		21,130	
II. (OCES) Computer and Engineering Services													
A. Office of the Chief	8	1600		9	1880		-	-		9	1880		
B. Systems Development	8	2040		17	3260		-	-		17	3260		
C.Processing Support	32	5880		28	8510		-	-		28	8510		
D. Systems Application	10	2880		17	2850		-	-		17	2850		
	58		12,400	71		16,500	-	-	- - -	71		16,500	
III. (LO) Associate Director Library Operations													
A. Office of Assoc. Director	7	960		34	4300		25	3740		9	1010		
B. Technical Service Div.	57	12820		93	17070		93	17040		-	-		
C. Reference Service Div.	69	13470		121	22060		121	21510		-	-		
D. Biblio Services Div.	61	8150		102	15050		35	4710		67	10510		
E. History of Medicine Div.	18	7600		30	8590		30	8420		-	-		
F. Special Purpose Spaces	-	93020		-	130640		-	103800		-	24100		
	212		136,020	380		197,710	304		159,220	76		35,620	

PROGRAM SUMMARY 1974 BETHESDA **EXHIBIT 14**

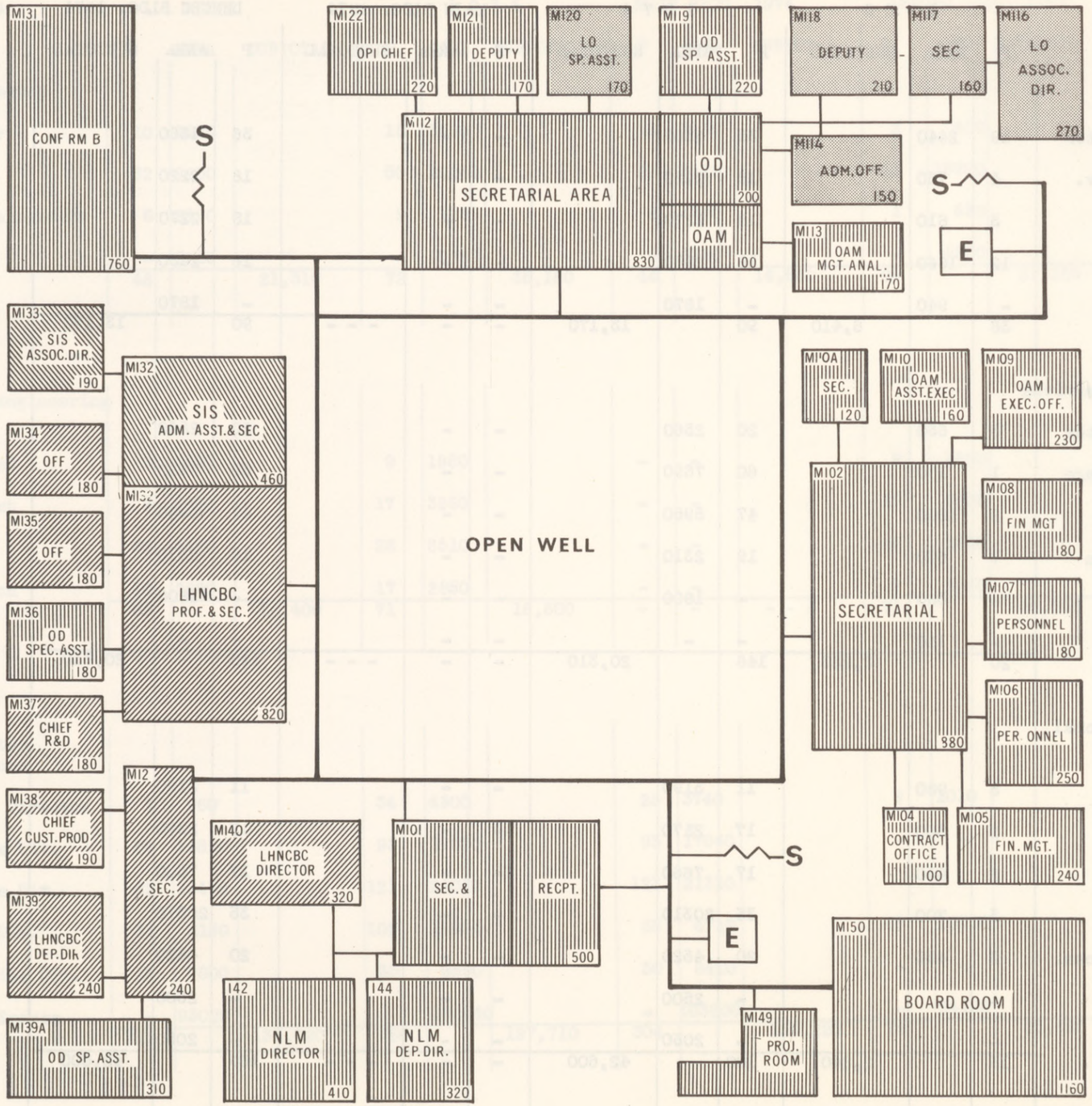
NLM - PROGRAM SUMMARY 1974
BETHESDA - continued

	1969			1974			MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	
IV. (EMP) Extramural Programs													
A. Office of Assoc. Director	19	2440		36	4360		-	-		36	4360		
B. Publications Trans. Div.	4	760		18	2220		-	-		18	2220		
C. Research and Training	3	610		18	2270		-	-		18	2270		
D. Facilities & Resources	12	1660		18	2450		-	-		18	2450		
E. Special Purpose Spaces	-	940		-	1870		-	-		-	1870		
	38		6,410	90		13,170	-	-	- - -	90		13,170	
V. (SIS) Specialized Info. Services													
A. Office of Assoc. Director	3	650		20	2560		-	-		20	2560		
B. Toxicology Info. Exchange	1	180		60	7690		-	-		60	7690		
C. Services Development	9	1050		47	5950		-	-		47	5950		
D. Drug Literature Program	7	630		19	2310		-	-		19	2310		
E. Common Space	-	580		-	1800		-	-		-	1800		
F. Other Personnel	-	140		-	-		-	-		-	-		
	20		3,230	146		20,310	-	-	- - -	146		20,310	
VI. (LFNCBC) Lister Hill National Center													
A. Office of Director	5	980		11	3190		-	-		11	3190		
B. Plans and Management	2	300		17	2370		-	-		17	2370		
C. Research & Development	2	410		17	7660		-	-		17	7660		
D. Network Engineering	3	700		35	20310		-	-		35	20310		
E. Customer Products & Svces.	3	450		20	4520		-	-		20	4520		
F. Reference Facility	-			-	2500		-	-		-	2500		
G. Antenna Facility	-			-	2050		-	-		-	2050		
	15		2,840	100		42,600	-	-	- - -	100		42,600	
TOTALS	391		182,210	859		325,470	348		173,780	511		149,330	

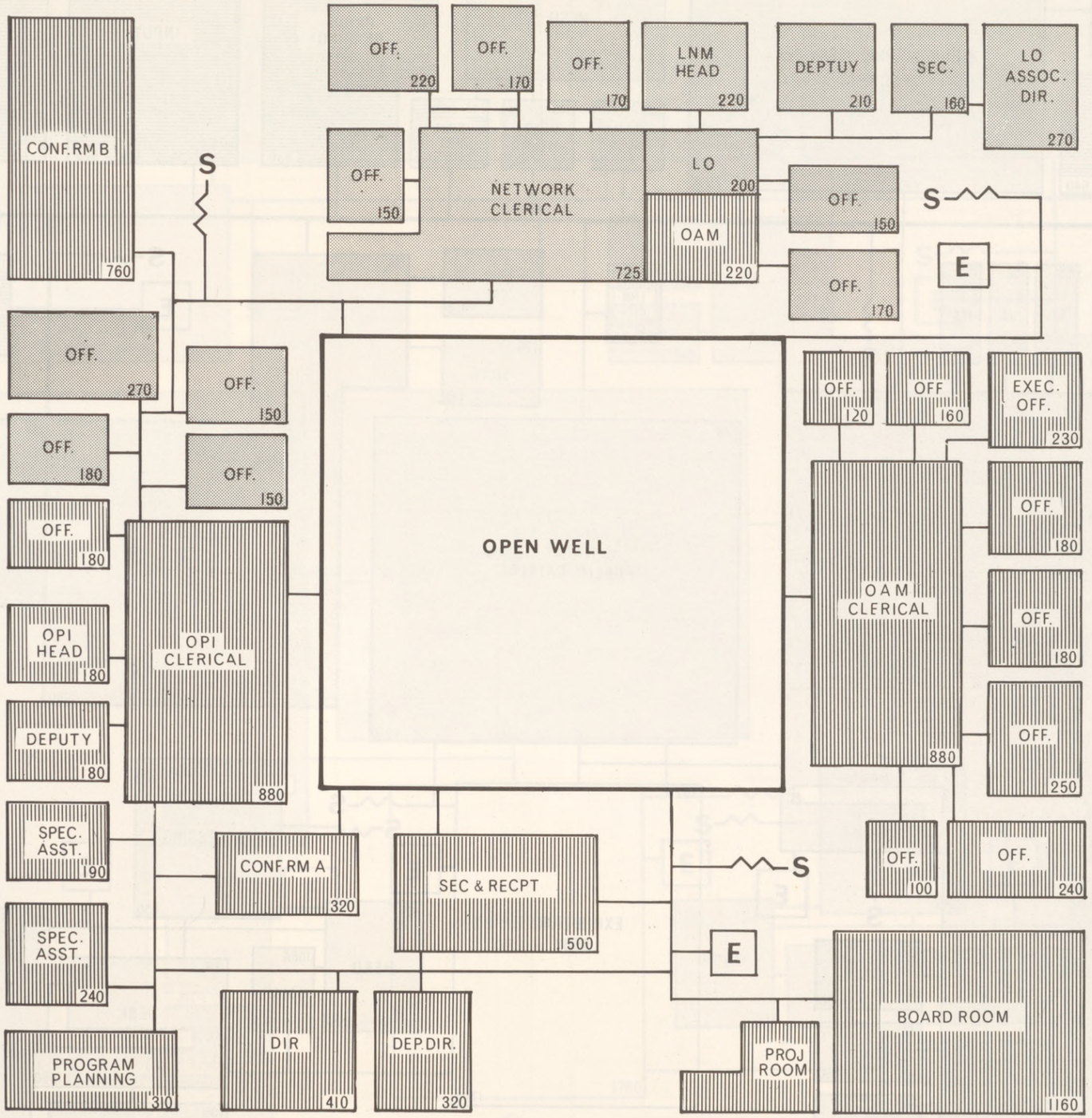
14A

LEGEND

- OD OAM OPI
- OCES
- LO
- SIS
- LHNCBC
- S STAIR
- E ELEVATOR



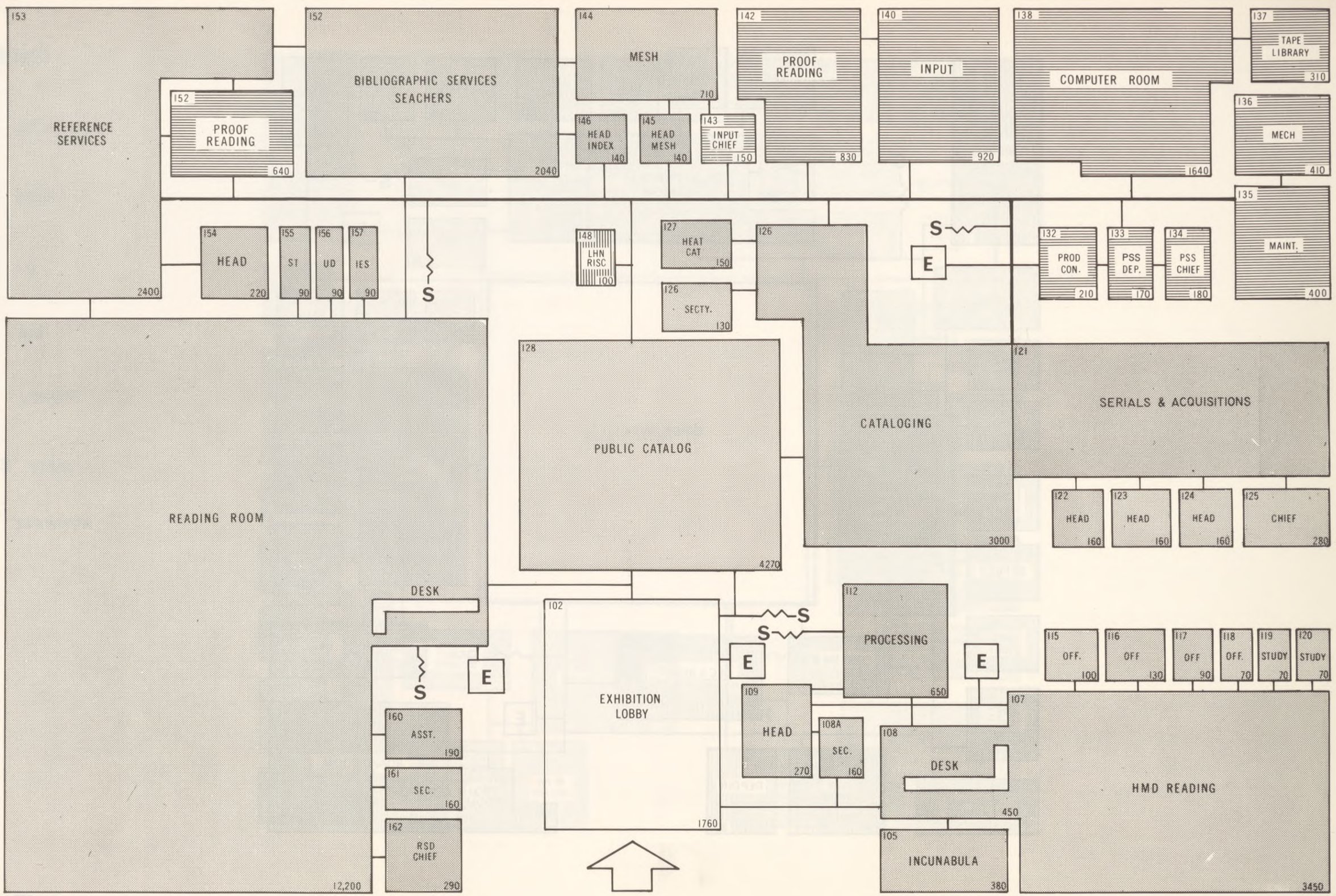
1969 MEZZANINE FLOOR PLAN **EXHIBIT 15**



