Application for Federal Assistance for
Construction of Health and Educational Facilities

HEALTH SCIENCE EXPANSION
UNIT B/C, MEDICAL SCHOOL
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

An Educational Unit of the Health Sciences
at the University of Minnesota

Submitted June 15, 1972

UNIVERSITY OF MINNESOTA

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(GOB 85-R0106)

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
WASHINGTON, D.C.

APPLICATION FOR FEDERAL ASSISTANCE
FOR CONSTRUCTION OF HEALTH
AND EDUCATIONAL FACILITIES

LEAVE BLANK

STATE	DHEW
Date Rec'd.	
Project Number	

GENERAL INFORMATION

1. LEGAL NAME OF APPLICANT

Regents of the University of Minnesota

2. ADDRESS OF APPLICANT *(street, city, country, congressional district, state, zip code, and telephone number)*

Minneapolis, Hennepin, Minnesota 55455

Congressional District #5

3. APPLICANT APPLIES FOR FEDERAL FUNDS FOR CONSTRUCTION UNDER THE FOLLOWING PROGRAM(S):

(A) CODE NO. / SHORT TITLE *(See Program Instructions)*	(B) GRANT AMOUNT	OTHER (IDENTIFY)
(1) 41 Health Professions	$ 12,898,147	$
(2)	$	$
(3)	$	$
(4)	$	$

4. PROPOSED FACILITY AND PROJECT

(A) Name and Type

Health Sciences Expansion, Phase I
Unit B/C, University of Minnesota

(B) Address *(street, city, county, congressional district, state, zip code)*

Minneapolis, Hennepin, Minnesota 55455

Congressional District #5

(C) Type of construction *(Check all that apply)*

- [x] New facility
- [ ] Expansion of existing facility
- [x] Remodeling
- [ ] Acquisition
- [ ] Equipment only
- [ ] Other *(specify)*

(D) Type of Ownership

- [x] Public
- [ ] Other Nonprofit

(E) Type of operational control in other than the owner

- [x] Public
- [ ] Other Nonprofit

5. APPLICANT'S REPRESENTATIVE *(Name, title, address, telephone number)*

Stanley J. Wenberg, Vice President
Coordinate Campuses and Educational
Relationships
234 Morrill Hall
University of Minnesota

Telephone No. -612-373-2054

6. PROJECT ARCHITECT *(Name, address, telephone number)*

The Architects Collaborative, Inc.
Architects and Master Planners
46 Brattle Street
Cambridge, Massachusetts 02138

Telephone No. -617-868-4200

HEW-537(10/70)

PROGRAM INFORMATION

7. APPLICANT ELIGIBILITY AND NEED FOR FACILITY **See pages**

(See program instructions for detailed requirements for this item)

8. OCCUPANCY DATA **See pages**

(See program instructions for detailed requirements for this item)

9. DESCRIPTION OF PROGRAMS TO BE CONDUCTED IN FACILITY **See pages**

(See program instructions for detailed requirements for this item)

10. DESCRIPTION OF FACILITY **See pages**

(See program instructions for detailed requirements for this item)

FACILITY INFORMATION

11. APPLICANT'S FINANCIAL RESOURCES APPLICABLE TO THIS FACILITY

A. Cash and negotiable and non-negotiable securities ..... $ -

B. Pledges: Face value: $ _____

Discounted Value ..... $ -

C. Contingent gifts and bequests ..... $ -

D. Bonds authorized but not yet sold ..... $ -

E. Mortgage ..... $ -

F. Appropriations:

	Available *(specify date)*	Anticipated *(specify date)*
State	$ 19,308,795 (1973)	$ None
Local	$ None	$ None

TOTAL ..... $ 19,308,795

G. Other *(Specify)* ..... $ -

H. TOTAL ..... $ 19,308,795

12. OTHER FEDERAL ASSISTANCE FOR THIS PROPOSED FACILITY

	PROGRAM	FED. AGENCY	STATUS	AMOUNT	PROJECT NUMBER
A.					
B.	None				
C.					

13. TOTAL DEVELOPMENT COST

(Sum of items 3, 11, and 12) $ 32,206,942

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14. SITE AND IMPROVEMENTS

A. Title or Other Interest in Site is or will be Vested in:

X Applicant _____ Agency or institution which is to operate the facility

_____ Other *(specify)*

B. Indicate whether applicant/operator has:

X Fee simple title _____ Leasehold interest _____ Other *(specify)*

C. If applicant/operator has leasehold interest, give following information:

(1) Length of lease or other estate interest: -

(2) Number of years to run: -

(3) Is lease renewable? - Yes - No

(4) Current appraised value of land: $ -

(5) Annual rental: $ -

D. Attach an opinion from acceptable title counsel describing the interest applicant operator has in the site and certifying that the estate or interest is legal and valid.