SEE **LEGEND** ON EXHIBIT 15

1974 MEZZANINE DIAGRAMMATIC PLAN

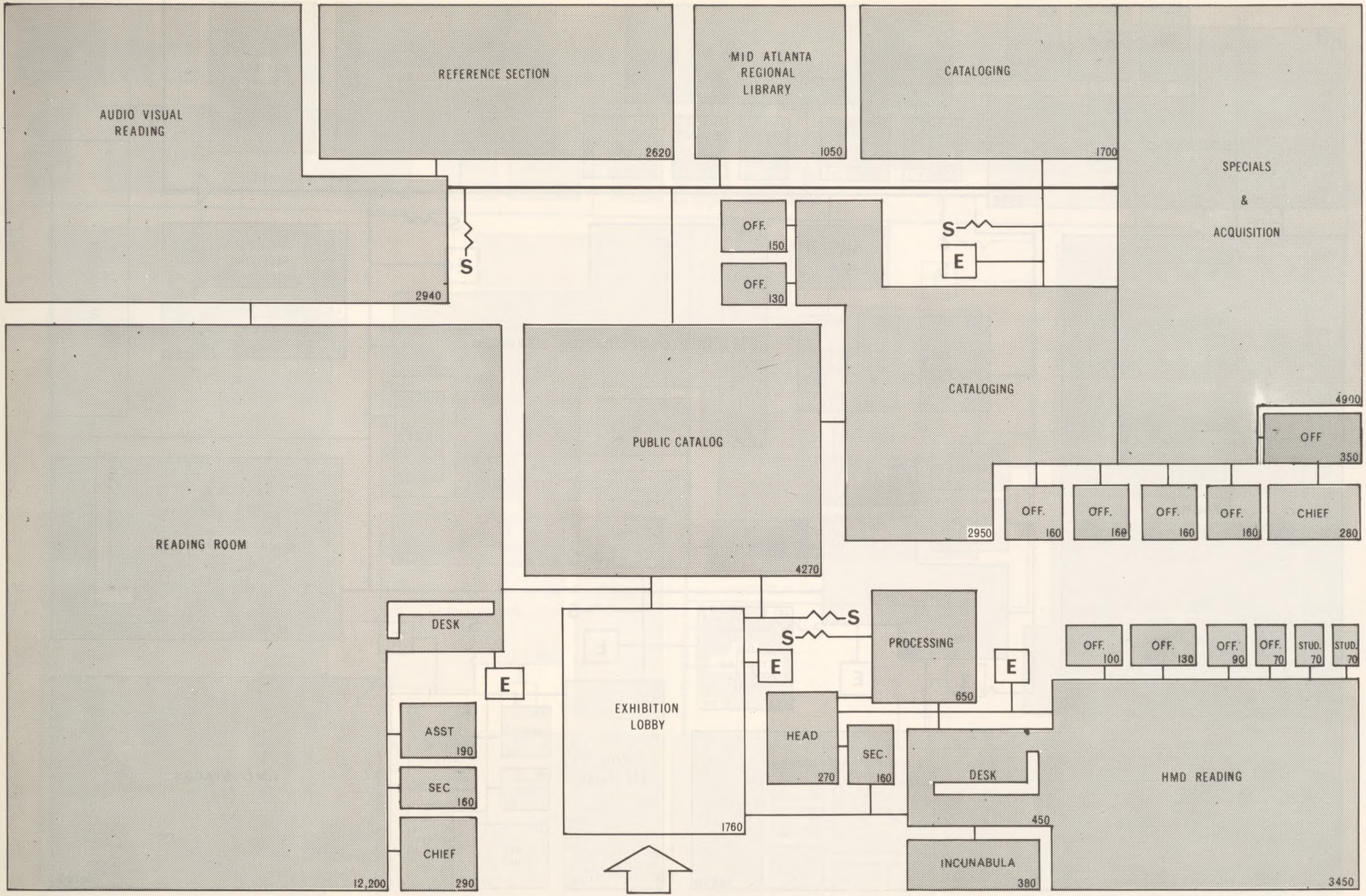
EXHIBIT **15 A**



SEE **LEGEND** ON EXHIBIT 15

1969 FIRST FLOOR DIAGRAMMATIC PLAN

EXHIBIT 16



SEE **LEGEND** ON EXHIBIT 15

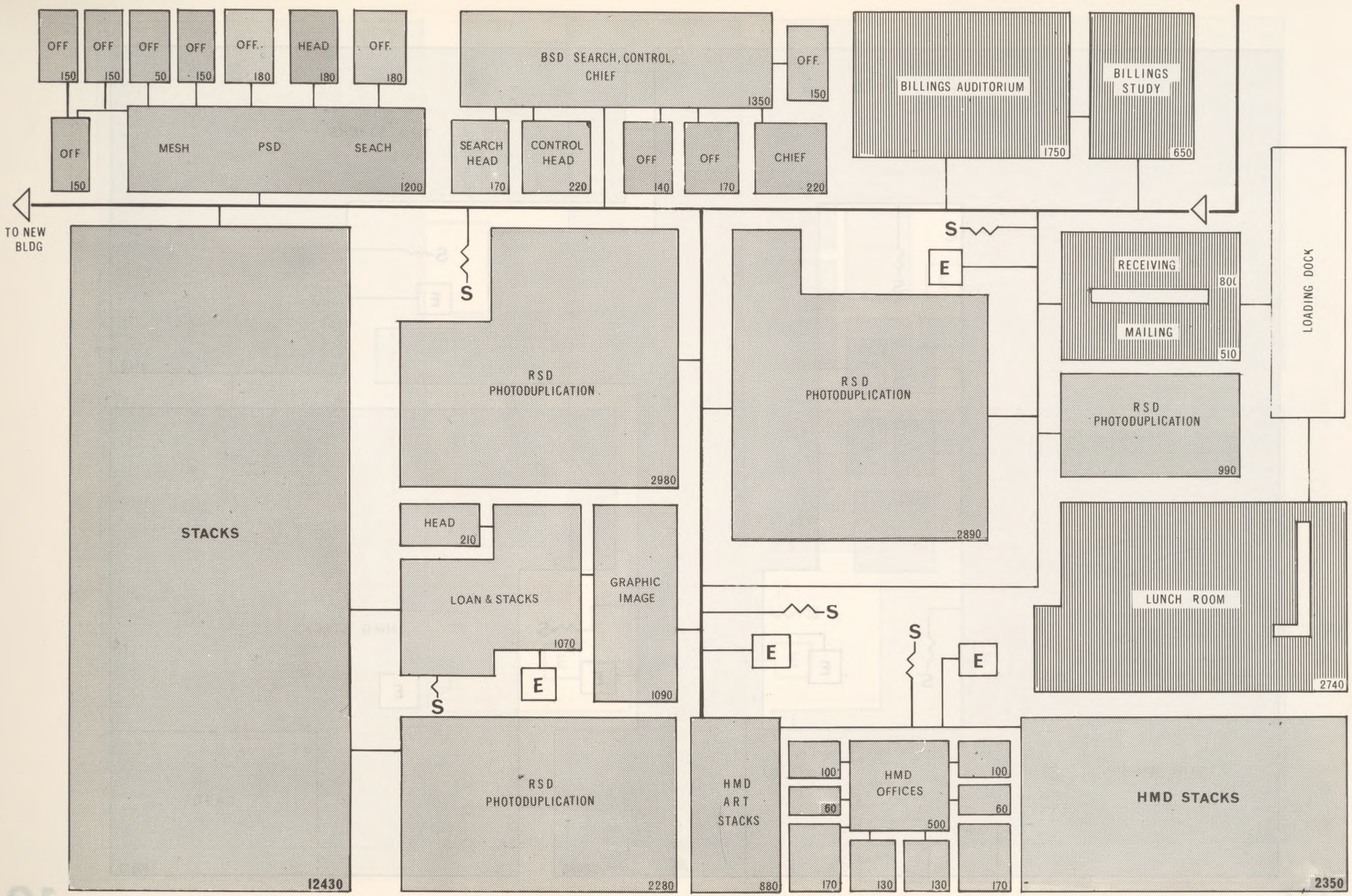
1974 FIRST FLOOR DIAGRAMMATIC PLAN

EXHIBIT 16A

A58
A58A OFF. 180
A58B HEAD 180
A58C OFF. 180
BSD INDEX 2760
STACKS 15000
A54 SIS CLERICAL 1500
A5 A PS CHIEF 170
A54B OFF. 220
A54C D.L. CHIEF 140
A54D OFF. 170
A54E F.O CHIEF 220
A43 BILLINGS AUDITORIUM 1750
BILLINGS STUDY 650
S
E
A50 BSD INDEX 450
A50 PHOTODUPLICATION SERVICES 4070
BSD MEDLARS TRAINING 550
A50B BSD OFF. 210
A50C BSD OFF. 190
A21 BSD HEAD SEARCH 210
A20 BSD SEARCHERS 460
A50B NBS 210
A59 INDEXERS 210
A50A BSD HEAD 230
A60 INDEXERS 210
A158
A61A L&S HEAD 300
LOAN & STACK 1200
A63 OPI EXHIBIT DIR. 510
A36 RECEIVING
A35 MAILING 800 510
LOADING DOCK
A19 LUNCH ROOM 2740
A1 HMD ART STACKS 880
A5 ARCHIV. 110
A4 OFF. 60
A2 DEP CHIEF 170
A6 SEC. ORAL HIST & BIBLIO. 200
A3 BIBLIO LIB'N 170
A7 HMD STACKS 4100

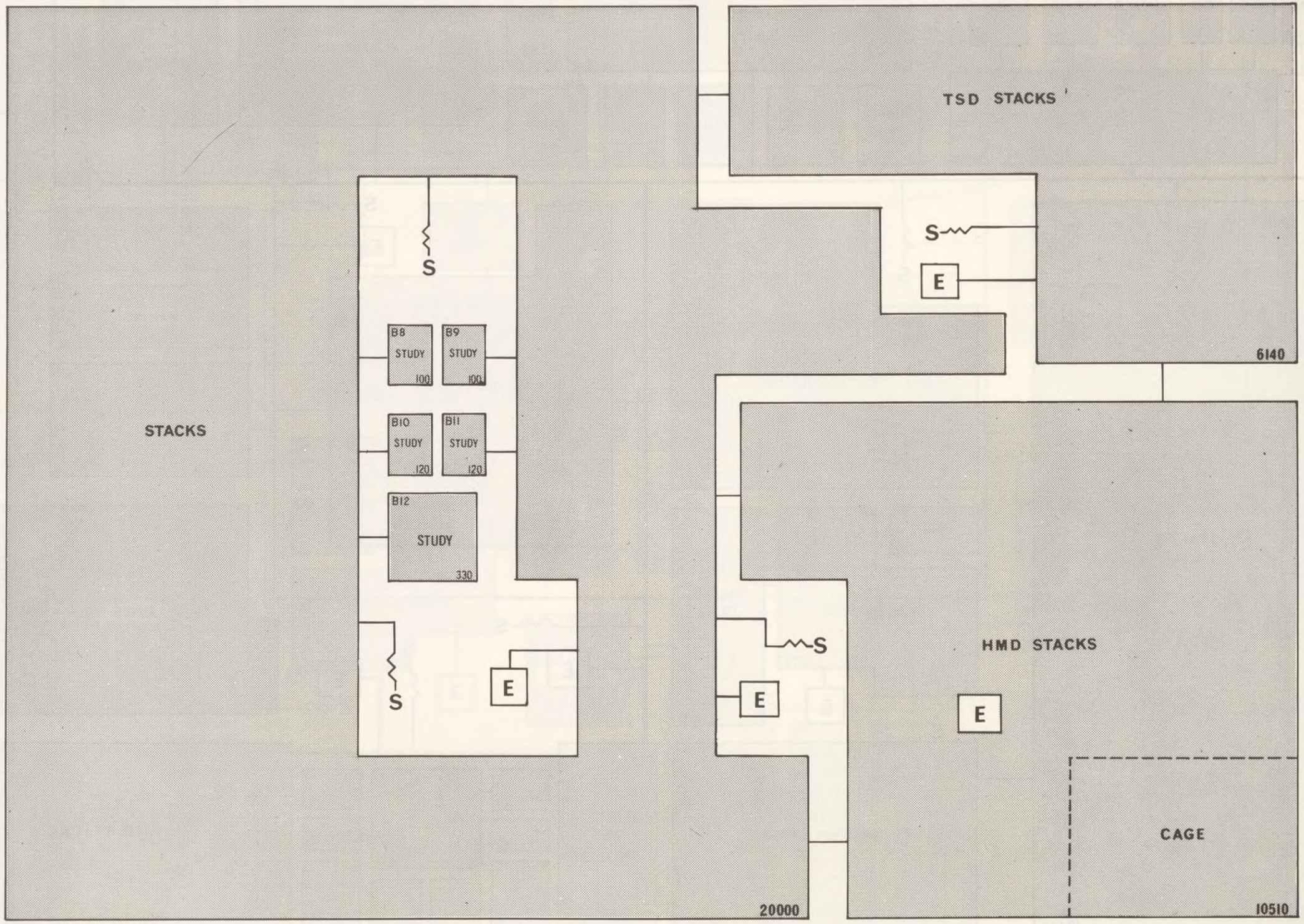
SEE LEGEND ON EXHIBIT 15

1969 A LEVEL DIAGRAMMATIC PLAN EXHIBIT 17



SEE **LEGEND** ON EXHIBIT 15

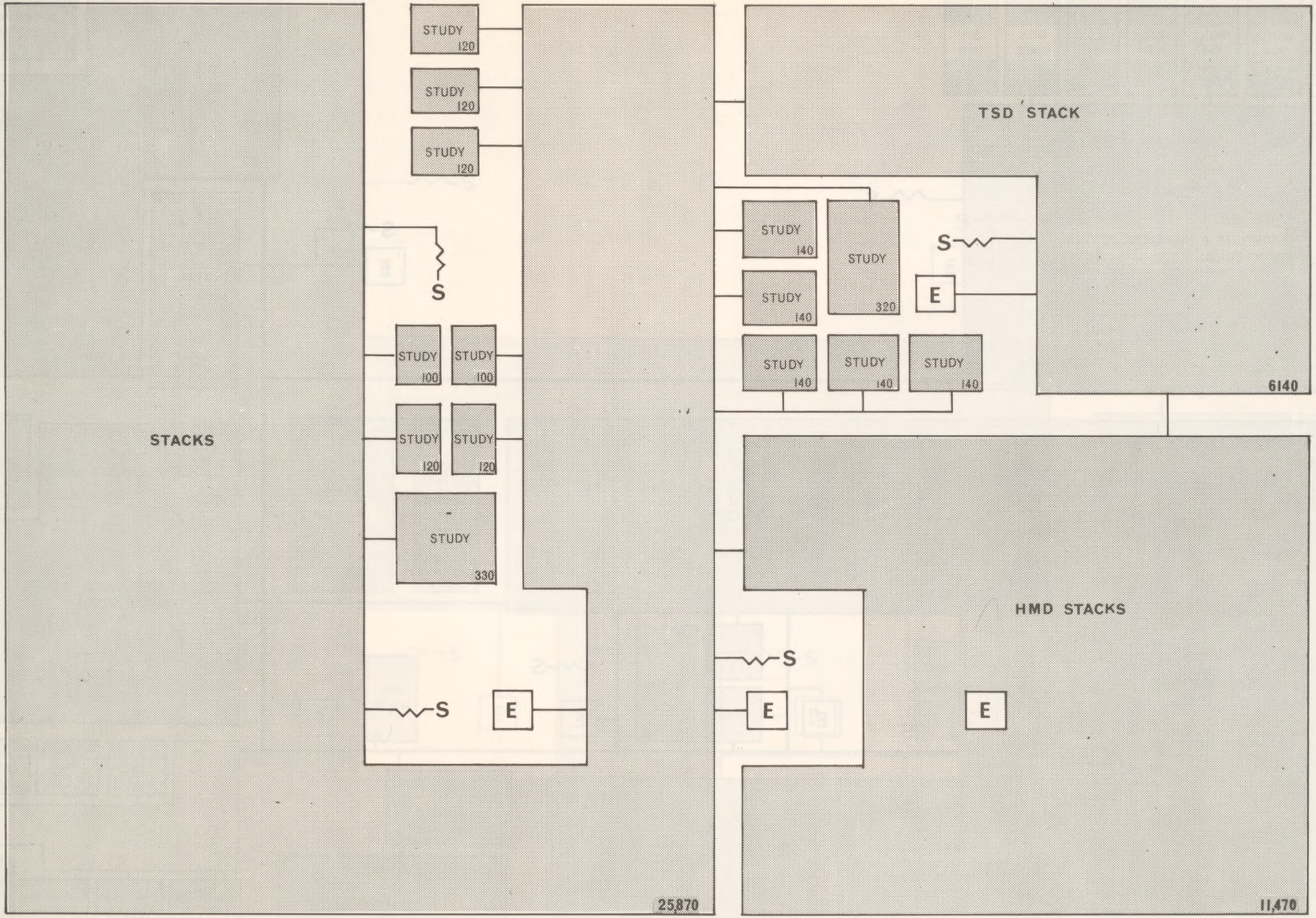
1974 A LEVEL DIAGRAMMATIC PLAN EXHIBIT 17A



SEE **LEGEND** ON EXHIBIT **15**

1969 B LEVEL DIAGRAMMATIC PLAN

EXHIBIT 18

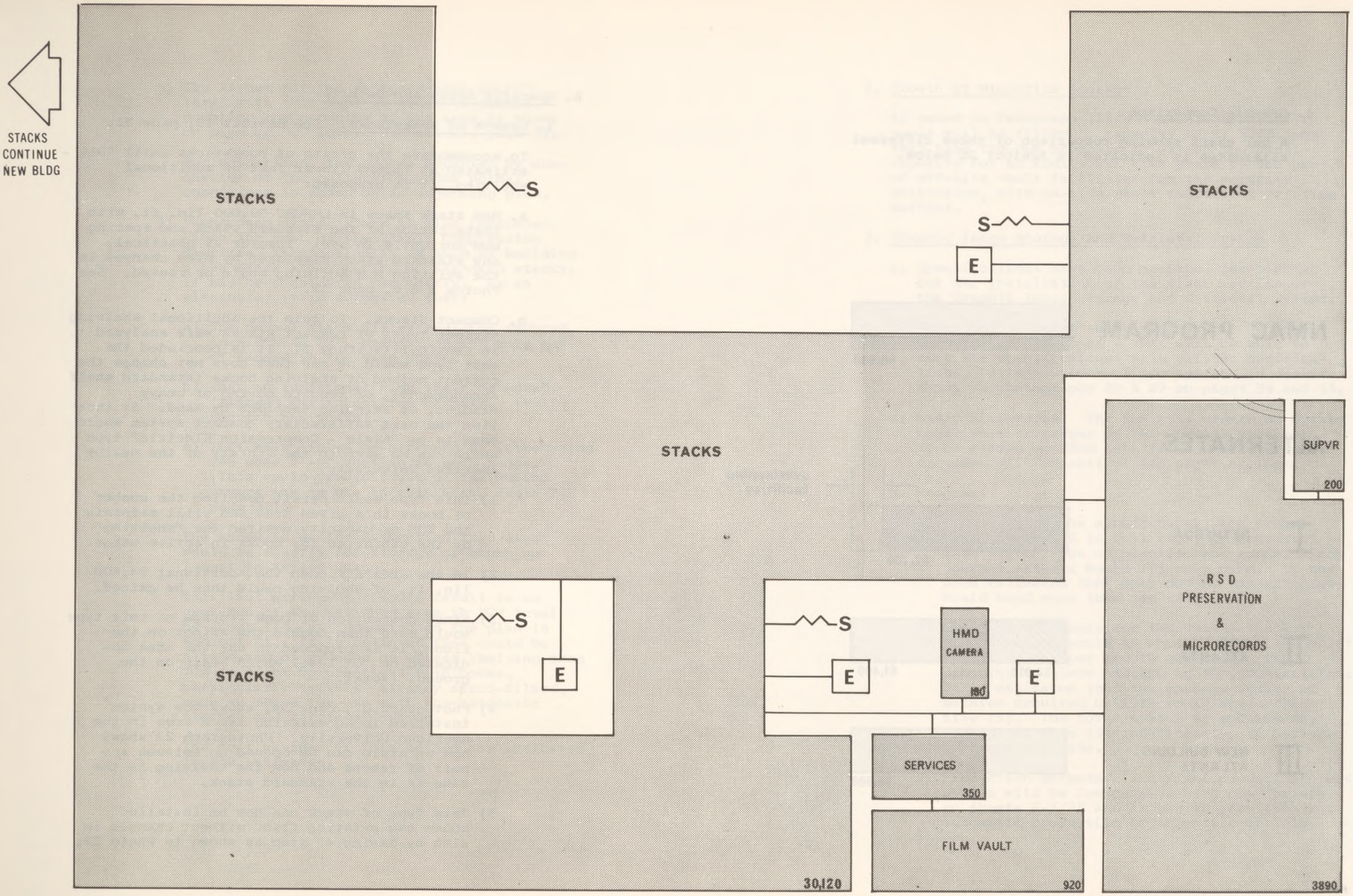


SEE **LEGEND** ON EXHIBIT **15** — **1974 B LEVEL DIAGRAMMATIC PLAN** — EXHIBIT **18 A**

C34 CONFERENCE 440
C35 SYSTEMS DEV. 220
C36 PROJECT MGT. 220
C37 SYSTEMS APPLIC. 220
C38 OCES CHIEF. 220
C39 SEC.& SP.ASST 220
C40 DEP. CHIEF 220
C33 COMPUTER & ENGINEERING SERVICES CLERICAL & TECHNICAL 4760
S
S
E
C29 SUPPLY 3160
C30 DUPLICATING 420
C28 CLERICAL SUPPLY OFFICER 900
C32 STACKS STACKS 4000
OPI 470
OAM.STOR 860
C26 PRESERVATION & MICRORECORDS 2960
C27 SUPVR. 200
C11 STUDY 120
C12 STUDY 120
C13 STUDY 260
S
E
S
E
C14 HMD CAMERA 180
E
C15 SERVICE AREA 350
C16 FILM VAULT 920
11000
C21
C24 OD SP.ASST. 170
C23 LHNCBC SP.ASST. 170
C22 OAM TNG.OFF. 170
C17 LHNCBC NET.ENG CHIEF 200
C18 LHNCBC NET.ENG. 200
C19 LHNCBC PLAN MGT 200
C20 CONF. C 220