E. Attach site survey, soil investigation reports and where applicable copies of land appraisals.

F. Where applicable attach certification from architect on the feasibility of improving existing structures.

G. Attach plot plan.

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15. CONSTRUCTION SCHEDULE ESTIMATES:

A. Target dates for completion of drawings:

Schematics Completed Preliminary Completed Final 50% Completed

B. Target dates for: Bid advertising Aug. 1973; Contract award Sept. 1973;

Construction completed Sept. 1975; Occupancy Sept. 1975;

16. BUDGET INFORMATION
ESTIMATED FACILITY BUDGET

A. Building identification: H.S. Expansion Unit B/C & Remodeling
(if more than one structure)

B. Budget Line	C. New construction	D. Other *(identify)*	E. Total
1. Building work		REMODELING	
a. General construction	$ 15,550,050	$ 281,500	$ 15,831,550
b. Plumbing	1,834,300	20,000	1,854,300
c. Heating, air cond., ventilation	3,193,000	50,000	3,243,000
d. Electrical work	2,271,700	55,000	2,326,700
e. Elevators	815,850	-	815,850
f. Other building work *(attach list and itemization of costs)*	11,000	2,500	13,500
g. TOTAL FOR BUILDING WORK	23,675,900	409,000	24,084,900
2. Site work			
a. Site preparation	16,500	-	16,500
b. Site development and parking facilities	333,600	-	333,600
c. Utility connecting lines	11,443	-	11,443
d. Special use items			
e. TOTAL FOR SITE WORK	361,543	-	361,543

ESTIMATED FACILITY BUDGET (Cont'd.)

B. Budget Line	C. New construction	D. Other *(identify)*	E. Total
3. Off-site work		REMODELING	
a. Connecting lines to central utility plant	$ -	$ -	$ -
b. Other items *(list and itemize costs)*	-	-	-
c. TOTAL FOR OFF-SITE WORK	-	-	-
4. Central utility plant *(prorata share for this structure)*	663,194	165,024	828,218
5. TOTAL–CONSTRUCTION COSTS	24,700,637	574,024	25,274,661
6. Built-in equipment	862,000	45,000	907,000
7. Architectural and engineering costs			
a. Architect's basic fee Incl. Redesign	1,781,783	65,468	1,847,251
b. Supervision and inspection *(project representative)*	306,586	5,644	312,230
c. Surveys, tests, and borings	55,000	-	55,000
d. Other items *(list and itemize costs)*	100,000	-	100,000
e. TOTAL–ARCHITECTURAL AND ENGINEERING COST	2,243,369	71,112	2,314,481

ESTIMATED FACILITY BUDGET (Cont'd.)

B. Budget Line	C. New construction	REMODELING D. Other *(identify)*	E. Total
8. Movable equipment	$ 2,961,448	$ -	$ 2,961,448
9. TOTAL COST FOR CONSTRUCTION FIXED EQUIP. A/E FEES AND MOVABLE EQUIPMENT	30,767,454	690,136	31,457,590
10. Contingency	735,807	13,545	749,352
11. Purchase of Land			
12. Purchase of Buildings			
13. Other *(list and itemize)*			
14. Subtotal-Lines 9 to 13 incl.			
15. Works of Art			
16. TOTAL DEVELOPMENT COST	$ 31,503,261	$ 703,681	$ 32,206,942

17. SPACE ALLOCATION BY GRANT PROGRAM

A. Building identification *(if more than one structure)* H.S. Expansion Unit B/C & Remodeling (41)

(Shell space not included in gross area)

B. Gross area in facility 217,230 (new) 38,350 (remodeled) S.F.

C. Net area in facility 113,854 (new) 36,850 (remodeled) S.F.

Alternate I	GRANT PROGRAMS				APPLICANT
	1) PROGRAM CODE	2) PROGRAM CODE	3) PROGRAM CODE	4) PROGRAM CODE	5) SPACE
D. Net area by program(s)	150,704 SF	SF	SF	SF	SF
E. Cost allocation ratio by programs *(D/C X 100—to two decimals)*	100 %	%	%	%	%
Alternate II					
F. Gross area by program(s)	SF	SF	SF	SF	SF
G. Cost allocation ratio by programs *(F/B X 100—to two decimals)*	%	%	%	%	%