SEE LEGEND ON EXHIBIT 15

1969 C LEVEL DIAGRAMMATIC PLAN EXHIBIT 19



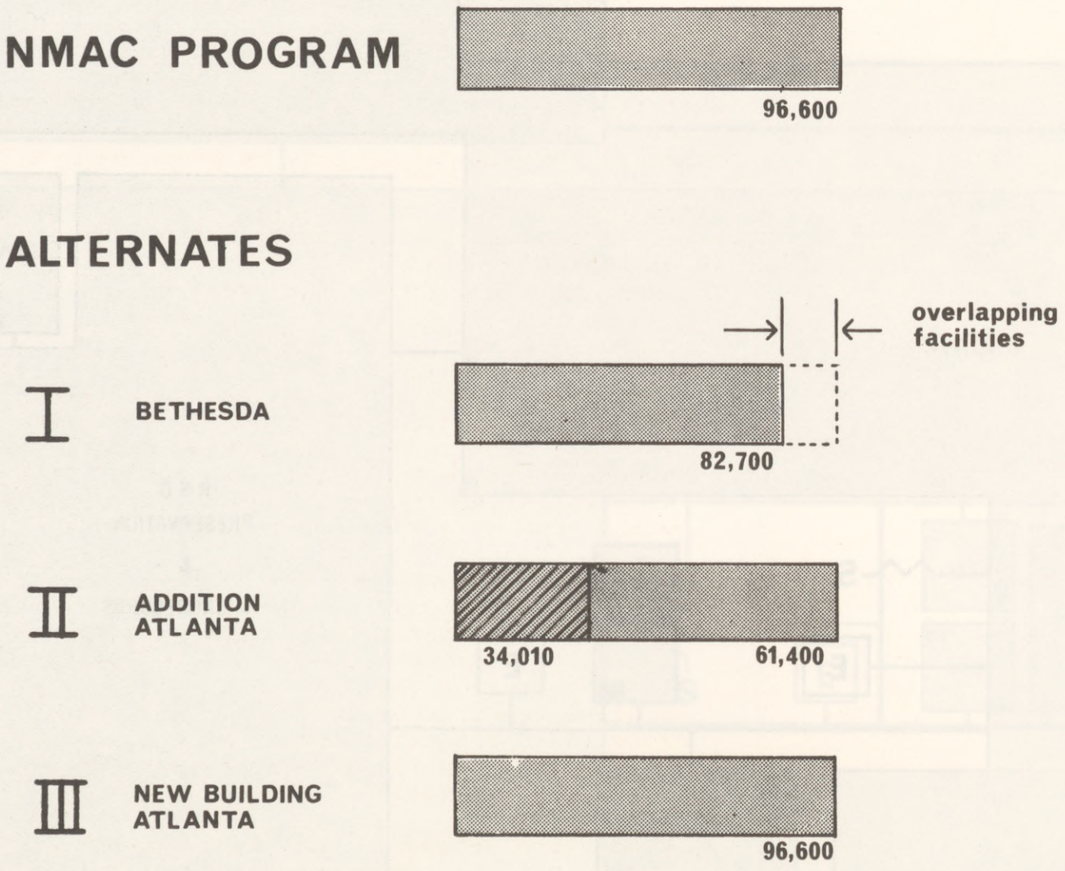
SEE **LEGEND** ON EXHIBIT 15

1974 C LEVEL DIAGRAMMATIC PLAN

EXHIBIT 19 A

4. Graphic Comparison

A bar chart showing comparison of these different alternates is indicated in Exhibit 20 below.



note.
area in net square feet.

NMAC ALTERNATES EXHIBIT 20

B. Specific Areas and Details

1. Growth of Bookstacks. See Exhibit 13, page 31.

To accommodate the growth of bookstacks until 1989 - estimated at 75,800 linear feet of additional shelving, it is proposed:

a. New stack space in LHNCBC 39,000 lin. ft. with installation of the standard stack and spacing now currently in use. Insofar as practical, any standard stack displaced by plan changes in the existing NLM Building would be reused. See Photos 4 & 6, page 32.

b. Compact Stacks. To gain the additional shelving various types of compact stacks were analyzed in Feasibility Study I. It is concluded the best type would be one that does not change the current method of shelving books (standard shelf arrangement), or require moving of heavy sliding, or swinging sections by hand. At this time the most satisfactory compact system would seem to be "Aisle - Compression Electric" type which can be seen in the library of the nearby American University.

1) This type would permit doubling the number of books in a given area and still maintain the 70% of capacity desired for "shelving" by the Librarian for books in active usage.

2) In the area assigned the additional 24,800 lin. ft. of shelving could thus be gained.

3) Since compaction of book storage of this type would more than double the weight on the floor, it is proposed to use the area indicated on "C" level which bears on the ground. (Rock).

4) Photograph 22, Page 34, shows the system installed in an existing stack area in the American University. Photograph 23 shows how an aisle can be opened up between any pair of ranges and how the shelving is the same as in the standard stack.

5) This type of stack can now be installed above the existing floor without changes in slab by having 4" step as shown in Photo 22.

6) The layout for the assigned area on "C" level with this type of stack to permit doubling the capacity of the area is shown on plan of "C" level, Exhibit 21, page 52.

For comparison, the spaces occupied by one-quarter of the collection under normal conditions is shown on an adjoining plan.

7) "Condensed Aisle" stack is also indicated. Since the cost of the "Aisle Compression Electric" is practically as much as building a new stack area, including standard stacks, it may be considered too costly. As an alternate, it is suggested that:

a) The normal stack aisles could be reduced in width to 22", permitting one more row of ranges in the same space.

b) That an additional high shelf be added (allowed for in ceiling height). (Will require new posts).

c) That main aisles be narrowed by introducing one more 3'-0" section in each range. (This would prohibit use of the moving camera now in use in this area, Photo 7, page 32).

The above is on the assumption this area would be chiefly for storage of books no longer in active usage.

This last arrangement would result in an over-run of the assigned area in "C" level by about 11%, as indicated on the plan in Exhibit 21. It is believed this could be eliminated or reduced by closer shelving than 70% as might be practical with books, particularly serials already micro-filmed, such as those for use with the automatic storage and retrieval system.

The cost savings of this method are indicated in the estimates.

2. Growth of Microfilm Storage

As noted in Paragraph III-D-4-b-2), the new film vault will be filled to capacity by FY 1974. At that time the NLM proposed to extend the vault capacity for an additional five years by the use of off-site vault facilities for the security collection, with on-site vault storage of printing masters.

3. Graphic Image Storage and Retrieval System

a. Specifications have been prepared for bidding for the installation of the first section of the Graphic Image Storage and Retrieval System.

b. There are at least three systems now on the market - or developed - that will be able to meet the specifications with varying modifications. Illustrations of two systems in use are shown in photographs 20 & 29 on pages 34 and 35.

c. Basic Microforms. The NLM will create or obtain negative microimages of the Journal documents to be stored on 35mm roll film. The average document will consist of ten pages or less.

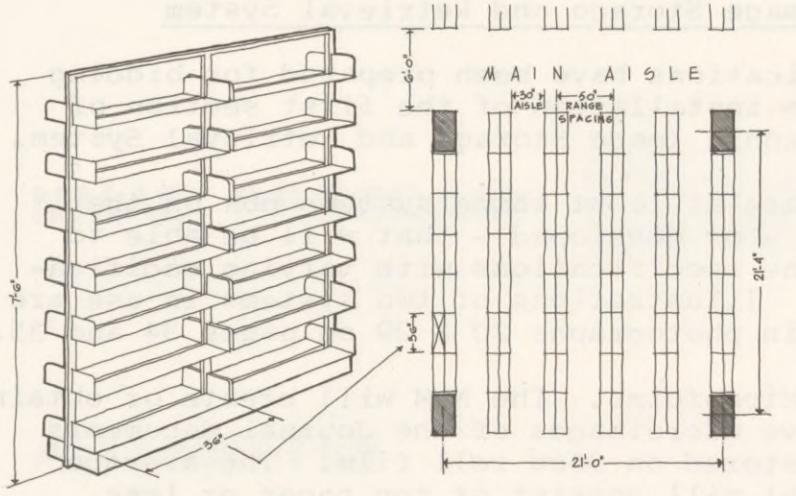
d. Program.

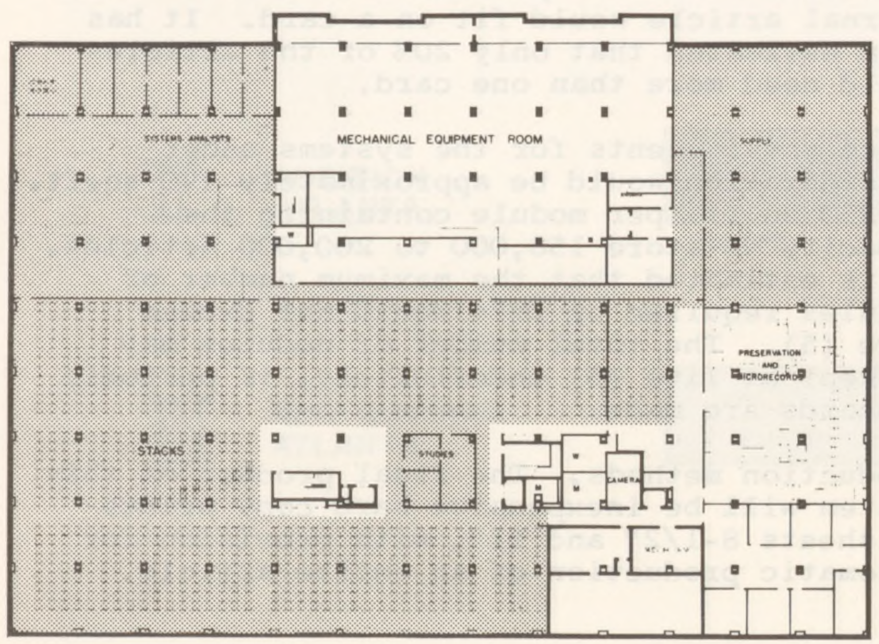
1) Depending on the manufacturer, the frames may be retained in roll form, or converted into microfische on plastic base cards. Each journal article would fit on a card. It has been estimated that only 20% of the articles would need more than one card.

2) Space requirements for the systems under consideration would be approximately 190 sq.ft. to 250 sq.ft. per module containing the capacity to store 150,000 to 200,000 articles. It is estimated that the maximum number of modules required by 1974 would not exceed five (5). The total number of modules may be kept at five (5) indefinitely, if periodic discards are made.

3) Production methods. The final product of this system will be inexpensive hard copy prints on sheets 8-1/2" and 11", with provision for automatic production of an entire article.

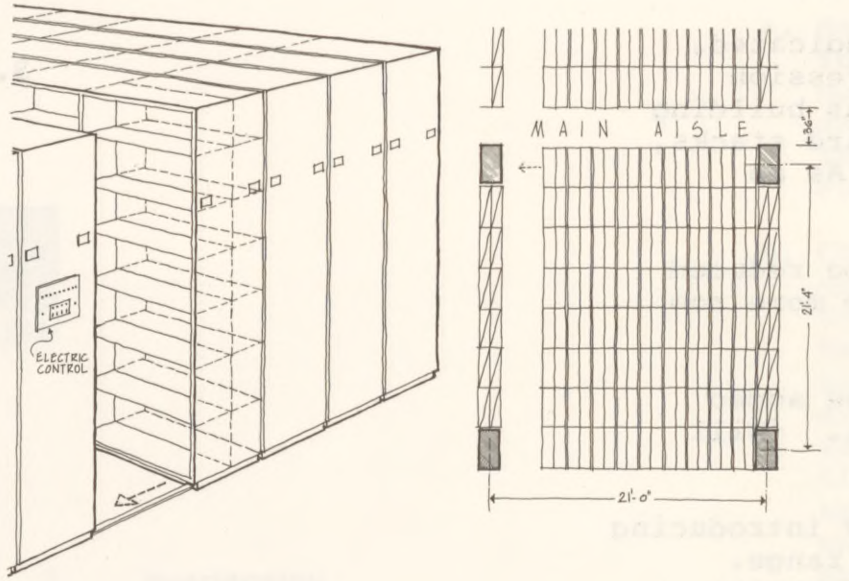
STANDARD STACKS

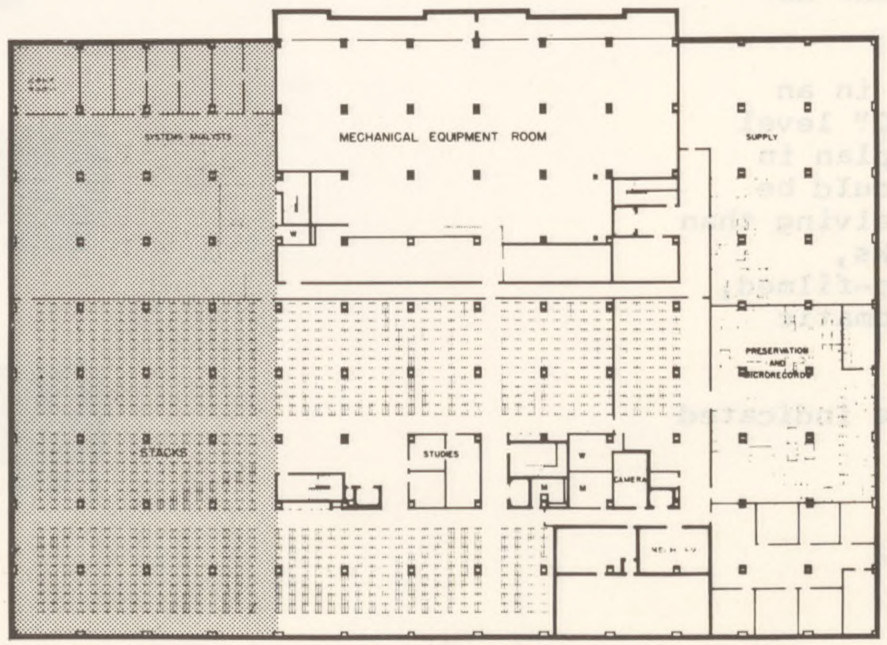




C LEVEL

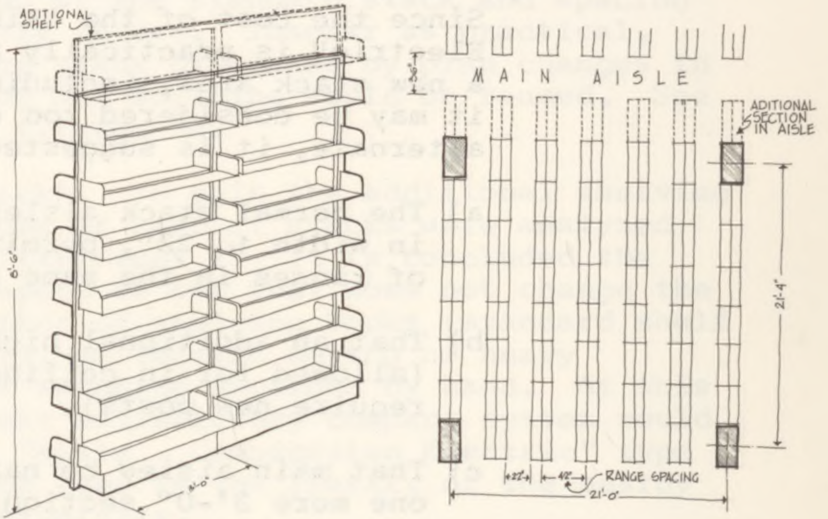
AISLE COMPRESSION ELECTRIC

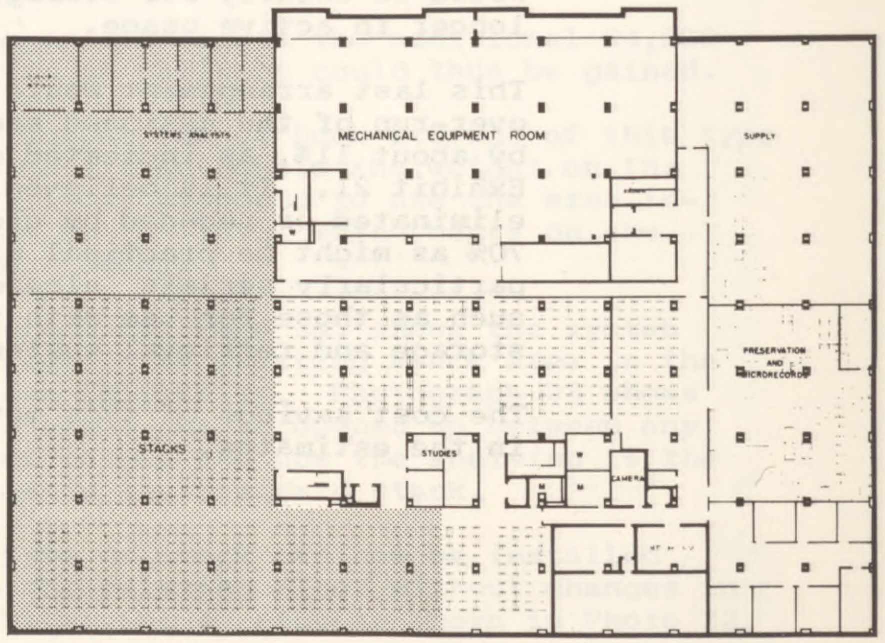




C LEVEL

CONDENSED AISLE





C LEVEL

COMPACT STORAGE EXHIBIT 21

4) Viewing file items. It will be possible to retrieve, under the control of the operator view, frame by frame a file item at stations other than that used by the primary duplicating devices. These auxiliary stations may be located near the storage devices, away from the devices but in the same building, or at a remote location.

5) Remote copying. It will also be possible to generate enlargement prints of pages for items retrieved at certain auxiliary stations.

6) Installation. Requirements for installation of the device will include any special electrical, plumbing, and ventilation requirements; and requirements as to humidity limits, acoustical treatment, floor loading, dimensions, floor space for device and operator, safeguards against fire hazards, etc.

e. Existing Installation

1) Photo 20, page 34, shows an installation called a "Selectriever" which has a capacity of up to 200,000 documents which is in use in the Westinghouse plant in Buffalo handling their plan file.

2) Photo 21 shows an assemblage of available equipment at a station, or "console", for use of students in the M.I.T. library, assembled in Project "Intrex". It presently has access to a block of engineering texts and permits direct interrogation with the University computer.

3) Photo 25, page 35, shows a punch tape data input machine for use with the M.I.T. University computer.

4) Photo 26 shows the automatic storage and retrieval system being developed in Project "Intrex" at M.I.T. A small digital computer operates this device which will connect with ten (10) consoles.