18. COSTS ELIGIBLE FOR FEDERAL PARTICIPATION
(BY PROGRAMS)

A. Budget line	B. Total cost *(col. E, item 16)*	C. Total eligible cost	D. Amounts eligible for Federal participation *(for each grant program)*			
			1) Program code 41, 100 % from item 17E — or 17G —	2) Program code —, — % from item 17E — or 17G —	3) Program code —, — % from item 17E — or 17G —	4) Program code —, — % from item 17E — or 17G —
1g. Building work	$ 24,084,900	$ 12,559,842	$ 12,559,842	$	$	$
2e. Site work	361,543	87,333	87,333			
3c. Off-site work	179,318	68,140	68,140			
4. Central utility plant	648,900	246,587	246,587			
6. Fixed equipment	907,000	907,000	907,000			
7e. A/E costs	2,314,481	1,195,001	1,195,001			
8. Movable equipment	2,961,448	2,961,448	2,961,448			
10. Contingency	749,352	400,573	400,573			
11. Purchase of Land	-	-	-			
12. Purchases of Building(s)	-	-	-			
13. Other	-	-	-			
15. Works of Art	-	-	-			
16. TOTALS *(1g. through 15)*	$ 32,206,942	$ 18,425,924	$ 18,425,924	$	$	$
17. Amount of Fed. Assist Requested			$ 12,898,147	$	$	$
18. Fed. Share Request—Percentage 70%			70 %	%	%	%

19. ASSURANCES

The following assurances are divided into two parts. Part A assurances are required for all applicants applying for construction program support including the acquisition of facilities where applicable, from the Department of Health, Education, and Welfare. Part B assurances are ones which relate only to individual construction grant or loan programs. Signature by the applicant's representative will indicate that the institution agrees to all Part A assurances and to the Part B assurances required by the program or programs to which it is applying for support.

The applicant gives assurance that:

Part A.

1. It possesses legal authority to apply for and receive the grant or loan, and to finance and construct the proposed facilities; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing board, authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

2. It will comply with the provisions of the National Environmental Policy Act, PL 91-190; Executive Order 11296, relating to flood-plain elevation and necessary controls; and Executive Order 11288 relating to the prevention, control, and abatement of water pollution.

3. Sufficient funds will be available to meet the non-Federal share of the cost of constructing the facility, and that sufficient funds will be available when construction is completed to assure effective operation and maintenance of the facility for the purposes for which constructed.

4. Approval by the HEW Secretary or his designee* of the final working drawings and specifications will be obtained before the project is advertised or placed on the market for bidding; that it will construct the project, or cause it to be constructed, to final completion in accordance with the application and approved drawings and specifications; that it will submit to the Secretary or his designee for prior approval changes that materially alter the scope or costs of the project, use of space, or functional layout; that it will not enter into a construction contract(s) for the project or a part thereof until the conditions of the construction grant or loan programs have been met.

5. Except as otherwise provided by State/local law, all contracting for construction (including the purchase and installation of built-in equipment) shall be on a lump sum fixed-price basis, and contracts will be awarded on the basis of competitive bidding with award of the contract to the lowest responsive and responsible bidder. The provision for exceptions based on State and local law will not be invoked to give local contractors or suppliers a percentage preferance over non-local contractors bidding for the same contract. Such practices are precluded by this assurance.

6. Except as otherwise provided by law, all laborers and mechanics employed by contractors and subcontractors on all construction and minor remodeling projects will be paid wages at rates not less than those prevailing as determined by the Secretary of Labor in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a-276a-5) and 29 CFR Part 1, and shall receive overtime compensation in accordance with and subject to the provisions of the Contract Work Hours Standards Act (40 U.S.C. 327-332); that such contractors and subcontractors shall comply with the provisions of 29 CFR Part 3; and that all construction contracts and subcontracts shall incorporate the contract clauses required by 29 CFR 5.5(a) and (c). Such contracts shall also include the applicable provisions of Executive Order 11246, as amended (Nondiscrimination in Construction Contract Employment), and the applicant shall otherwise comply with the requirements of section 301 of said Executive Order. The contractor shall furnish performance and payment bonds, each in the amount of the full contract price; and provide, during the life of the contract, for adequate fire, public liability, property damage, and workmen's compensation insurance.

7. It will provide and maintain competent and adequate architectural engineering supervision and inspection at the construction site to insure that the completed work conforms with the approved drawings and specifications; that it will furnish progress reports and such other information as the Secretary or his designee may require.

8. An assurance of compliance with Title VI of the Civil Rights Act of 1964 (Form HEW 441) applying to the facility described in this application was filed or is attached to this application.

9. It will maintain grant or loan accounting records (identifiable by grant or loan number), including all records relating to the receipt and expenditure of Federal grant or loan funds and to the expenditure of the non-Federal share of the cost of a project, for three years after the completion of the project if an audit is conducted by or on behalf of the Department within that period, or in the case where no audit is performed, for five years; except that should audit questions arise with respect to the grant or loan, the records will be maintained until all such questions are resolved. Representatives of the Federal Government shall have access at all reasonable times to the grantee's records and to work whenever it is in preparation or progress, and the contractor shall provide proper facilities for such access and inspection.