5) Photo 27 shows a working model of a console being especially designed for library use as part of Project "Intrex". It fits in a standard pedestal type desk, and will be readily adjustable to the physical requirements of different users.

4. Development of the Biomedical Communications Network (Network Engineering & Communications Center)

a. The selection of a network for improving the information and educational services within the medical community will be primarily based upon the present state-of-the-art in communication and computer sciences.

b. Present communications technology makes it imperative that all communication modalities including satellites be considered as possible means of interconnection for Biomedical Communication Network on a nationwide basis.

A pilot project, RISC (Remote Information Systems Center) is already in operation in the NLM connecting the Library by wire with the more than ten remote computer systems around the United States.

In the near future there will be TV, audio and video interconnections between sites which at a later date may utilize satellites via 25-30 foot antennae for transmitting and receiving purposes with ground connections to dedicated medical educational networks or to public ETV/ITV systems. This will permit more effective and less costly medical communications in support of specialized education. Ten foot (and smaller) antennae to allow direct satellite broadcasting to individual health centers, clinics and offices will probably be a still later phase of this project.

TV, dial access telephone, commercial cables, etc. will also be used.

c. The most highly developed example of an operating Network Center is the NASCOM installation at the Goddard Space Center in Greenbelt, Maryland. Although this installation is carried far beyond the relatively simple requirements of the LHNCBC, it does demonstrate the principles and methods involved. Photo 32, page 35, shows a part of the worldwide network control system, and Photo 33 the control desk for system management operations within the Center itself.

d. Specifications to meet the requirements of the LHNCBC are being developed.

e. Tentatively, the Center would be located in the top of the LHNCBC building with direct connection to the antennae systems located in the roof structure. Provision would be made for the public to visit both areas in a practical manner.

f. The type of space for the installation would be a "special purpose" space with a standard "pedestal" type raised floor with removable panels for ready access to wiring and cables in floor space, etc. to permit convenient installation of new or additional equipment as system develops.

5. Communications Laboratory Facilities

Adjacent to the Communications Center or directly below would be the small block of laboratory facilities. Through floor channels, ducts and conduits they would have direct connections to the Network Center.

The general type of space occupied would be "Laboratory Space."

At this time no detailed specifications of requirements are available.

6. Audiovisual Equipment & Use

The New Building will permit research and practice in the use of audiovisual equipment as an essential part of the overall program for the dissemination of biomedical knowledge.

a. Not only may new equipment be tested and methods worked out for its effective use, but classes and seminars may be held demonstrating the use of the equipment at the same time realizing a "feed-back" on its effectiveness for this purpose.

b. Since most of the equipment will be of the plug-in type it is assumed the space designated "Technical" will meet the requirements.

c. For educational and classroom work an example of an existing instructional unit of three classrooms with one central projection room as shown in Photo 26, page 34. This uses rear view projectors as well as TV screens and cameras. It includes a system for audience participation.

Photo 25 shows the central control unit for the above classroom group.

d. Photo 19 shows a mock-up of a dial access TV unit as part of the typical NLM carrell.

e. A series of small rooms are planned adjacent to the main reading room. These would include:

1) 16m/m auto-load moving picture projector.

2) Several projection units in cubicles - Carousel, Audiscan, and 8m/m Fairchild (2) Mark IV single concept film projectors.

3) Room for working, repair of equipment, video tape recorders and storage.

f. It is proposed to designate and arrange a portion of the main reading room adjacent to these special rooms as a TV area.

7. Audiovisual Production Facilities. NMAC.

At this writing the NMAC will remain in Atlanta. Whether it combines with the LHNCBC, remains in its present location in the CDC complex in Atlanta, or relocates, it is faced with a large expansion program if it is to keep abreast of the demand for its services.

This expansion is not part of this report.

The overall program is detailed in Appendix II.

Typical photographs of their activities are shown in Photos 13, 14, 15, page 33.

C. Schematic Plans & Relationships

1. Linkage. Physical relationship of the new building to the old. (See cross-section on page 57, and model photos on page 35.

a. To preserve the integrity of the design of the existing NLM, which has in itself become a symbol, and to create an individual identity for the LHNCBC, it is proposed to keep the two structures separated above grade.

NEW PARKING 85 CARS

EXISTING PARKING 181 CARS

EXHIBITS

CONF. AREA

SERVICE

PROPOSED LHNCBC BUILDING

NLM

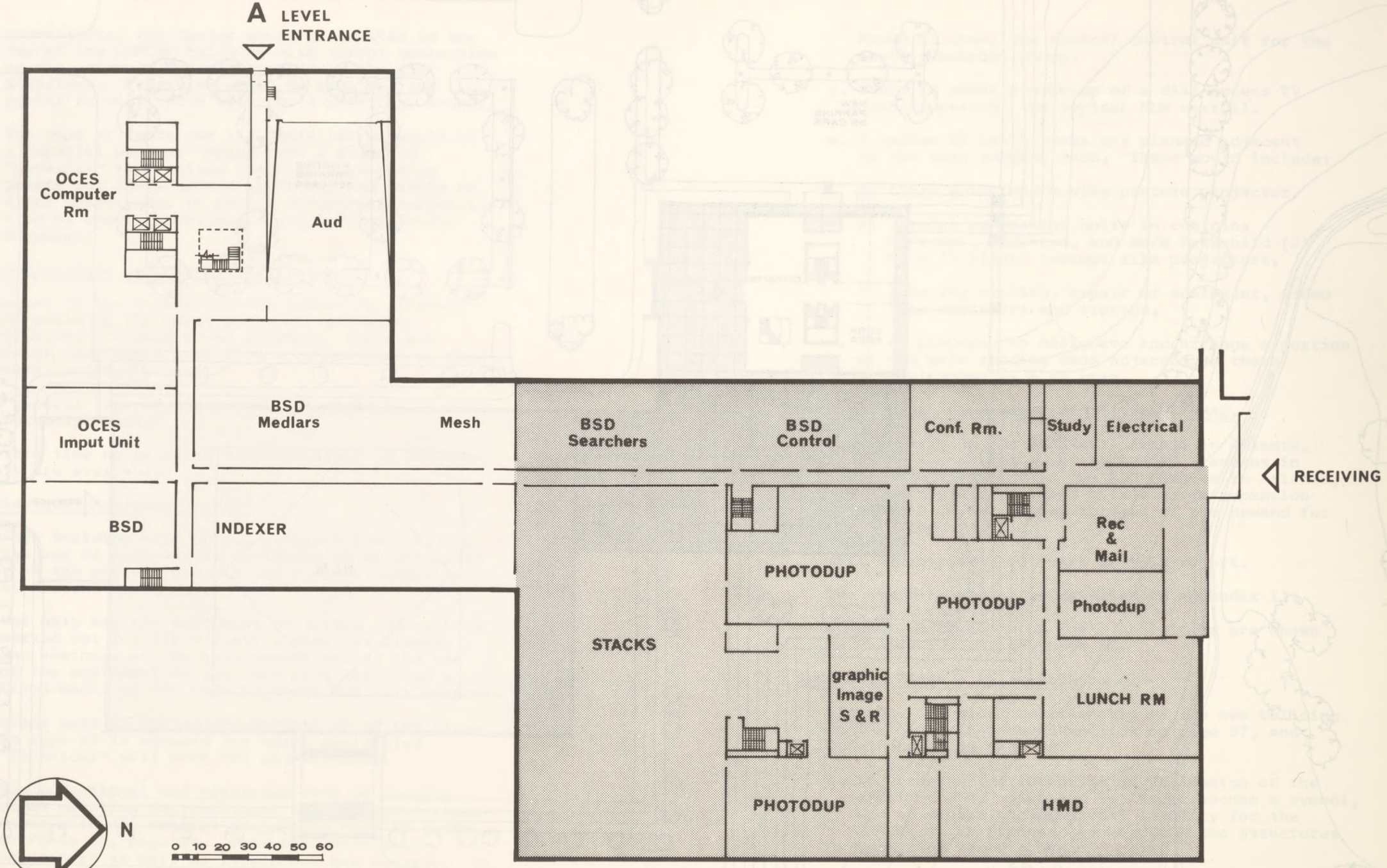
SERVICE

VISITORS PARKING 36 CARS

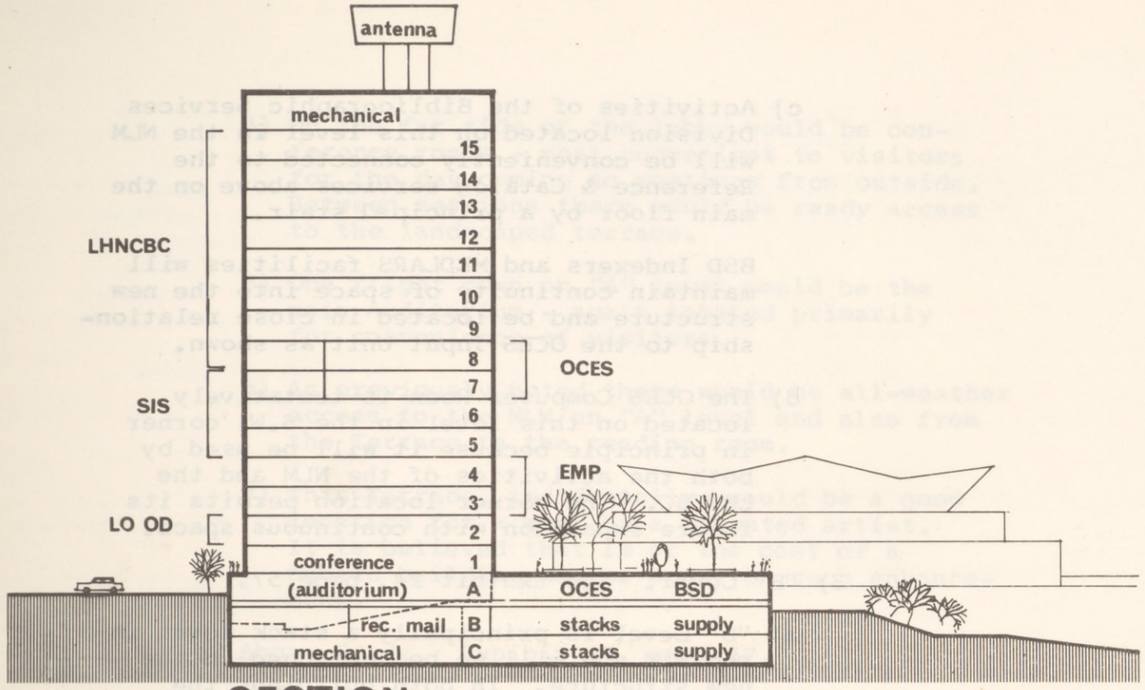
N

0 10 20 30 40 50 60

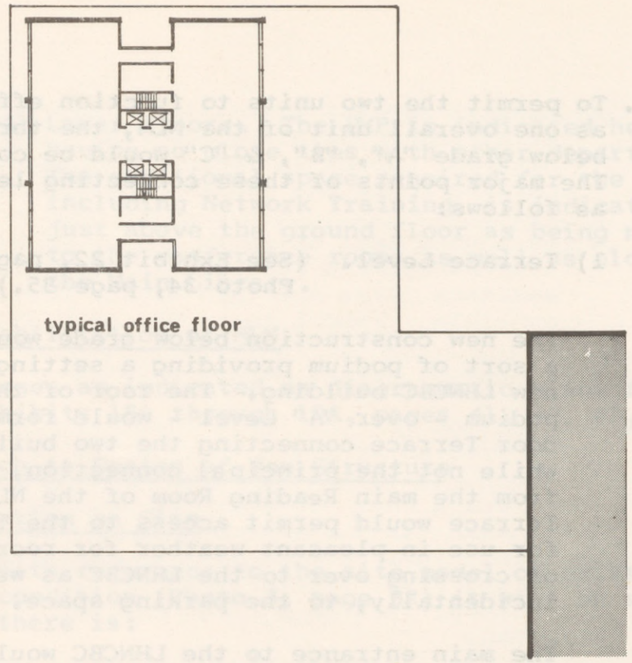
LHNCBC SITE PLAN - TERRACE LEVEL EXHIBIT 22



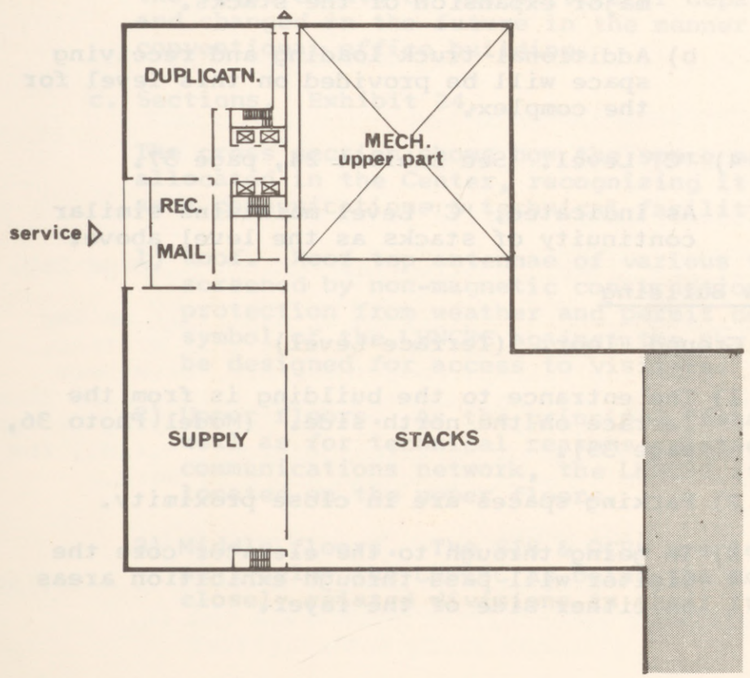
LHNCBC - A LEVEL (LINK) EXHIBIT 23



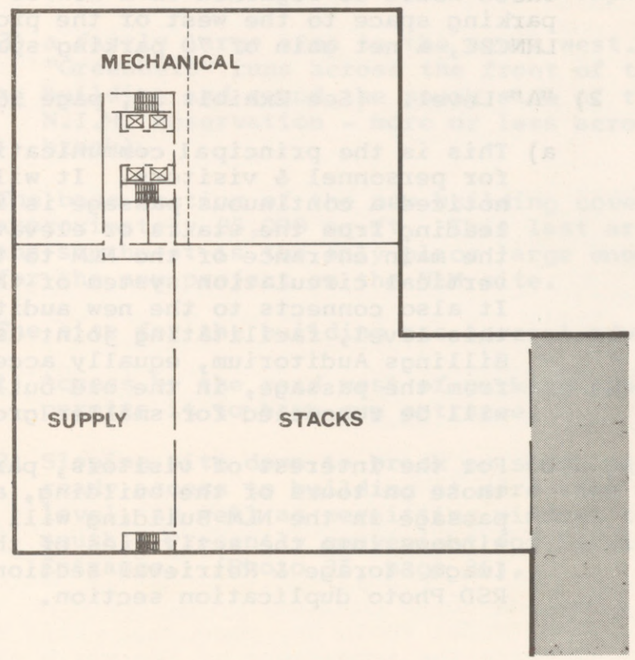
SECTION



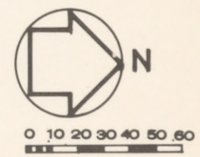
TOWER



B LEVEL



C LEVEL



LHNCBC - SECTION - TOWER - B and C LEVELS EXHIBIT 24

b. To permit the two units to function efficiently as one overall unit of the NLM, the three levels below grade "A", "B", & "C" would be continuous. The major points of these connecting levels are as follows:

1) Terrace Level. (See Exhibit 22, page 55 and Photo 34, page 35.)

The new construction below grade would form a sort of podium providing a setting for the new LHNCBC building. The roof of this podium - over "A" Level - would form an outdoor Terrace connecting the two buildings. While not the principal connection, a door from the main Reading Room of the NLM to the Terrace would permit access to the Terrace for use in pleasant weather for recreation or crossing over to the LHNCBC as well as, incidentally, to the parking space.

The main entrance to the LHNCBC would be at the Terrace level as shown. To emphasize the vehicular approach and provide turning space, 15 car spaces would be sacrificed in the south end of the existing parking space. These would be regained in a new 85 car parking space to the west of the proposed LHNCBC, a net gain of 70 parking spaces.

2) "A" Level. (See Exhibit 23, page 56).

a) This is the principal communicating level for personnel & visitors. It will be noticed a continuous passage is indicated leading from the stairs or elevator at the main entrance of the NLM to the vertical circulation system of the LHNCBC. It also connects to the new auditorium on this level, facilitating joint use. The Billings Auditorium, equally accessible from the passage, in the old building, will be remodeled for smaller groups.

b) For the interest of visitors, particularly those on tours of the building, along the passage in the NLM Building will be view windows into the activities of the Graphic Image Storage & Retrieval section and the RSD Photo duplication section.

c) Activities of the Bibliographic Services Division located on this level in the NLM will be conveniently connected to the Reference & Catalog services above on the main floor by a principal stair.

BSD Indexers and MEDLARS facilities will maintain continuity of space into the new structure and be located in close relationship to the OCES Input Unit as shown.

d) The OCES Computer Room is tentatively located on this level in the S.W. corner in principle because it will be used by both the activities of the NLM and the LHNCBC. The corner location permits its future expansion with continuous space.

3) "B" Level. See Exhibit 24, page 57.

a) "B" Level is principally a stack level in the NLM and will so be continued in the new structure. In both buildings the location is contiguous to the area under the existing parking space designated originally, and reserved for a future major expansion of the stacks.

b) Additional truck loading and receiving space will be provided on this level for the complex.

4) "C" Level. See Exhibit 24, page 57.

As indicated, "C" Level maintains similar continuity of stacks as the level above.

2. <u>New Building</u>

a. Ground Floor. (Terrace Level)

1) The entrance to the building is from the Terrace on the north side. (Model Photo 36, page 35).

2) Parking spaces are in close proximity.

3) In going through to the elevator core the visitor will pass through exhibition areas on either side of the foyer.

4) On the far side of the lobby would be conference rooms - most convenient to visitors for the day coming to meetings from outside. Between sessions there would be ready access to the landscaped terrace.

5) One flight down on "A" level would be the main Auditorium - again located primarily for convenience of visitors.

6) As previously noted there would be all-weather access to the NLM on "A" level and also from the Terrace to the reading room.

7) This Terrace, incidentally, would be a good location for a work by a talented artist. It is believed that 1% of the cost of a public building may be spent on such enhancement.

b. Above Grade. Exhibit 24, page 57.