10. The facility will be operated and maintained in accordance with the requirements of

*The term Secretary or his designee shall mean Commissioner of Education with respect to Office of Education programs.

applicable Federal, State and local agencies for the maintenance and operation of such facilities.

11. The applicant will require the facility to be designed to comply with the "American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped," Number A117.1-1961, as modified by other standards prescribed by the Secretary of HEW or the Administrator of General Services. The applicant will be responsible for conducting inspections to insure compliance with these specifications by the contractor.

12. The applicant will cause work on the project to be commenced within a resonable time after receipt of notification from the Secretary or his designee that funds have been awarded, and that the project will be prosecuted to completion with reasonable diligence.

13. Any Federal funds received pursuant to a grant or loan will be used solely for defraying the development cost of the proposed project.

Part B.

1. Hill-Burton, Community Mental Health Centers, and Mental Retardation Facilities.

   a. That it will conform to all the applicable requirements of the appropriate State plan and the regulations pertaining thereto.

   b. That all portions and services of the entire facility for the construction of which, or in connection with which, aid is sought, will be made available without discrimination on account of creed, and no professionally qualified person will be discriminated against on account of creed with respect to the privilege of professional practice in the facility.

   c. That the facility will furnish a community service and:

      (1) will furnish below cost or without charge a reasonable volume of services to persons unable to pay therefore; or

      (2) will NOT furnish below cost or without charge a reasonable volume of services to persons unable to pay therefore, because of the justification which is attached.

   d. The facility will be used for the purposes for which it is constructed for not less than 20 years after the completion of the construction.

2. Community Mental Health Centers:

   That the services to be provided by the facility, alone or in conjunction with other facilities owned or operated by the applicant, will be made available for a program providing principally for persons residing in a particular community or communities in or near which such facility is to be situated, at least the essential elements of comprehensive mental health services-i.e., inpatient services, outpatient services, partial hospitalization services (including at least day care services), emergency services provided 24 hours per day, and consultation and education services available to community agencies and professional personnel.

3. Health Professions and Allied Health Professions Teaching Facilities, Nurse Training Facilities, Medical Library Facilities, and Health Research Facilities.

   a. The facility will not be used for sectarian instruction or as a place for religious worship.

   b. The Health Professions Teaching facility is intended to be used for the purpose set forth in this application.

   c. The Allied Health Professions Teaching facility or Health Research facility will be used for the purpose for which it is constructed for not less than 10 years after the completion of construction.

   d. The Nurse Training facility or Medical Library facility will be used for the purpose for which it is constructed for not less than 20 years after the completion of construction.

   e. The Health or Allied Health Professions Training facility or Nurse Training facility will provide for increased enrollment as set forth in the program instructions and in this application.

4. School Construction under P.L. 81-815:

   a. It is a local educational agency having administrative control and direction of free public elementary or secondary education in the applicant school district, or a State agency which has the responsibility for providing school facilities.

   b. It is a local educational agency created and authorized to construct and maintain school buildings under constitutional, statutory, or charter provisions; and that it may accept and disburse Federal funds to aid in financing the cost of constructing school buildings in accordance with constitutional, statutory, or charter provisions cited:

      Legal Classification:

      Citation:

   c. The applicant has or will have title to the site or the right to build the school facilities on the site and to maintain them on the site for at least twenty years.

   d. The applicant's school facilities will be available to the children for whose education contributions are provided with funds under Public Law 81-815, as amended, on the same terms, in accordance with the laws of the State in which applicant is situated, as they are available to other children in applicant's school district.

e. The applicant will cause due consideration to be given to excellence of architecture and design of project and to the inclusion of works of art the cost of which does not exceed one percent of the Federal share of the cost of the project.

5. Higher Education Facilities under Titles I, II, III of the Higher Education Facilities Act.

a. No part of the eligible areas included in the proposed project: (1) is intended primarily for events for which admission is to be charged to the general public; (2) is especially designed for athletic or recreational activities other than for an academic course in physical education; (3) will be used for sectarian instruction or as a place for religious worship or primarily in connection with any part of the program of a school or department of divinity (as defined in P.L. 88-204); or (4) will be used by a "school of medicine," "school of dentistry," "school of osteopathy," "school of pharmacy," "school of optometry," "school of podiatry," or "school of public health" as these terms are defined in section 724 of the Public Health Service Act, or by a "school of nursing" as defined in that Act under section 843.

b. The applicant is fully cognizant of the requirements regarding economical methods of purchase of movable equipment in accordance with sound business practice, as set forth in the applicable regulations, (45 CFR 170.4), and all movable equipment, the cost of which is to be charged to the project, will be procured in accordance with such regulations. It is understood and agreed by the applicant that the eligible project development cost and the Federal grant or loan amount may be reduced at settlement by the Commissioner of Education based on the amount of any costs claimed under the project which are for elaborate or extravagant equipment items.

c. It is understood and agreed by the applicant that the Commissioner of Education may, from time to time, after execution of a grant or loan agreement for the project, and prior to final settlement under the grant or loan agreement, make downward amendments in the grant or loan amount to adjust to a reduction in the cost of the facilities, the identification of ineligible costs, or a reduction in the size of the project.

d. The applicant has reviewed the academic and financial requirements for operation of the facilities upon completion, and considers the plans for operation of the facilities to be practical and within the financial capabilities of the institution.

e. The facility will be used as an academic facility for not less than twenty (20) years after completion of construction (unless otherwise approved by the U.S. Commissioner of Education), or for so long as the Government holds any of the bonds pursuant to a loan from the Government, whichever is longer.

20. CERTIFICATION BY APPLICANT

The applicant hereby certifies that the foregoing information in this application (including all assurances and all attachments) are correct to the best of its knowledge and belief.

(Legal Name of Applicant)	(Address)
(Signature of Authorized Officer)	(Address if different than above)
(Typed Name and Title of Authorized Officer)	(Date of Application)

HEW 537

Unit B-C Application

New Construction

B. Budget Line		Total
1. Building Work		
a. General Construction	15,550,050	
b. Plumbing	1,834,300	
c. Heating, Air Conditioning, Vent	3,193,000	
d. Electrical	2,271,700	
e. Elevators	815,850	
f. Other, Keying, Fire Extinguishers, and Towel Cabinets	11,000	
g. Total Building Work	23,675,900	23,675,900
2. Site Work		
a. Site Preparation		16,500
b. Site Development		
Landscaping	78,000	
Planting	36,000	
Grading and Seeding	6,000	
Walks and Drives	213,600	
Subtotal Site Work		333,600
c. Utility Connecting Lines		
Sanitary Sewer	--	
Water Connection	1,200	
Storm Sewer	--	
Gas Service	10,243	
Subtotal Utility Lines		1,200
Total Site Work		345,043
3. Offsite Work		
Switch Gear (pro-rata) 574,135 B-C x 208,821 / 1,562,635 sfg Phase I	Total Cost Phase I 76,637	
Control Center (pro-rata) 574,135 B-C x 279,788 / 1,562,635 sfg Phase I	Total Cost Phase I 102,681	
Total Offsite Work		179,318
4. Central Utility Plant 46,910 #/hr B-C x 1,805,125 / 175,000 #/hr Phase I	Total Cost Phase I 483,876	483,876

New Construction

5.	Total Construction		24,684,137
6.	Built-in Equipment		862,000
7.	Architectural & Engineering Fees		
	15,550,050		
	1,834,300		
	3,193,000		
	2,271,700		
	815,850		
	862,000		
	a. 24,526,900 x 7%	1,716,883	
	Redesign	64,900	
	b. Supervision 24,526,900 x 1 ¼%	306,586	
	c. Surveys and Test Borings	55,000	
	d. Other items, Consultants Reimbursables, U. of Minn. Reviews, etc.	100,000	
	Total A/E Costs	2,243,369	2,243,369
8.	Moveable Equipment		2.961,448
9.	Total Cost for Const., Fixed Equipment		30,767,454
10.	Contingency 24,526,900 x 3%		735,807
	Total Development Costs (New Construction)		31,503,261

Unit B-C Application

Remodeling

B. Budget Line		Total
1. Building Work		
a. General	281,500	
b. Plumbing	20,000	
c. HVAC	50,000	
d. Electrical	55,000	
e. Elevators	--	
f. Other (Keying, Fire Ext)	2,500	
g. Total for Bldg. Work	409,000	409,000
2. Site Work	--	--
3. Offsite Work	--	--
4. Central Utility Plant		
16,000 #/hr x 1,805,125		
175,000 #/hr Phase I		165,024
5. Total Construction		574,024
6. Built-in Equipment		45,000
7. A/E Costs		
a. Architects Basic Fee		
281,500		
20,000		
50,000		
55,000		
45,000		
451,500 x 14.5%	65,468	
b. Supersision and Inspection		
451,500 x 1 ¼	5,644	
c. Surveys and Tests	--	
d. Consultants	--	
e. Total A/E Costs		71,112
8. Total Cost, Const., Fixed Equipment, A/E Fees, Moveable Equipment		690,136
10. Contingency		
451,500 x 3%		13,545
Total Remodeling Cost		703,681
16. Total Development Cost (New and Remodeling)		32,206,942

UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION

Unit B-C Grant
Construction and Non Building Costs

Scope Definition-Build Entire Shell Thru Floor 15.
Identify Cost of Finish Space
For Base Program.