Shows a typical floor plan divided into a pair of work areas either side of the elevator core. These areas may be subdivided in accordance with the requirements of the particular department and changed in the future in the manner of a conventional office building.

c. Sections. Exhibit 24.

The cross section shows how the space may be allocated in the Center, recognizing it primarily as a communications & technical facility:

1) Roof. Roof top antennae of various types screened by non-magnetic construction for protection from weather and permit design symbol of the LHNCBC against the sky. It will be designed for access to visitors.

2) Upper floors. As the principal "tenants" as well as for technical reasons related to the communications network, the LHNCBC itself is located on the upper floors.

3) Middle floors. The SIS & OCES are located next below the LHNCBC as being the most closely related divisions in their functioning.

4) Lower Floors. The EMP is indicated here as having no close ties with other departments. The additional space required for the LO, including Network Training, is indicated just above the ground floor as being nearest to the conference rooms as well as closer to the Main Library.

3. Rehabilitation of NLM

Changes as indicated on diagrammatic plans for 1974. (Exhibits 15A through 19A, pages 41, 43, 45, 47 & 49).

D. Approach to Design of New Structure

1. Location on Site

a. With reference to the site model of existing condition (Photo 3, page 32) it will be seen there is:

1) a small area available to the right rear of the building (NW),

2) the parking space directly behind the building (W) but reserved for future stack expansion,

3) a fairly large area to the south west. (The "Greenbelt" runs across the front of the building and round the south side of the N.I.H. reservation - more or less across the brook).

b. The base section of the new building covers approximately 35,000 sq.ft. This last area to the southwest is the only place large enough for the new project on the NLM site.

c. The site for the building has several advantages:

1) Access by the road west of parking space permits it to have own entrance.

2) Sloping site down to brook on south permits ready access to building at more than one level, as well as permitting windows to south. Presently convenient for Service Entrance. (Photo 35, page 35).

3) Overall project lends itself to visual relationship with the new Fogarty International Center in facing it across the open parking space and own unoccupied area beyond.

4) By taking part of south end of parking space, a dignified and convenient "off-street" entrance plaza and turn around becomes possible. (Model Photo 35, page 35).

2. General Shape & Design Characteristics

a. The reasons for the large lower levels below grade tied in with the "A", "B", & "C" levels of the NLM have already been given. Together they form a base structure or "podium" for the tower with its top designed as an effective terrace. This Terrace will be useful as a gathering place between seminars and lectures, for outdoor reading and for recreational purposes.

b. From previous studies (Feasibility I) of a building of different heights, it had been concluded and accepted that a tower form would be most useful to the LHNCBC purposes and would also permit an expression of it as a unique communication center. The antennae platform could be designed to create an identifying symbol and at the same time act as a line of sight & weather screen to the antenna equipment. This equipment could be expected to change its shape at relatively frequent intervals as technical developments take place, and this might change the appearance of the top of the building unless so screened.

c. The vertical strips in limestone recall the scale and major divisions of the NLM between its narrow windows. The limestone itself will be treated with the same pattern in the stonework as the NLM. These would provide certain unifying elements.

3. Future Expansion

a. The present tower is thought of as creating the permanent image as seen from Wisconsin Avenue (Model Photo 34, page 35). It is designed to be expanded by a duplication of space on the west side (Model Photo 36, page 35). This would increase the importance of the north elevation which is the entrance side and which faces the Fogarty International Center.

b. The above area of future expansion would now be used effectively for parking.

c. The base, of course, would expand in the same direction as the tower, desirable for the extension of the computer space and the mechanical space. Additional expansion of the base to the south would also be practical. Interior parking might then become necessary at lower levels.

d. The stack expansion for the NLM reserved under the parking space has already been noted.

V. CONSTRUCTION & COST

A. Outline Specifications

For the purpose of establishing the budget, it will be assumed that the following items are included:

1. Site Development (See Site Plan Exhibit 22, page 55.)

a. Grading and drainage.

b. Roads, walks, new turnaround at building entrance, etc.

c. Granite curbs, steps, terrace paving, etc.

d. Exterior lighting.

e. Planting and seeding.

f. 85-car paved surface parking area.

2. Utilities (See NLM Site Plan Exhibit 4, page 18).

Conclusions on the extension of utilities on the part of the N.I.H. are not firm at this writing. The following assumptions, therefore, have been made for estimating purposes as an allowance. They will be subject to review by the Engineering Design Branch, Division of Research Services, N.I.H., for later establishment of actual scope of work.

a. Cold Water Supply

8" cold water main will be connected to existing service line to NLM building.

b. Sanitary System

10" sanitary sewer will be run from new building to existing manhole near Wisconsin Avenue serving the present 8" line from NLM building.

c. Storm Water Drainage

Storm water drainage will be run to present brook in similar way to the NLM building.

d. Steam

Steam and pumped return service lines will be taken from existing Manhole CS-49. New 8" steam, and 4" Pumped Return will be run for a distance of 660' to new manhole, from which point 6" steam, 3" Pumped Return and 1-1/4" drip will be run to new building.

e. Chilled Water

Chilled water service will be connected to existing 20" lines at Manhole CS-49. New lines will be 18" from existing Manhole CS-49 to new Manhole about 400' from new building. From new manhole, lines will be 14" to new building.

f. Electrical

Electrical light and power service will be connected to present feeders serving NLM.

g. Communications

Communication cables (telephone, Supervisory, Fire Alarm, Watchmans' Report Systems) will be run to Manhole T-3 Dwg. 9-41 Project No. 18096. Extension of these cables to final terminal points will be done as determined by N.I.H.

h. Not provided for in budget estimate

1) Possible future tie-in with pneumatic tube communications network.

2) Extensions of communications cables beyond Manhole T-3.

3) Any assessment for increase in boiler and refrigeration plant capacity.

3. Rehabilitation of Existing NLM Building (See Exhibits 15 through 19, 15A through 19A, pages 40 through 49).

a. Construction and finishes to conform to standards in existing building and to tie in with adjacent areas.

b. Alteration to existing mechanical and electrical systems as required for new space allocations and functions in the existing building.

4. General Construction of New Building

a. Foundation and Structural Framing

1) Reinforced concrete footings and foundation walls.

2) Foundation drainage.

3) Base structure - reinforced concrete, flat slab construction commensurate with levels "A", "B" & "C" of contiguous NLM building.

4) Structural steel framing with masonry fire-proofing.

b. Floor and Roof Construction

1) "C" level floor - Concrete slab on fill, reinforced.

2) Other floors and roof - Reinforced concrete slab. Depressed slab in computer and certain adjoining areas. (Alternate for tower floors - steel cellular floor decks in place of concrete with encased underfloor duct systems).

3) Live load on typical floor 80 and 100 lbs./sq.ft. as required. Live load on "A", "B", & "C" level 125 lbs./sq.ft.

c. Exterior Wall Construction and Finishes

1) Walls below grade - Reinforced concrete with membrane waterproofing and protection.

2) Solid walls above grade - masonry wall with cut limestone exterior facing; plaster over furring on inside.

3) Window wall - "Institutional" grade metal, or precast concrete system. Heat reducing glass.

d. Roofing

1) 4-ply built up roofing. Granite paving over terrace roof. Traffic top on tower roof.

2) 1-1/2" rigid insulation.

e. Interior Walls and Partitions

1) Masonry block walls around stairs, elevators, toilet rooms, auditorium, computer room, and other special purpose areas.

2) Prefabricated dry-wall office partitions for offices, storage, etc.

f. Interior Finishes

1) Vinyl-asbestos floor tile in general office and technical space. Terrazzo and carpet in certain public areas.

2) Walls painted in general. Special treatment and/or high grade finishes in certain public areas such as lobby, auditorium, etc.

3) Natural finished wood doors in general except where metal doors are required by code.

4) Acoustical ceiling in general.

5) Appropriate finishes in toilet rooms and other service areas.

g. Plumbing

1) Complete plumbing system, including fixtures, accessories, soil, waste, and vent lines, hot and cold water supply, etc.

2) Roof drains, leaders, and connection to storm water drainage system.

3) Fire protection system including standpipes - from separate exterior fire protection main. Fire extinguishers as required.

h. Heating, Ventilating and Air Conditioning

1) New chilled water service from existing underground chilled water system.

2) Steam and pumped return from existing underground piping system.

3) Heating system - Forced hot water system zoned for exposure. Modular arrangement of heating and air conditioning system to afford individual temperature control of offices.

4) Entire building air conditioned. Air handling units to be selected and arranged to serve spaces separately such as auditorium, computer areas, office spaces, etc.

i. Electrical

1) Complete electrical distribution system for light and power requirements including sub-station, switchgear, conduits, cables, boxes, etc.

2) Complete lighting and power system including fixtures, convenience outlets, power outlet for motors, equipment, etc.

3) Emergency lighting system.

4) Fire alarm system connected to central system.

5) Clock system.

6) Telephone system.

7) Intercommunication system.

8) Underfloor duct system throughout office areas for complete flexibility.

9) Emergency generator for communications equipment.

B. Cost Estimates

1. New Building

a. General construction	$8,550,000
b. Site Development	
Roads, surface drainage, lighting, new parking, walks, grading, trees, and planting.	208,000
c. Utilities (on site)	432,000
d. Bookstacks	100,000
e. Work of Artists - 1%	85,000
Sub-Total	$9,375,000
Contingencies - 5%	469,000
TOTAL	$9,844,000

2. Existing Building - Rehabilitation

a. Alterations	$ 628,000
b. Compact Bookstacks (Basic Scheme)	598,000
Sub-Total	$1,226,000
Contingencies (Alterations) - 10%	63,000
" (Bookstacks) - 5%	30,000
TOTAL	$1,319,000

Alternate:

Substitute Condensed Aisle bookstack arrangement for Compact (Basic Scheme) DEDUCT $433,000.

See Exhibit 21, page 52.

3. Summary

a. New Building	$9,844,000
b. Existing Building - Rehabilitation	$1,319,000
TOTAL	$11,163,000

4. General Notes (Applicable to all above estimates)

a. Costs estimated as of July 1969. For each yearly increment to bidding date plus one year thereafter, ADD 9.5% per year. Under present conditions, forecasting the rate of inflation is very uncertain. However, this rate averages the forecasts of three authoritative sources for the year 1969, based upon recent experience.

b. "Building" cost limited to 5 feet outside building. Work beyond 5' in "site development" and "utilities".

c. Included: Rock excavation, and an allowance of $100,000 for fallout protection.

d. Excluded:

1) Equipment other than bookstacks - e.g., case-work, movable furniture and equipment, tape files, film equipment, etc.

2) Computer and console wiring.

3) Utility work beyond points of connection described above, pages 60 and 61. Scope of the extension of utilities and thus the cost of supporting utilities is not firm as of submission of this report and is subject to verification by Engineering Design Branch, Division of Research Services, N.I.H.

4) Pneumatic tube facilities.

5) G.S.A. Supervision and administrative costs.

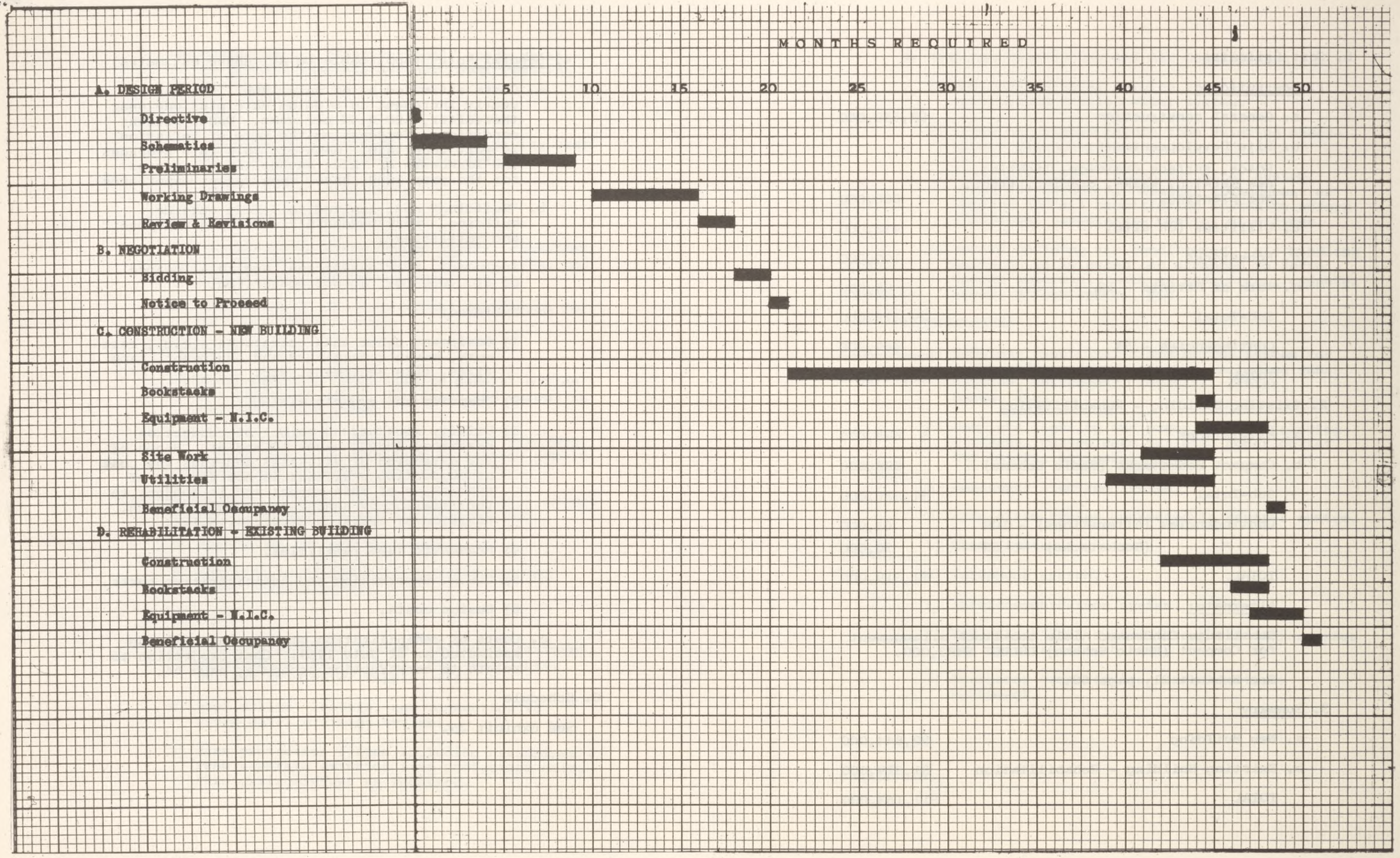
6) Design costs.

e. Costs of rehabilitation of existing building estimated as of July 1969. Cost projection to relate to construction schedule, page 64.

C. Schedule

See Exhibit 25.

DESIGN AND CONSTRUCTION PROGRESS SCHEDULE



PROGRESS SCHEDULE EXHIBIT 25

APPENDIX I

1974 NLM EXPANSION PROGRAM IN BETHESDA

PROPOSED NEW LHNCBC BUILDING

and

REHABILITATION OF EXISTING NLM BUILDING

Pages I-1 to I-22

I. OFFICE OF THE DIRECTOR	1969					1974				GSA HEW							MAIN BLDG 1974			LHNCBC BLDG 1974			REMARKS
	ROOM	STA	P	AREA	SUBTOTAL	STA	P	AREA	SUBTOTAL	GUIDE	O	T	L	C	Sp	S	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	
A. Office of The Director																							
1. Director	M142	1	1	410		1	1	410			0						1	410					
2. Deputy Director	M144	1	1	320		1	1	320			0						1	320					
3. Spec. Assts. to Director	M119 M136 M139A C24	4	4	220 180 310 170		4	4	800		200	0						2	190 240		2	400		
4. Secretaries-Receptionists	M101 M112	5	4	500 200		5	5	600		100	0						5	500					
5. Program Planning						2	2	300		150	0						2	310					
6. Board Room	M150			1160				1160							Sp			1160					
			10		3470		13		3590								11		3130	2		400	
B. Office of Admin. Management																							
1. Executive Officer	M109	1	1	230		1	1	200		200	0						1	230					
2. Asst. Exec. Officer	M110	1	1	160		1	1	200		200	0						1	160					
3. Financial Management	M105 M108	3	3	420		3	3	350		150 100	0						3	420					
4. Contract Officer	M104	1	1	100		4	4	450		100-3 150-1	0									4	450		
5. Personnel	M106 M107	3	3	430		5	5	650		100-2 150-3	0						5	650					
6. Management Analysis	M113	1	1	170		2	2	250		100 150	0									2	250		
7. Training Officer	C22	1	1	170		1	1	100		100	0									1	100		
8. Budget Analysts						3	3	450		100 150	0						3	300					
9. Purchasing Agents						3	3	300		100	0									3	300		
10. Secretary & Clerical	M102	11	7	1100		9	9	900		70 100	0						8	800		1	100		
11. Supply Office, Clerical	C28	7	7	900		9	9	900		70 100	0									9	900		
12. Duplicating	C30	2	2	420		2	2	1620		70	0									2	1620		
13. Storage-Supplies, Exhibits & Equipment	C29			3160				11160								S					11160		

		1969				1974				GSA HEW							MAIN BLDG 1974			LHNCBC BLDG 1974			REMARKS
	ROOM	STA	P	AREA	SUBTOTAL	STA	P	AREA	SUBTOTAL	GUIDE	O	T	L	C	Sp	S	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	
14. Mail Room	A35	4	4	510		6	6	910		70	0						3	510		3	400		
15. Shipping & Receiving	A36	1	1	800		1	1	800			0						1	800			420		
16. C-Level Stack Storage				860												S							
			32		9430		50		19240								25	3870		25		15700	
C. Office of Public Information-Publications Management																							
1. Chief	M122	1	1	220		1	1	200		200	0						1	180					
2. Deputy Chief	M120	1	0	170		1	1	150		150	0						1	180					
3. Secretarial, Cler., & Recep.	M112	5	4	820		5	5	500		70 100	0						5))						
4. Writer						1	1	150		150	0						1)	880					
5. Exhibits Director		1	1	510		1	1	530			0									1	530		
6. Storage				470												S							
			6		2190		9		1530								8		1240	1		530	
D. Common Space																							
1. Conference Room B	M131			760				760						C				760					
2. Conference Room C	C			220							0												
3. Billings Audit. & Study	A43			2500				2500							Sp			2500					
4. Auditorium (New)								4500							Sp						4500		
5. Conference Room A	139A							320						C				320					
6. Lunch Room	A19			2740				2740							Sp			2740					
			0		6220				10820								0		6320	0		4500	
TOTAL - I - OD			48		21310		72		35180								44		14560	28		21130	

II. COMPUTER & ENGINEERING SERVICES	1969					1974				GSA HEW							MAIN BLDG 1974			LHNCBC BLDG 1974			REMARKS
	ROOM	STA	P	AREA	SUBTOTAL	STA	P	AREA	SUBTOTAL	GUIDE	O	T	L	C	Sp	S	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	
A. Office of the Chief																							
1. Immediate Office																							
a. Chief	C38	1	1	220		1	1	300		300	0									1	300		
b. Deputy Chief	C40	1	1	220		1	1	200		200	0									1	200		
c. Special Assistant	C39	1	1	(220		1	1	100		100	0									1	100		
d. Secretaries	C39			)						90													
	C33s	1	2	140s	800	2	2	160	760	70	0									2	160	760	
2. Project Mgmt. Staff																							
a. Chief	C36	1	1	220		1	1	200		200	0									1	200		
b. Analysts			1			2	2	250		150													
										100	0									2	250		
c. Contractor						1	0	100			0									0	100		
d. Secretary	C33s		1	140s		1	1	70		70	0									1	70		
					360				620													620	
3. Conference Room	C34			440	440			500	500					C							500	500	
			8		1600		9		1880											9		1880	
B. Systems Devlpmt. Section																							
1. Section Head																							
a. Chief	C35			220		1	1	200		200	0									1	200		
b. Deputy Chief						1	1	200		200	0									1	200		
c. Secretary	C33s		1	140s		1	1	70		70	0									1	70		
					360				470													470	
2. Support Software Unit																							
a. Chief	C33s		1	140s		1	1	200		200	0									1	200		
b. Analyst/Programmers	C33s		3	420s		5	5	500		100	0									5	500		
c. Contractor	C33s	2		280s		8	0	760			0									0	760		
d. Secretary					840	1	1	70		70	0									1	70		
									1530													1530	

	1969					1974				GSA HEW							MAIN BLDG 1974			LHNCBC BLDG 1974			REMARKS
	ROOM	STA	P	AREA	SUBTOTAL	STA	P	AREA	SUBTOTAL	GUIDE	O	T	L	C	Sp	S	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	
3. Data Mgmt. Systems Unit																							
a. Chief	C33s		1	140s		1	1	200		200	0									1	200		
b. Analyst/Programmers	C33s		2	280s		5	5	500		100	0									5	500		
c. Contractor	C33s	3		420s		5	0	490			0									0	490		
d. Secretary						1	1	70		70	0									1	70		
					840				1260													1260	
			8		2040	30	17		3260											17		3260	
C. Processing Support Section																							
1. Section Head																							
a. Chief	134	1	1	180		1	1	200		200	0									1	200		
b. Deputy Chief	133	1	1	(170		1	1	150		150	0									1	150		
c. Secretary	133	1	1	(		1	1	70		70	0									1	70		
					350				420													420	
2. Production Control Unit																							
a. Supervisor (Chief)	132	1	1	(		1	1	150		150	0									1	150		
b. Dist. Control Clerk	132	1	1	(210		1	1	90		90	0									1	90		
c. Tape Librarian	132	1	1	(		1	1	100		100	0									1	100		
d. Administrators						2	2	200		100	0									2	200		
e. Contractors						2	0	200			0									0	200		
f. Secretary						1	1	70		70	0									1	70		
					210				810													810	
3. Input Unit																							
a. Unit Head	143		1	140		1	1	100		100	0									1	100		
b. EAM Area						1	1	90		90		T								1	90		
c. Input Typing & Proof-reading	140 142	19	14	1750		15	15	1050		70		T								15	1050		
d. Contractors	152			640		8	0	560				T								0	560		
					2530				1800													1800	

		1969			1974				GSA HEW							MAIN BLDG 1974			LHNCBC BLDG 1974			REMARKS
	ROOM	STA	P	AREA	SUBTOTAL	STA	P	AREA	SUBTOTAL	GUIDE	O	T	L	C	Sp	S	P	AREA	SUBTOTAL	P	AREA	SUBTOTAL	
4. Computer Operations Unit																							
a. Unit Head			1			1	1	150		150	0									1	150		
b. Supervisor						1	1	150		150	0									1	150		
c. Computer Room	140	7	7	1640				5180				T									5180		
d. Maintenance Room	135		3	440								T											
e. Tape Storage	137			310							0												
f. Mechanical	136			400	2790				5480			T										5480	
			32		5880				8510											28		8510	
D. Systems Application Section																							
1. Section Head																							
a. Chief	C37	1	1	220		1	1	200		200	0									1	200		
b. Deputy Chief						1	1	200		200	0									1	200		
c. Secretary	C33s		1	140s		1	1	70		70	0									1	70		
2. Data Base Unit																							
a. Chief	C33s		1	140s		1	1	200		200	0									1	200		
b. Secretary						1	1	70		70	0									1	70		
c. Programmers/Analysts	C33s		3	420s		3	3	300		100	0									3	300		
d. Contractors	C33s	4		560s	1120	3	0	280	850		0									0	280	850	
3. Retrieval & Users Product Unit																							
a. Chief						1	1	200		200	0									1	200		
b. Secretary						1	1	70		70	0									1	70		
c. Programmer/Analysts	C33s		4	560s		6	6	580		100 90	0									6	580		
d. Contractors		2		280s		3	0	290			0									0	290		
e. ACM					840	1	1	200	1340	200	0									1	200	1340	
4. NMAC-Contractors	C33s	4		560s	560	2	0	190	190		0									0	190	190	
			10		2880		17		2850											17		2850	
Total - II - OCES			58		12,400		71		16,500											71		16,500	

	Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal	GSA New Guide	O	T	L	C	Sp	S	MAIN BLDG. 1974 P	MAIN BLDG. 1974 Area	MAIN BLDG. 1974 Subtotal	LHNCBC BLDG. 1974 P	LHNCBC BLDG. 1974 Area	LHNCBC BLDG. 1974 Subtotal	REMARKS
III. ASSOCIATE DIRECTOR FOR LIBRARY OPERATIONS																							
A. Office of Associate Director																							
1. Immediate Office																							
a. Associate Director	M116	1	1	270		1	1	300		300	0						1	270					
b. Deputy Associate Director	M118	1	1	210		1	1	200		200	0						1	210					
c. Secretaries to a.b.	M117	2	2	160		2	2	200		100	0						2	160					
d. Adm. Officer	M114	1	1	150		1	1	150		150	0						1	150					
e. Adm. Assistant						1	1	)		100	0						1	)					
								170											200				
f. Secretary to d.						1	1	)		70	0						1	)					
g. Special Assistants	M120	2	2	170		1	1	150		150	0						1	170					
					960				1,170										1,160				
2. Library Network Management																							
a. Head - Network Staff						1	1	200		200	0						1	220					
b. Professionals						10	10	1500		150	0						10	1640					
c. Secretary to a.						1	1	)		70	0						1	)					
								420											720				
d. Clerical Support						5	5	)		70	0						5	)					
									2,120										2,580				
3. Library Network Training																							
a. Head						1	1	200		200	0									1	200		
b. Deputy						1	1	200		200	0									1	200		
c. Professionals (3 offices)						4	4	400		100	0									4	400		
d. Clerical Support						3	3	210		70	0									3	210		
									1,010													1,010	
			7		960				4,300								25		3,740	9		1,010	
B. Technical Service Division																							
1. Office of Chief																							
a. Chief, TSD	125	1	1	280		1	1	300		300	0						1	280					
b. Deputy Chief	122	1	1	160		1	1	200		200	0						1	160					
c. Secretary	121s	1	1	)		2	2	140		70	0						2	)					
				)	250													)	350				
d. Assistant	121s	1	1	)		1	1	150		150	0						1	)					
e. Special Assistants	123	2	2	320		3	3	450		150	0						3	480					
	124																						
			6		1,010		8		1,240								8		1,070				

	1969 Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal	GSA HEW Guide	O	T	L	C	Sp	S	MAIN BLDG. 1974 P	MAIN BLDG. 1974 Area	MAIN BLDG. 1974 Subtotal	LHNCNC BLDG. 1974 P	LHNCNC BLDG. 1974 Area	LHNCNC BLDG. 1974 Subtotal	REMARKS
2. National Catalog Program																							
a. Head	127	1	1	150		1	1	200		200	0						1	150					
b. Asst. Network Mgmt.						1	1	150		150	0						1	130					
c. Secretary	126s	1	1	430		1	1	90		90	0						1						
d. Training Officers				130		2	2	250		100							2						
										150	0												
e. Coordinators		1	1			2	2	200		100	0						2						
f. Editors		1	1			2	2	300		150	0						2						
g. Asst. - Cataloging						1	1	150		150	0						1						
h. Secretary				2570		1	1	90		90	0						1	1700					
i. Catalogers		1	1			4	4	520		90	0						4	2950					130 sf/person allowed
j. Senior Catalogers		11	11			14	14	2100		100	0						14						150
k. File Maintenance		1	1			2	2	180		90	0						2						
l. File Clerks		8	8			8	8	560		70	0						8						
					3,280				4,790										4,930				
3. Serial Data Program																							
a. Head						1	1	200		200	0						1						
b. Editor						1	1	150		150	0						1						
c. Catalogers						2	2	260		100	0						2						130 sf/person allowed
d. Back Issues						2	2	180		90	0						2						
e. Checkers & Searchers		13	13			15	15	1350		90	0						15	4900					
f. Clerical						4	4	280		70	0						4						
									2,420										4,900				
4. Selection/Acquisition																							
a. Head		1	1	2390		1	1	200		200	0						1						
b. Deputy						1	1	150		150	0						1						
c. Secretary		1	1			1	1	90		90	0						1						
d. Area Specialists		6	6			9	9	1350		100	0						9						150 sf/person allowed
e. Assts.-Exchange,Fiscal,Claim		1	1			3	3	270		90	0						3						
f. Clerical		4	4			6	6	420		70	0						6						
					2,390				2,480														
5. TSD Stacks					6,140				6,140										6,140				
		57			12,820		93		17,070								93		17,040				

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal		O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
C. Reference Service Division																							
1. Office of the Chief																							
a. Chief, RS	162	1	1	290		1	1	200		200	0						1	290					
b. Deputy Chief	160	1	1	190		1	1	150		150	0						1	190					
c. Secretaries	161	2	2	160		2	2	140		70	0						2	160					
d. Special Assistants					640	2	2	200	690	100	0						2	200	840				With Reference Section
2. Reference Section																							
a. Head	154	1	1	220		1	1	150		150	0						1						
b. Librarians		8	7 *			10	10	1200		100	0						10						2 Librarians Station
c. Technicians	153	5	5	2400		6	6	780		90	0						6		2,620				in Reading Room at
d. Clerical		1	1			2	2	140		70	0						2						150 sf/person
					2,620				2,270														130 sf/person
3. Loan and Stack Section																							
a. Head	A61a	1	1	300		1	1	150		150	0						1	210					
b. Assistant Head	A61a	1	1			1	1	100		100	0						1						
c. Secretaries		1	1			1	2	70		70	0						2	1200					2 shifts
d. Searchers	A61	3	3	1200		3	5	270		90	0						5						
e. Pages In stacks		15	15			14	27	980		70	0						27						
					1,500				1,570										1,410				
4. Photoduplication Section																							
a. Head	A50a		1	210			1	200		150	0						1						
b. Assistant Head	A50		1	-			1	-		100	0						1						
c. Mechanic	A50		1	-				-		100		T					1						
d. Photo Technicians							2	-		100		T					2						
e. Microfilm Camera Room	A22		2	490								T											
f. Quality Control Room	A22a		2	420									L										
g. Photo Lab - Dark Room	A53		1	330			18*	8500					L				18	10230					
h. Copy - Camera Room	A52		1	270								T											
i. Photostat & Copyflo	A49 A50s		5	2350									L										
j. Graphic Image System								2000				T											
k. NBS Room	A50b	1	-	210				200		0							"						
l. Clerks	A50s	1	1			3	3	--		0							3						
					4,280				10,900								87		10,230				

			1969			1974				GSA HEW							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal	Guide	O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
5. Preservation Section																							
a. Supervisor	C27	1	1	200		1	1	150		150	0						1	200					
b. Secretary & Assistant						2	2	160		70							2)						
										90	0						)						
																	)						
c. Bindery	C26		9)				11	2820		70		T					11)						11 @ 120 sf=1320 sf / 1500 sf stg.=2820 sf
			)	2960													)	3890					
d. Microrecords	C26		3)				11	1320		70		T					11)						11 @ 120 = 1320 sf
e. Film Vault Service Area	C15	2	2	350		2	2	350		70					Sp		2	350					
f. Film Vault	C16			920				920							Sp			920					
					4,430				5,720										5,360				
6. Mid-Atlantic Reg. Library						7	7		910		0						7	1050	1,050				7 @ 130
			69		13,470		121		22,060								121		21,510				
D. Bibliographic Services Division																							
1. Office of Chief																							
a. Chief	A50a	1	1	230		1	1	200		200	0						1	220					
b. Deputy Chief	A50b	1	1)			1	1	150		150	0						1	170					
			)	210																			
c. Special Assistants	A50b	1	1)			2	2	300		150	0						2	140					
																		150					
d. Secretary & Assistant	A50c	2	2	190		2	2	180		90	0						2	250					
					630				830										930				
2. Quality Control Staff																							
a. Head	A50	1	1)			1	1	150		150	0						1	220					
			)	280																			
b. Information Specialist	A50	3	3)			5	5	500		100	0						5)						
																	)	1100					
c. Clerical						4	4	280		70	0						4)						
					280				930										1,320				
3. Index Section																							
a. Head	A58b	1	1	180		1	1	200		200	0									1	200		
b. Training	A58a	1	1	180		1	1	150		150	0									1	150		
	A58c		2	180																			
c. Senior Indexers	A58	4	2)			8	8	1040		100	0									8	1040		8 @ 130 sf
			)																				
d. Indexers	A58,59,60	16	16)			18	18	1800		100	0									18	1800		
			)	2760																			
e. Trainees	A58	16	)	210		18	-	1260		70	0										1260		
			)	210																			
f. Clerical	A50	6	6)	150		9	9	630		70	0									9	630		
					3,870				5,080													5,080	

	1969					1974				GSA HEW Guide	O	T	L	C	Sp	S	MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P.	Area	Subtotal								P	Area	Subtotal	P	Area	Subtotal	
4. Medlars Management Section																							
a. Head	146	1	1	140		1	1	200		200	0									1	200		
b. System Analysts, Searchers	152	6	6			16	16	2240		100										16	2240		16 @ 140 sf. average
										150	0												
c. Trainees	152	10				12	-	1560		70	0									12	1560		12 @ 130 sf/p
d. Coordinators	152	1	1	2040		3	3	300		100	0									3	300		
e. Clerical		1	1			4	4	280		70	0									4	280		
					2,180				4,580													4,580	
5. Mesh Section																							
a. Head	145	1	1	140		1	1	200		200	0									1	200		
b. Sr. Mesh Officer	144	1	1			1	1	150		150	0									1	150		
c. Mesh Specialists	144	3	3			10	10	1500		150	0						8	1290		2	300		
				710																			
d. Editors	144	1	1			2	2	200		100	0									2	200		
e. Clerical	144	1	1			3	3	210		70	0						3	300					
					850				2,260										1,590			850	
6. Search Section																							
a. Head	A21	1	1			1	1	150		150	0						1	170					
				210																			
b. Secretary	A21	1	1			1	1	70		70	0						1						
c. Assistant	A20	1	1			1	1	100		100	0						1	700					
				460																			
d. Searchers	A20	5	5			5	5	500		100	0						5						
					670				820										870			---	
7. Conference Room-Training					550				550					C									
			61		8,150		102		15,050								35		4,710	67		10,510	

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal		O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
E. HISTORY OF MEDICINE DIVISION																							
1. Office of Chief																							
a. Chief	109	1	1	270		1	1	200		200	0						1	270					
b. Secretary	108a	1	1	160		1	1	100		100	0						1	160					
c. Curator - Early Manusc'pt.	116		-	130		1	1	150		150	0						1	130					
					560				450										560				
2. Cataloging																							
a. Historian	115		1	100		1	1	150		150	0						1	100					
	117			90																			
b. Catalogers	118		2	70		3	3	300		100	0						2	160					
c. Library Technician	112		1)			1	1)			70	0						1)						
			)	650			)	650									1)	650					
d. Clerical	112		2)			2	2)			70	0						2)						
					910				1,100										910				
3. Reference and 1LL																							
a. Sr. Ref. Librarian						1	1	150		150	0						1						
										100													
b. Ref. Lib. & Secy. (Desk)	108		2	450		2	2	450		70	0						2	450					At Desk
c. 1LL Lib. Technician						2	2	140		70	0						2	200					In Stack
d. Office Machine Operator	C14		1	180		1	1	180			0						1	180					
					630				920										830				
4. Oral History Group																							
a. Deputy Chief	A2	1	1	170		1	1	200		200	0						1	170					
b. Secretary	A6s	1	1	100		1	1	100		100	0						1	100					
c. Assistant Historian			-			2	2	200		100	0						2	200					
d. Clerk-Typist			-			1	1	70		70	0						1	100					
					270				570										570				
5. Archives																							
a. Archivist	A5	1	1	110		1	1	100		100	0						1	110					
b. Assistant			-	-		1	1	100		100	0						1	60					
c. Clerk-Typist	A1 ?	1	1	-		1	1	70		70	0						1	-					
					110				270										170				

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta.	P.	Area	Subtotal		O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
6. Bibliography																							
a. Historian						1	1	150		150	0						1	170					
b. Librarian	A3	1	1	170		1	1	130		100	0						1	170					
c. Clerk-Typist	A6s	1	1	100		1	1	70		70	0						1	60					
					270				350										400				
7. Prints																							
a. Curator				-		1	1	150		150	0						1	130					
b. Art Stack	A1	2	1	880		2	2	880			0						2	880					
					880				1,030										1,010				
8. Reading Room				3450				3450							Sp			3450					
Studies				140				140			0							140					
Incunabula				380				380							Sp			380					
					3,970				3,970										3,970				
			18		7,600				8,660								30		8,420				
F. SPECIAL PURPOSE SPACES																							
1. Stacks				74800				106340										82240			24100		
2. Catalog				4270				4270										4270					
3. Reading Room				12200				12200										12200					
4. A.V. Reading				---				5900										2940					
5. Studies				1750				2830										2150					
					93,020				130,640										103,800			24,100	
TOTALS - III - LO			212		136,020		380		197,710								304		159,220	76		35,620	