Cost Summary

A. Shell Construction		SFG	@	Total
1. New Construction		538,235	32.27	$17,371,360
2. New Animal Areas		35,900	33.05	1,186,500
				$18,557,860
3. Non Building Costs (Shell)		Eligible	Total	
a. Site Preparation		6,270	16,500	
b. Site Development		83,450	333,600	
c. Utility Conn. Lines		4,348	11,443	
d. Other Site Costs		--	--	
e. Central Utility Plant		314,722	828,218	
f. Architects Basic Fee		507,970	1,401,663	
g. Supervision & Inspection		88,985	234,172	
h. Surveys, Tests & Borings		20,900	55,000	
i. Other Costs, Consultants, etc.		28,500	75,000	
j. Contingency		213,565	562,014	
Subtotal		1,268,710	3,517,610	3,517,610
Total Shell Construction				22,075,470
B. Finish Construction		SFG	@	
1. Remodeled Areas (DIEHL)		38,350	11.77	451,500
2. New Construction (See breakdown of spaces by floor.)		217,230	27.52	5,982,500
				6,434,000
3. Non Building Costs (Finish Cost)				
a. Architects Basic Fee			445,588	
b. Supervision & Inspection			78,058	
c. Other Costs, Consultants, etc.			25,000	
d. Moveable Equipment			2,961,448	
e. Contingency			187,338	
Subtotal			3,697,432	3,697,432
Total Finish Construction				10,131,432

Cost Summary (Cont.)			Total
C. Eligible Match Based on SFG of Finished Spaces			
1. Shell Costs	SFG	@	
New Construction	196,970	32.27	6,356,222
New Animal Area	20,260	33.05	669,590
			$7,025,812
Eligible Non Bldg. Costs			1,268,710
			8,294,522
2. Finish Construction (See item "B"			10,131,432
Total Shell and Finish Costs			18,425,954
Eligible for Match- Amount Required @ 70% N.I.H.			12,898,168

Part II
Section A

UNIVERSITY OF *Minnesota*

OFFICE OF THE UNIVERSITY ATTORNEY
224 NORTHROP MEMORIAL AUDITORIUM · MINNEAPOLIS, MINNESOTA 55455
PHONE 373-3446 · AREA CODE 612

October 28, 1970

Regents of the University of Minnesota
Morrill Hall

ATTENTION: Dr. D. K. Smith
Acting Secretary

Re: Title Opinion
Health Science Expansion Phase I
Unit B-C

Gentlemen:

I have investigated and ascertained the location of the site or sites, rights-of-way, and easements being provided by the Applicant for the facilities in its application for Federal Aid identified above to be constructed, operated and maintained thereon, described as follows:

That part of "City of St. Anthony" and "Barney's Subdivision of Block 30, City of St. Anthony" according to the plats thereof on file or of record in the office of the Register of Deeds, Hennepin County, Minnesota, described as follows:

The Southerly 53 feet of Lots 8 and 9 and all of Lot 10, "Barney's Subdivision of Block 30, City of St. Anthony."

All of Lots 2, 3, 4, 5, 6, 7, 8 and 9 Block 35 "City of St. Anthony."

All of Lots 1, 2, 3, 4 and 10, Block 36 "City of St. Anthony."

All of Lots 1 and 2 and the easterly 99 feet of Lots 9 and 10 Block 29 "City of St. Anthony."

That portion of Union Street Southeast (vacated) from the northerly line of Essex Street Southeast to the westerly extension of the northerly property line of Lot 10, "Barney's Subdivision of Block 30 City of St. Anthony."

That portion of Essex Street Southeast (vacated) from the southerly extension of the westerly property line of Lot 10, Block 36 "City of St. Anthony" to the southerly extension of the easterly property line of Lot 8 Block 35 "City of St. Anthony."

That portion of Delaware Street Southeast (vacated) from the northerly extension of the westerly property line of Lot 4 Block 36 "City of St. Anthony" to the westerly line of Union Street Southeast and from the easterly line of Union Street Southeast to the southerly extension of the easterly property line of Lot 8 "Barney's Subdivision of Block 30 City of St. Anthony."

All of the westerly alley in Barney's Subdivision of Block 30 lying south of the easterly extension of the northerly property line of Lot 10 in said Barney's Subdivision.

I have examined the records of ownership of said sites and the Applicant holds fee simple title to the said sites free and clear of all liens and encumbrances except for the following described streets which are currently in the process of being vacated by proceedings of the City of Minneapolis:

That portion of Union Street Southeast from the northerly line of Essex Street Southeast to the westerly extension of the northerly property line of Lot 10, "Barney's Subdivision of Block 30, City of St. Anthony."

That portion of Delaware Street Southeast from the easterly line of Union Street Southeast to the southerly extension of the easterly property line of Lot 8 "Barney's Subdivision of Block 30, City of St. Anthony."

All of the westerly alley in Barney's Subdivision of Block 30 lying south of the easterly extension of the northerly property line of Lot 10 in said Barney's Subdivision.

That portion of Essex Street Southeast from the westerly line of Union Street Southeast to the southerly extension of the easterly property line of Lot 8 Block 35, "City of St. Anthony."

In my opinion, the Applicant has, and will have upon completion of pending street vacation proceedings, sufficient legal interest in the said site or sites, rights-of-way, and easements to permit the construction of such facilities thereon and to permit the operation and maintenance of such facilities thereon by the Applicant for not less than seventy-five years from the date of the application.

October 28, 1970
Date

Attorney at Law

224 Northrop Auditorium
University of Minnesota
Minneapolis, Minnesota 55455

The following narrative was taken from the Soil Exploration Company Report dated July 5, 1968, Health Sciences Soil Investigation.

SITE AND SOIL CONDITIONS

The proposed construction site is located on the University of Minnesota campus in an area which is quite heavily built up. The surface is quite level, with surface elevations at the boring locations varying from approximately 840½ to 843'.

As indicated by the boring logs, the soil profile consists primarily of sand to a depth of approximately from 15' to 19', underlain by glacial till consisting primarily of silty sand with some boulders which extends to bedrock. From 4' to 7' of fill exists at the surface, with the grater depth being encountered in boring #3. A layer of silty sand from 7' to 9' was encountered in boring #3 and in boring #2 a layer of lean clay was encountered from 27½' to 29½'. Although boulders were encountered in the till below about 20', the borings were not obstructed by them. Bedrock was encountered and cored in each boring, and consists of thin layers of the Decorah, Shale and Limestone overlying Platteville limestone at a depth of approximately 50'. Detailed information pertaining to the bedrock is contained on the boring logs.

GROUND WATER

Ground water was observed in the borings at the levels and times indicated on the boring logs. The ground water information contained on the log of boring 3 is considered to be the most accurate since water was observed at a depth of 43' prior to introducing jetting water into the drill hole. The levels of the ground water observed in borings 1 and 2 may be affected somewhat by the fact that jetting water was introduced into these holes prior to the time ground water was observed. Ground water determinations made in relatively impervious soils as encountered in the borings may not be completely reliable even after several days of observation, and both yearly and seasonal fluctuations in the level of the ground water may be expected.

LIAISON COMMITTEE ON MEDICAL EDUCATION

Council on Medical Education
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

January 7, 1970

Executive Council
Association of American Medical Colleges
One Dupont Circle, N.W.
Washington, D.C. 20036

Malcolm Moos, Ph.D.
President
The University of Minnesota
Minneapolis, Minnesota 55455

Dear President Moos:

It is a pleasure to transmit to the University of Minnesota formally the final report of the team representing the Liaison Committee on Medical Education, which visited the University of Minnesota Medical School in January of 1969. As you know, this committee represented the Executive Council of the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association. The purpose of the visit was to accredit the program in undergraduate medical education at the University of Minnesota Medical School.

The report recommends continuing accreditation of the program in undergraduate medical education at the University of Minnesota Medical School, effective the date of the survey, January 23, 1969, and continuing Institutional Membership in the Association of American Medical Colleges. The report calls attention to certain problems at the Medical School and asks that the Dean of the School submit reports dealing with these problems one and three years after the survey visit.

A copy of the report is being sent to Dr. Robert B. Howard, Dean of the Medical School. If there are any questions about this report, any of its parts, its implications or uses, I am sure that you will get in touch with this office.

The report is considered confidential. However, it is for the use of the University and the Medical School as dictated by their best judgment. Characteristically, it has not proven advantageous to release the contents of these reports to the public press.

Sincerely,

Hayden C. Nicholson

Hayden C. Nicholson, M.D.
Secretary, Liaison Committee
on Medical Education

HCN:jmz

cc: Robert B. Howard, M.D., Ph.D.
Cheves McC. Smythe, M.D.