	1969					1974				GSA HEW							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal	Guide	O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
IV. EXTRAMURAL PROGRAMS																							
A. Office of the Assoc. Director																							
1. Immediate Office																							
a. Associate Director		1	1	200		1	1	300		300	0									1	300		
b. Assistant Director		-	-	-		1	1	300		300	0									1	300		
c. Special Assistant for Program Plan		1	1	185		1	1	200		200	0									1	200		
d. Research Analyst		-	-	-		1	1	150		150	0									1	150		
e. Secretaries, Reception		2	2	165		4	4	400		100	0									4	400		
					550				1,350													1,350	
2. Grants and Contracts Management Office																							
a. G & C Mgmt. Officer		1	1	260		1	1	220		220	0									1	220		
b. G & C Mgmt. Specialist		1	1	130		1	1	200		200	0									1	200		
c. Budget & Reports Analyst		-	-	-		1	1	100		100	0									1	100		
d. Committee Mgmt.Officer		1	1	120		1	1	100		100	0									1	100		
e. Admin. Assistant		1	1	50		1	1	100		100	0									1	100		
f. Clerks, Typist, Messenger		2	2	100		4	4	320		70 90	0									4	320		
g. Office Machine Operator		-	-	-		1	1	70		70	0									1	70		
h. Secretaries		2	1	210		1	2	200		100	0									2	200		
					870				1,310													1,310	
3. Institutional Support Management Program																							
a. Grants Mgmt.Specialist		1	1	140		2	2	300		150	0									2	300		
b. Grants Mgmt. Assistant		1	1	120		1	1	100		100	0									1	100		
c. Secretaries		1	1	100		1	1	70		70	0									1	70		
d. Clerk -Typist		-	-	-		1	1	70		70	0									1	70		
					360				540													540	
4. Communications Projects Management																							
a. Grants Mgmt.Specialist		1	1	190		2	2	300		150	0									2	300		
b. Secretary		1	-	100		1	1	70		70	0									1	70		
					290				370													370	

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal		O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
5. Grants Processing																							
a. Grants Process. Officer	-	-	-	-		1	1	150		100	0									1	150		
b. Grants Assistant		1	1	100		1	1	100		100	0									1	100		
c. Grants Clerks		3	3	270		6	6	540		90	0									6	540		
					370				790													790	
			19		2,440		36		4,360											36		4,360	
B. Publications and Translations Division																							
1. Immediate Office																							
a. Division Chief		1	1	190		1	1	300		300	0									1	300		
b. Grants and Contracts Coordinator		-	-	-		1	1	100		100	0									1	100		
c. Secretary		2	1	190		1	1	100		100	0									1	100		
					380				500													500	
2. International Programs Branch																							
a. Branch Chief		-	-	-		1	1	200		200	0									1	200		
b. Int'l. Comm. Off.		1	-	130		1	1	150		150	0									1	150		
c. Translations Officer		-	-	-		1	1	150		150	0									1	150		
d. Project Assistant		-	-	-		2	2	200		100	0									2	200		
e. Secretary, Clerk, Typist		1	1	120		4	4	280		70	0									4	280		
					250				980													980	
3. Domestic Program Branch																							
a. Branch Chief		-	-	-		1	1	200		200	0									1	200		
b. Domestic Publications Officer		1	1	130		2	2	300		150	0									2	300		
c. Grants Assistant		-	-	-		1	1	100		100	0									1	100		
d. Secretary		-	1	1		2	2	140		70	0									2	140		
					130				740													740	
			4		760		18		2,220											18		2,220	

	1964				1974				GSA HEW							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal	Guide	O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
C. Research & Training Division																							
1. Immediate Office																							
a. Division Chief		-	-	-		1	1	300		300	0									1	300		
b. Grants and Contracts Coordinator		-	-	-		1	1	100		100	0									1	100		
c. Secretary		1	1	130	130	1	1	100	500	100	0									1	100	500	
2. Training Grants Branch																							
a. Branch Chief		-	-	-		1	1	200		200	0									1	200		
b. Training Grants Officer		1	1	190		1	1	150		150	0									1	150		
c. Grants Assistant		-	-	-		1	1	100		100	0									1	100		
d. Secretary		1	-	130	320	2	2	140	590	70	0									2	140	590	
3. Research & Develop. Branch																							
a. Branch Chief		-	-	-		1	1	200		200	0									1	200		
b. Research & Development Grants Officer		1	1	160		1	1	150		150	0									1	150		
c. Grants Assistant		-	-	-		1	1	100		100	0									1	100		
d. Secretary		-	-	-	160	2	2	140	590	70	0									2	140	590	
4. Special Projects Branch																							
a. Branch Chief		-	-	-		1	1	200		200	0									1	200		
b. Special Projects Grants Officer		-	-	-		1	1	150		150	0									1	150		
c. Grants Assistant		-	-	-		1	1	100		100	0									1	100		
d. Secretary		-	-	-	0	2	2	140	590	70	0									2	140	590	
		3			610		18		2,270											18		2,270	
D. Facilities & Resources Division																							
1. Immediate Office																							
a. Division Chief		1	1	250		1	1	300		300	0									1	300		
b. Deputy Division Chief		-	-	-		1	1	200		200	0									1	200		
c. Secretaries		2	2	160	410	2	2	200	700	100	0									2	200	700	

	1969				1974				GSA HEW Guide	O	T	L	C	Sp	S	MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal								P	Area	Subtotal	P	Area	Subtotal	
2. Regional Medical Library Branch																							
a. Branch Chief		1	1	130		1	1	200		200	0									1	200		
b. Regional Grant Officer		1	1	130		1	1	150		150	0									1	150		
c. Grants Assistant		-	-	-		1	1	100		100	0									1	100		
d. Secretaries		1	1	130		2	2	140		70	0									2	140		
					390				590													590	
3. Medical Library Resources Branch																							
a. Branch Chief		-	-	-		1	1	200		200	0									1	200		
b. Resource Grants Officer		1	1	110		1	1	150		150	0									1	150		
c. Grants Assistant		1	1	90		1	1	100		100	0									1	100		
d. Secretary		2	2	210		2	2	140		70	0									2	140		
					410				590													590	
4. Construction Grants Branch																							
a. Construction Grants Officer		1	1	130		1	1	200		200	0									1	200		
b. Grants Assistant		1	-	90		1	1	100		100	0									1	100		
c. Architect (DRFR-NIH)		1	1	120		1	1	200		200	0									1	200		
d. Secretary		1	-	110		1	1	70		70	0									1	70		
					450				570													570	
		12		1,660		18		2,450												18		2,450	
E. Special Purpose Space																							
1. Conference Rooms		-	-	470		-	-	1500			0										1500		
2. Central Files		-	-	155		-	-	370			0										370		
3. Duplication, Collating and Supply		-	-	313		-	-	-			0										-		
					940				1,870		0											1,870	
TOTALS - IV - EMP		38		6,410		90		13,170												90		13,170	

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal		O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
V. Specialized Information Services																							
A. Office of Associate Director																							
1. Associate Director	M133	1	1	190		1	1	300		300	0									1	300		
2. Deputy Associate Director						1	1	300		300	0									1	300		
3. Staff Assistant						1	1	150		100 150	0									1	150		
4. Administrative Office	M132	2	1	230		9	9	1160		90 200	0									9	1160		
5. Clerical Support	M132	2	1	230		8	8	650		70 100	0									8	650		
			3		650		20		2,560											20		2,560	
B. Toxicology Information Exchange Staff																							
1. Immediate Office																							
a. Head, TIE						1	1	300		300	0									1	300		
b. Deputy Head, TIE						1	1	200		200	0									1	200		
c. Clerical Support						4	4	340		70 100	0									4	340		
									840													840	
2. Referral Operations																							
a. Chief, RO						1	1	200		200	0									1	200		
b. Deputy Chief, RO						1	1	200		200	0									1	200		
c. Referral Specialist						3	3	500		150 200	0									3	500		
d. Referral Assistants						5	5	500		100	0									5	500		
e. Clerical Support						4	4	340		70 100	0									4	340		
									1,740													1,740	
3. Source Information																							
a. Chief, S.I.	A54	1	1	180		1	1	200		200	0									1	200		
b. Deputy Chief, S.I.						1	1	200		200	0									1	200		
c. Source Specialist						4	4	600		150 100	0									4	600		
d. Source Analyst						5	5	550		150 70	0									5	550		
e. Clerical Support						5	5	510		100	0									5	510		
					180				2,060													2,060	

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal		O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
4. Terminology Development																							
a. Chief, TD						1	1	200		200	0									1	200		
b. Deputy Chief, TD						1	1	200		200	0									1	200		
c. Terminology Specialists						9	9	1400		150 200	0									9	1400		
d. Terminology Assistants						5	5	600		100 150	0									5	600		
e. Clerical Support						8	8	650		70 90	0									8	650		
			1		180		60		7,690											60		7,690	
C. Services Development Staff																							
1. Immediate Office																							
a. Head, SDS						1	1	300		300	0									1	300		
b. Deputy Head, SDS						1	1	200		200	0									1	200		
c. Clerical						4	4	340		70 100	0									4	340		
									840													840	
2. File Organization																							
a. Chief, FO	A54e	1	1	220		1	1	200		200	0									1	200		
b. Deputy Chief, FO						1	1	200		200	0									1	200		
c. Analysts						2	2	300		150	0									2	300		
d. Statistician						1	1	100		100	0									1	100		
e. Specialist	A54d	2	2	170		1	1	100		100	0									1	100		
f. Clerical Support	A54	1	1	100		4	4	340		70 100	0									4	340		
					490				1,240													1,240	
3. Systems Design																							
a. Chief, SD						1	1	200		200	0									1	200		
b. Deputy Chief, SD						1	1	200		200	0									1	200		
c. System Analyst						2	2	300		150	0									2	300		
d. System Programmers						2	2	300		150	0									2	300		
e. Communication Engineers						1	1	100		100	0									1	100		
f. Computer Engineer						1	1	100		100	0									1	100		
g. Capability Coordinator						1	1	100		100	0									1	100		
h. Clerical Support						5	5	410		70 100	0									5	410		
									1,710													1,710	

	Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal	GSA HEW Guide	O	T	L	C	Sp	S	MAIN BLDG. 1974 P	MAIN BLDG. 1974 Area	MAIN BLDG. 1974 Subtotal	LHNCBC BLDG. 1974 P	LHNCBC BLDG. 1974 Area	LHNCBC BLDG. 1974 Subtotal	REMARKS
4. Products & Services																							
a. Chief, P & S	A54a	1	1	170		1	1	200		200	0									1	200		
b. Deputy Chief, P & S						1	1	200		200	0									1	200		
c. Product Planner	A54b	2	2	220		2	2	350		150 200	0									2	350		
d. Product Analyst	A54	1	1	70		5	5	700		100 150	0									5	700		
e. Product Assistant			-			3	3	300		100	0									3	300		
f. Clerical Support	A54	1	1	100	560	5	5	410	2,160	70 100	0									5	410	2,160	
			9		1,050		47		5,950											47		5,950	
D. Drug Literature Program																							
1. Head, DLP	A54c	1	1	140		1	1	200		200	0									1	200		
2. Deputy Head, DLP			-			1	1	200		200	0									1	200		
3. Administrative Assistant						1	1	150		150	0									1	150		
4. DLP Specialists	A54	4	4	290		5	5	750		150	0									5	750		
5. DLP Assistants				) 100		6	6	600		100	0									6	600		
6. Clerical Support			2	(100		5	5	410		70 100	0									5	410		
		-	7		630		19		2,310											19		2,310	
E. Common Space																							
1. Storage																S							
2. Communications Room								600				T									600		
3. Conference Room w/AV Facilities														C									
4. Staff Reading Room (Special Library)								1200			0										1200		
5. File & Miscellaneous				580							0												
			0		580		0		1,800													1,800	
F. Other Personnel																							
1. Trainees		1		70			?	?			0												
2. Contract Personnel		1		70			?	?			0												
					140																		
TOTAL - V - SIS			20		3,230		146		20,310											146		20,310	

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal		O	T	L	C	Sp	P	P	Area	Subtotal	P	Area	Subtotal	
VI. LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS																							
A. Office of the Director - LHNCBC																							
1. Director	M140	1	1	320		1	1	360		-	0									1	360		
2. Deputy Director	M139	1	1	250		1	1	300		-	0									1	300		
3. Special Ass'ts to Director	M135	1	1	180		2	2	400		200	0									2	400		
4. Administrative Officer						1	1	150		150	0									1	150		
5. Secretaries	M124	2	2	240		5	5	490		90 100	0									5	490		
6. Reception Area								200			0										200		
7. Receptionist							1	90		90	0									1	90		
8. Visitors' Study						1	-	300			0										300		
9. Conference Room								450						C							450		
10. Management Analysis Facility								450			0										450		
			5		990		11		3,190											11		3,190	
B. Plans and Management Branch																							
1. Chief						1	1	300		300	0									1	300		
2. Professionals	C19	1	1	200		10	10	1500		150	0									10	1500		
3. Technical						2	2	200		100	0									2	200		
4. Secretaries	C21	1	1	100		4	4	370		70	0									4	370		
			2		300		17		2,370											17		2,370	
C. Research and Development																							
1. Chief	M137		1	180		1	1	300		300	0									1	300		
2. Professionals						8	8	1200		150	0									8	1200		
3. Technical Specialists						4	4	600		100 70	0									4	600		
4. Secretaries	M132	2	1	230		4	4	310		100	0									4	310		
5. Contractors						10		1000			0										1000		

	1969					1974				GSA HEW Guide							MAIN BLDG. 1974			LHNCBC BLDG. 1974			Remarks
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal		O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
6. Laboratories																							
a. Specialized Education Equipment Applications								600				T									600		
b. Computers & Peripheral Devices								1000				T									1000		
c. Electronic								600				T									600		
d. Communications								600				T									600		
e. Equipment Storage								400								S					400		
f. Test Equipment Maintenance								300				T									300		
g. Material Storage								250								S					250		
h. Technical Conf./Workshop Areas - 2 @ 250 s.f.								500				T		C							500		
			2		410				7,660											17		7,660	
D. Network Engineering, Communications and Operations Branch																							
1. Chief	C17	1	1	200		1	1	300		300	0									1	300		
2. Professionals	M132	1	1	130		12	12	1800		150	0									12	1800		
3. Technical	C18	1	1	170		15	15	1500		100 70	0									15	1500		
4. Secretaries						7	7	610		100	0									7	610		
5. Contractors						25	0	2500			0									0	2500		
6. Admin. Areas								200													200		
7. Remote Information Systems Center.																							
a. Communications Network Mgmt. Monitoring, Schedules, Media Selection, Program Execution, Quality and Product Control								1000				T									1000		
b. Remote Control Equip. Facil.	148			100				1700				T									1700		
c. Public Viewing and Orientation Area								300			0										300		

	1969					1974				GSA HEW							MAIN BLDG. 1974			LHNCBC BLDG. 1974			REMARKS
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal	Guide	O	T	L	C	Sp	S	P	Area	Subtotal	P	Area	Subtotal	
8. Data Processing and Data Transmission Central																							
a. Technical Control Facility								1000				T									1000		
b. Network Systems Comm. Equipment Area								5000				T									5000		
c. Screening Room								550				T									550		
d. Specialized Education/ Information Broadcast Facility								1100		-		T									1100		
e. Network Programs Assembly Area								1250		-		T									1250		
f. Data Programs Files								200		-		T									200		
g. Audio and Audiovisual Programs Files								300		-		T									300		
h. Maintenance Area								1000		-		T									1000		
			3		700		35		20,310											35		20,310	
E. Customer Products and Services Development Branch																							
1. Chief	M138	1	1	190		1	1	300		300	0									1	300		
2. Professionals	M132	1	1	130		14	14	2100		150	0									14	2100		
3. Secretaries	M132	1	1	130		0	4	400		100	0									4	400		
4. Reception Area & Receptionist							1	220		70 150	0									1	220		
5. Contractors						15	0	1500		-				C						0	1500		
			3		450		20		4,520											20		4,520	
F. Reference Facility								2500													2500		
			0		0		0		2,500											0		2,500	
G. Antenna Facility																							
1. TV Satellite Trans/Receive Antennas								36'				T									36		
2. Microwave Antenna Structure								16'				T									16		
3. Antenna Gear								2000				T									2000		
									2,050													2,050	
TOTAL - VI. LHNCBC			15		2,840		100		42,600											100		42,600	
TOTAL I - through VI			391		182,210		859		325,470								348		173,780	511		149,330	

APPENDIX II

1974 NMAC PROGRAM

NIM NEEDS IN ATLANTA

Pages II-1 to II-6

APPENDIX II

NMAC PROGRAM - ATLANTA	Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal
A. OFFICE OF THE DIRECTOR									
1. Immediate Office of the Director									
a. Director's Office	B-13	1	1	360		1	1	360	
b. Director's Secretary	B-15	1	1	150s		1	1	250s	
c. Asst. to Director's Secretary	B-15B	1	1	160		1	1	160	
d. Deputy Director	B-15A	1	1	300		1	1	360	
e. Deputy Director's Secretary	B-15	1	1	150s		1	1	250s	
f. Asst. Director for Operations	B-53	1	1	190		1	1	310	
g. Secretary to Assistant Director for Operations	B-55	1	1	80		1	1	80	
h. Management Analyst	B-6	V	V	80		1	1	220	
i. Associate in Biomedical Communication	B-45	1	1	100		1	1	150	
j. Special Asst.(Inquiry and Correspondence)	B-46	1	1	140s		1	1	120	
k. Asst. to 1j (Mail Control)	B-46	1	1			1	1	200	
l. Large Conference Room	B-19			440				440	
m. Projection for Large Conference Room	B-27			70				160	
n. Small Conference Room								300	
					2220				3360
2. Administrative Staff Services									
a. Administrative Officer	B-16A	1	1	140		1	1	160	
b. Secretary to Administrative Officer	B-16	1	1)			1	1)		
c. Fiscal Accounting Asst.	B-16	1	1)	440s		1	1)	680s	
d. Purchasing Agent	B-16	1	1)			1	1)		
e. Fiscal Accounting Clerk	B-16	1	1)			2	2)		
2. Administrative Staff Services (continued)									
f. Projection Equipment Operator	108M	1	1			1	1		
g. Supply Clerk	SSB-37	1	1			1	1		
					580				840
3. Special Staff Services									
a. Special Projects Officer		1	1	(*)		1	1	200	
b. Information and Publications Officer	B-40	1	1	130		1	1	190	
c. I & P Office	B-44	2	2	120s		3	3	200	
d. AV Reference Room	108K	V	V	140		1		440	
e. Orientation & Visitors								200	
					390				1230
4. Storage and Miscellaneous									
a. General Supplies and Storage	SSB-37			1055				)	
b. Reprography and Thermofax Supplies	B-11			170				)	
c. Printed Materials and Records	B-31B							)	
d. For AV Reference Room	108J			190				)	
e. Reprography Room	B-31A			60				)	
		21			1475	24			6035
Total for Office of the Director					4,665				11,465

(*) Space occupied in Grady Memorial Hospital (CMTS) approximately 200 sq. ft.

APPENDIX II

NMAC PROGRAM - ATLANTA

	1969					1974			
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal
B. ACQUISITION, DISTRIBUTION, AND REFERENCE BRANCH (Chamblee Annex)									
1. Office of Chief									
a. Chief and Conference Room	106A	1	1	200		1	1	200	
b. Assistant Chief (Acquisition Program)						2	2	200	
c. Senior Pictorial Reviewer & Researcher	112	1	1	65s				0	
d. Secretary to Chief	106	1	1	110		1	1	110	
e. Clerk-Typist	112	1	1	65s		2	2	130	
					440				640
2. Depository Section									
a. Office of Chief & Clerk Stenographer	155	2	2	110		2	2	200	
b. AV Inspector & Reclaimer Work Area	146	1	1	940		2	2	375	
c. Pictorial Reviewers & Researchers (Stills, Stock and Archives)	119	2	2	1050		5	5	300	
d. Archival and Stock Footage Storage								2000	
e. Archival and Stock Projection Review(2)				270				750	
f. Still Picture Storage								2000	
g. Support Materials Storage								200	
h. Reference Area - Archives/Stock				140				400	
					2510				6225

	1969					1974			
	Room	Sta	P	Area	Subtotal	Sta	P	Area	Subtotal
3. Distribution Section									
a. Office of Chief	145A	1	1	120		1	1	200	
b. Secretary to Chief	143	1	1	120		1	1	120	
c. Office - Film Librarian	143	1	1	100		1	1	100	
d. Booking	131	5	5	360		6	6	1500	
e. Film Distribution Center	145	9	9	2190		11	11	5000	
f. Support Materials Storage	145B			190				400	
g. Receiving								400	
h. Inspection - Table								400	
i. Inspection - Machine								250	
j. Inspection - Projection								250	
k. Shipping								500	
					3080				9120
4. Reference Section									
a. Office of Chief	126	1	1)	460s		1	1	200	
b. Reference Librarian	126	1	1)			1	1		
c. Editorial Clerk	126	1	1)			1	1		
d. Clerk Typist	125	1	1	340		1	1		
e. Support Materials Storage				100				200	
f. Indexing & Compilation						1	1	1180	
g. ADP - Cataloging						2	2	560	
					900				2140
5. General Storage				200					
					200				
Total for Acquisition, Distribution, and Reference Branch			30		7,130				18,125

APPENDIX II

NMAC PROGRAM - ATLANTA	1969 ROOM	Sta	P	Area	Subtotal	1974 Sta	P	Area	Subtotal
C. EDUCATIONAL SYSTEMS AND DEVELOPMENT BRANCH									
1. Office of the Chief									
a. Chief	B-43A		V			1	1	200	
b. Assistant Chief						1	1	150	
c. Secretary to Chief	B-43		V			1	1	230	
									580
2. Audiovisual Systems Planning Section									
a. Office of Chief	B-43B	1	1	120		1	1	200	
b. Secretary to Chief	B-43	1	1	230s		1	1	130	
c. Asst. Section Chief		1	1	120		1	1	150	
d. Writer						1	1	130	
e. Systems Specialist	B-43C					2	2	280	
f. Chief, Facilities Design	B-43A	1	1	120s		1	1	150	
g. Clerical						2	2	200	
h. Systems Specialists						2	2	260	
i. Facilities Design Specialists						1	1	200	
j. Graphics (Drafting, Illustration, Models)						4		400	
k. Conference Rooms (2)						10		400	
l. Storage								750	
m. Equipment Display and Demonstration						4		750	
					590				4000

	1969 ROOM	Sta	P	Area	Subtotal	1974 Sta	P	Area	Subtotal
3. Educational Studies and Development Section									
a. Office of Chief	B-51	1	1	190		1	1	200	
b. Asst. Section Chief	B-49A	1	1	120		1	1	150	
c. Secretary to Chief	B-49		V	75s		1	1	175	
d. Clerk Typist	B-49		V	150		2	2	155	
e. Educational Studies & Advisory Services									
(1) Activity Chief						1	1	120	
f. Research & Evaluation									
(1) Activity Chief	B-49C	1	1	120		1	1	150	
(2) Educational Research Specialist	B-47	1	1	55s		2	2	240	
g. Educational Materials and Development									
(1) Activity Chief	B-49B	1	1	120		1	1	150	
(2) Writer #1						1	1	120	
(3) Writer #2						1	1	120	
(4) Editorial Clerk-Typist						1	1	120	
h. Training									
(1) Activity Chief						1	1	150	
(2) Educational Specialist Instructor						2	2	240	
i. Classroom Instruction & Support Space									
(1) Classroom #1									1800
(2) Classroom #2									500
(3) Classroom #3									500
(4) Study Carrell (16 @ 25 sq. ft.)									400

NMAC PROGRAM - ATLANTA	Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal
3. Educational Studies and Development Section (continued)									
(5) Group Study Areas (5 @ 200 sq. ft.)								1000	
(6) Conference Room #1								450	
(7) Conference Room #2								450	
(8) Photographic Arts Lab								500	
(9) Graphic Arts Lab								600	
(10) Instructional Resources Center								1000	
(11) TV and Film Studio								600	
j. Auditorium (shared)								4500	
					830				14,390
Total for Educational Systems and Development Branch			9		1,420		31		18,970
D. PRODUCTION BRANCH									
1. Office of the Chief									
a. Chief	114A	1	1	140		1	1	140	
b. Assistant Chief	116	1	1	140		1	1	140	
c. Secretary to Chief	114	1	1	140		1	1	140	
d. Asst. Chief for Television	144	1	1	140		1	1	140	
e. Clerk Typists	142	2	2	110s		2	2	110s	
f. Branch Conference Rm.	140			140				200	
g. Contracts Project Officer						2	2	220	
h. Supply & Procurement Assistant						1	1	100	
i. Projectionist						1	1		
					810				1,190

	Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal
2. Preview Theaters									
a. Main Theater	145			740				740	
b. New Theater								600	
c. Projection Booths	147	2		160		2		160	
d. Film Vault & Storage Area	108J			150				250	
					1,050				1,750
3. Writers & Directors Staff									
a. Chief Writer	108L	1	1	110		1	1	150	
b. Staff Writer #1	108C	1	1	55s		1	1	140	
c. Staff Writer #2						1	1	140	
d. Staff Writer #3						1	1	140	
e. Clerk Typist						1	1	110	
f. Producer-Director #1	108H	1	1	150		1	1	150	
g. Producer-Director #2	108D	1	1	110		1	1	110	
h. Producer-Director #3	108F	1	1	110		1	1	110	
i. Producer-Director #4	108B	1	1	110		1	1	110	
j. Producer-Director #5	108A	1	1	110		1	1	110	
k. Producer-Director #6	108C	1	1	55s		1	1	110	
l. Producer-Director #7						1	1	110	
m. Producer-Director #8						1	1	110	
n. Production Assistant	110	1	1	110		1	1	110	
o. Open Conference/ Training Area	108			250				250	
					1,170				1,960

APPENDIX II

NMAC PROGRAM - ATLANTA

	Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal
4. Art and Animation Section									
a. Chief	117		1)				1	280	
b. Animation Artists	117	2	2)	1280s		2	2	250	
c. Artist-Illustrators	117	6	6)			6	6	750	
d. Storage & Work Room	121			140				200	
e. Storage & Proj. Room	119			100				300	
f. Oxberry Camera & Stand	SSB28	1		200		1		200	
g. M.P. Optical Printing Room	SSB21	2		190		2		190	
					1,910				2,170
5. Camera Section									
a. Chief	SSB19	1	1	110		1	1	110	
b. Office Area		1)				6	6	380	
c. Office & Equipment Storage	SSB20	3)	4	230					
d. M.P. Film Loading Room	SSB20A			20				40	
e. Supply Room. Film Vault	SSB12			50s				300	
f. Equipment Room	SSB43			100				200	
					510				1,030
6. Film Editing and Laboratory Section									
a. Chief	SB-21	1	1	100		1	1)		
b. Film Inspection and Timing	SB-22	3	3	250		4	4)		
c. Film Printing Rm. #1	SB-22B	2	2	60		2	2)		
d. Film Printing Rm. #2	SB-22C			60			)		
e. Film Printing Rm. #3	SB-22D			110			)		
f. Film Printing Rm. #4	SB-22E			60			)	3000	
g. Film Printing Rm. #5	SB-22H			60			)		

	Room	1969 Sta	1969 P	1969 Area	1969 Subtotal	1974 Sta	1974 P	1974 Area	1974 Subtotal
6. Film Editing and Laboratory Section (continued)									
h. Film Printing Room #6	SB-22G			60			)		
i. Sensitometric Room, Raw Film Stock	SB-22J	1		60		1	)		
j. M.P. Processing-Dry-side	SB-16	3		460		3	)		
k. M.P. Processing - Wet - side	SB-16A	1		100s		1	)		
l. Supply, Chemical Mixing and Storage	SSB-12A	1		150		1		400	
m. Laboratory Storage	SB-16A			90s				300	
n. Film Editors	SSB-33	4	4	810		7	7	1410	
o. Film Editing (Negative Assembly)	SSB-36	1	1	180		1	1	180	
					2,610				5,290
7. Sound & Electronics Section									
a. Rerecord Theater (Area V)	SB-29B			730				1000	
b. Isolation Booth	SB-29A	1		70		1		100	
	B-31A			60s				60	
c. Audio Recording & Playback (Area IV)	SB-27B	2	2	340		2	2	620	
d. Sound Department Storage	SB-27D			320				750	
e. Videotaping and TV Production Control (Area I)	SB-27C	3	3	720)		3	3)		
f. Area II	SB-27F	2	2	130)		2	2)	4000	
g. Area III Balcony	SB-27G			630)			)		
h. Videotape Storage	SB-19			200)				500	
	SSB-18			100)					
i. Mobile TV Unit Storage								800	
					3,300				7,830

APPENDIX II

NMAC PROGRAM - ATLANTA	1969 Room	Sta	P	Area	Subtotal	1974 Sta	P	Area	Subtotal
8. Staging Section									
a. Make-up - Women's Dressing Room	SSB-30	3		170		3		340	
b. Stage Set Fabrication Shop	SSB-2		3	540		4)	4		
								5600	
c. Storage of Sets	SSB-3					)			
d. Silent Stage	SSB-3	3	3	2280)		3	3	2280)	
e. Sound Stage #1 (TV)	SSB-25	4		2280)		4		2280)	
f. Sound Stage #2 (MP)								5030	
g. Sound Stage #3 (MP)								5030	
h. Equipment Maintenance and Repair	SSB-7	3		400		4	1	1500	
i. Equipment & Property Storage	SSB-37			565				565	
					6,235				22,625
9. Still Photographic Section									
a. Chief	SB-19C	1	1	170		1	1	200	
b. Project Supervisor (Assistant)	SB-19B	1	1	120		1	1	120	
c. Chief (Adm-Photo Lab)	SB-9	1	1	130		1	1	130	
d. Photo & Slide Work Room	SB-15	3	3	290		3	3	300	
e. Storage - Mounted Photos, etc.	SB-15F			150				300	
f. Processing - B&W and Color Negatives	SB-15D SB-15E	3	3	200		3	3	480	
g. Processing - Color Positives	SB-15C	1	1	140		1	1	140	
h. Photomicrography Unit									
(1) Chief - also Shooting	SB-15A	1	1	150		1	1	300	

9. Still Photographic Section (continued)	1969 Room	Sta	P	Area	Subtotal	1974 Sta	P	Area	Subtotal
(2) Darkroom - Photomic. Prints	SB-15A1	1		80		1		80	
(3) Photomic. Shooting and Storage	SB-15A2	2-3	1	130		2-3	1	130	
i. Storage of Photo-Equipment (Hallway)	SB-10 SB-10B			130 10				340	
j. Studio-Storage	SB-10A			400s				570	
k. Slide Copying	SB-10			30				60	
l. Filmstrips and Slides from Art Work	SB-10D	2-3		90		2-3		90	
m. Dark Room - B&W Prints	SB-10H	1-2		170		1-2		170	
n. Copy Large Work - Robertson Camera	SB-38A SB-38B	1-2		280		1-2		280	
o. B&W Printing	SB-10J	1		100		1		100	
p. Chemical Mixing & Storage	SB-10G	1		30		1		30	
q. Dark Room - B&W Prints	SB-10F	1		70		1		70	
r. Wash & Dry - B&W Prints	SB-10E	2		60		2		60	
s. Hot Press Work Room	127	1	1	270		1	1	270	
					3,200				4,220
Total for Production Branch			66		20,795		83		48,065
GRAND TOTAL			126		34,010		180		96,625

Appendix III

Information Furnished to Architects

1. Scope of Work for a Study to Combine the Requirements of the National Medical Audiovisual Center and the National Library of Medicine in One Building. Dated 20 November 1968 and amended 7 March 1969.

2. New Organization Chart of the Department of Health, Education, and Welfare, 1968.

3. Organization Chart of the National Library of Medicine dated 10 September 1968.

4. National Library of Medicine, Preliminary Program and Financial Plan 1970-1974. Dated 14 October 1968.

5. The Development of the National Biomedical Communications Network, 1968.

6. Request for Proposal on "An automated Graphic Image Storage, Retrieval and Print-out Device for National Library of Medicine", dated 12 August 1968.

7. NLM Organization, dated August 8, 1968, amended October 24, 1968 and November 4, 1968.

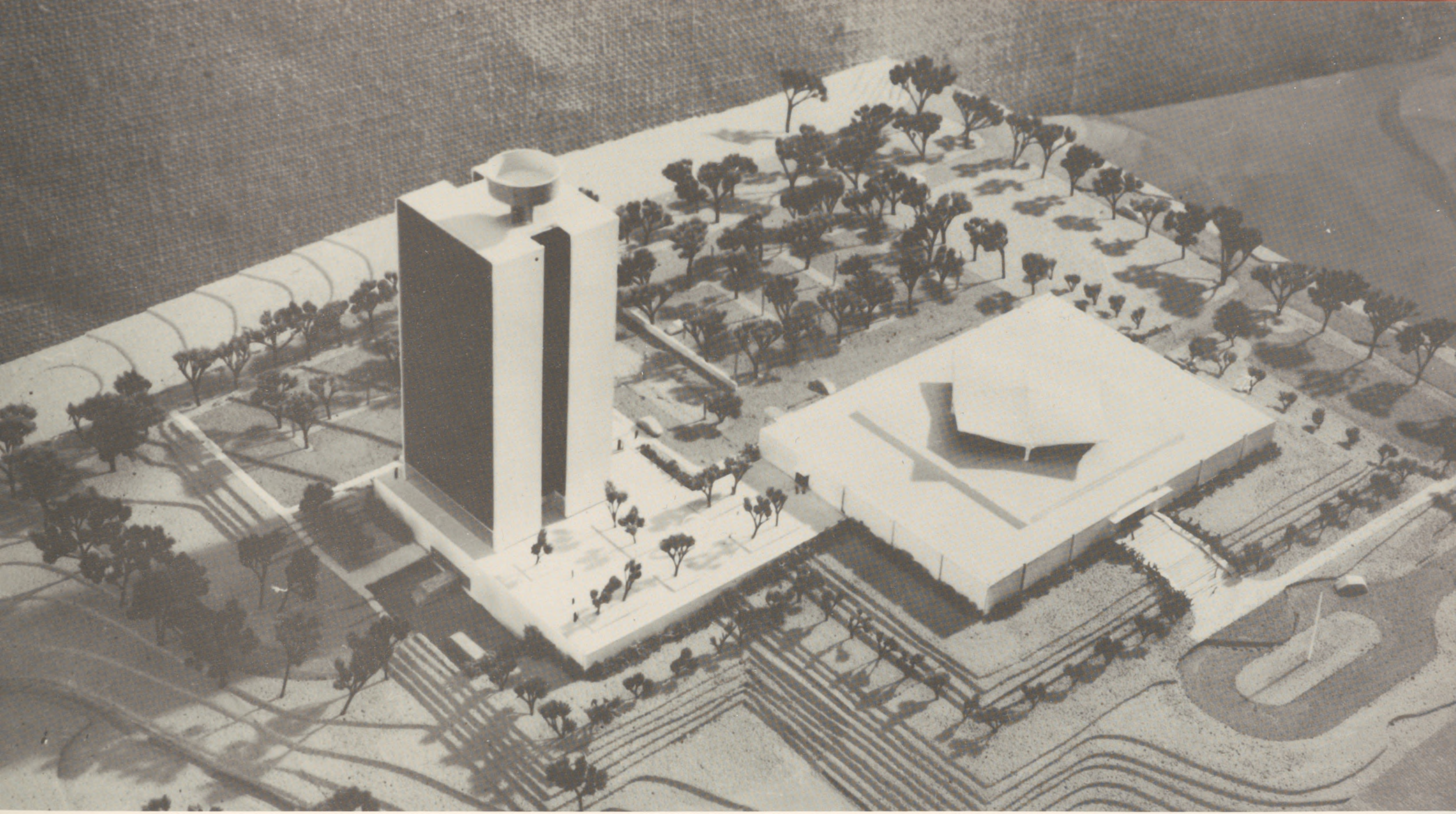
8. Handling of Toxicological Information, a Report of the President's Science Advisory Committee, dated June 1966.

9. Memorandum from E. A. Miller, T. Bagg and D. Campbell dated November 22, 1968 Re: Film Vault Capacity.

10. Memorandum from S. T. Water, Dated November 27, 1968 Re: Microfilming Programs and Graphic Image Storage and Retrieval System.

11. Letter from Ren F. Read, Assistant Director of Civil Defense, Office of Civil Defense, Department of the Army to Mr. Dale S. Thompson, Director of General Services Department of HEW dated November 7, 1968 Re: Fallout Protection.

12. Memorandum from the Director, LHNCBC dated December 12, 1968 Re: Location of LHNCBC Floor Space in NLM's Proposed New Facility.



NATIONAL LIBRARY OF MEDICINE WITH PROPOSED LHNCBC BUILDING O'CONNOR & KILHAM ARCHITECTS 1969