STATE OF MINNESOTA
DEPARTMENT OF HEALTH
717 DELAWARE STREET S. E.
MINNEAPOLIS 55440

May 22, 1972

Mr. Thomas F. Jones
Associate Director
D-251 Mayo
University Hospitals
Minneapolis, Minnesota 55455

Dear Mr. Jones:

In response to your earlier request for a grant under the Hill-Burton Program, for the fiscal year 1973, I should inform you that at the present time, highest priority for both grants and loans under the Hill-Burton Program in accordance with the current approved State Plan is given to assisting in the construction of a public private hospital center, the proposed Hennepin County General-Metropolitan Medical Center building program in Minneapolis.

Since total grants for fiscal year 1973 only slightly exceed $1,500,000 it is highly unlikely that any of this money will be available for other projects.

Sincerely yours,

John H Westerman

John H. Westerman
President
State Board of Health

JHW/sds

A Century of Service

1872 1972

Minnesota State Health Department

ENROLLMENT INFORMATION EXHIBIT

[Please read Enrollment Information instructions before completing form]

Complete this enrollment information for each health professions discipline. Use a separate form for each discipline scheduled to use the facility. *If the application is for a teaching hospital or outpatient facility, obtain the information from the medical, dental or osteopathic school with which there is affiliation.*

1. *Present Enrollment as October 15*, 1970-71

		Health Professions	Public Health
A	Undergraduate 1st Year	227	Pre-degree Grad 1st
	2nd Year	163	2nd
	3rd Year	178	
	4th Year	180	
	5th Year		
	6th Year		
	TOTAL		
B	Advanced Education	680	
C	Continuing Education	1035	

2. *Expansion of Training Capacity*

Highest Undergraduate First-year Enrollment 227 Base Year 1970-71

3. *Assured Enrollment Increase*

Number of Students

Year	First-year Undergraduate	Advanced	Continuing Education
1974	NA	800	1200

(use additional lines for entries)

Enter first-year student enrollment increase (for 10-year period of commitment) over highest enrollment shown in No.2: NA

4. *No Enrollment Increase*

(A) The facilities are so obsolete as to require the school to substantially curtail its enrollment: [ ]
(B) The facilities are so obsolete as to require the school to substantially curtail the quality of training: [XX]
(C) The school received a waiver under the expansion of enrollment requirement for capitation aid: [ ]
(D) Unusual circumstances exist: [ ]

This grant application is submitted without an attendant commitment to increase student enrollment on the basis that obsolescence of current facilities will require the Medical School to curtail substantially the quality of training of the large numbers of medical students who are, and will be, enrolled in the school.

In July 1969, the Health Sciences of the University of Minnesota submitted a grant application to the National Institutes of Health, Bureau of Health Manpower, for funds for the construction of a new, interdisciplinary Health Sciences development building project. At that time, the Medical School agreed to increase the enrollment of the first year class from a base of 163 per entering class to 220 per entering class, an increase of 35%. This commitment was to be fulfilled by 1976 or 77, two years after completion of the project. The grant was approved for funding of the first element of the development program, Unit A, which was predominately devoted to Dental School and interdisciplinary Health Sciences Basic Science teaching. In addition, Unit B/C, the second element of the program, was declared eligible by the National Institutes of Health for future consideration of grant submittal and approval on the basis of the increase in class size to 220 entering students. Therefore, in 1970-71, on that basis, a grant requesting funds for Unit B/C was submitted to the NIH and approved, but not funded. Because of changes in the Health Manpower Act of 1971, the grant was declared inactive and a resubmittal of the application for a grant became mandatory. This current grant application, markedly reduced in scope compared to the original Unit B/C request, is the result of that action.

In 1969, the Medical School, in response to clearly stated National goals to increase the output of physicians, agreed to participate in the Physician Augmentation Program and, in 1970, the size of the first year Medical School enrollment was increased to 227. This entering class size of 227 exceeded the original commitment to increase the first year class size to 220, based upon the funding of Unit A, both in its numbers and in its early timing. In addition, the Medical School will increase the size of the first year class to 239 students in 1972-73 in order to be eligible for a Health Professions capitation grant.

Projections for 1976-76 (chart enclosed) portray a student body of 1009 medical students at the University of Minnesota Medical School. By 1972, the first year class size will have increased 47% over the original base figure of 163 in 1969 and by 1975-76, the number of graduates will have increased 68% over the preceeding ten years.

The progressive obsolescence of current facilities, aggravated by the intense strain placed upon these facilities by the present and future increases in medical student enrollment, will seriously

jeopardize the quality of education of medical students unless new, expanded facilities are made available in the foreseeable future. Shortages of adequate teaching space for clinical teaching, an incompletely developed and small Learning Resources Center, and the lack of adequate, modern outpatient facilities definitely impair the development and expansion of a recently revised curriculum. This, in an era when the development of newer methods of learning is imperative and the teaching of the clinical care of outpatients is of utmost importance to the future of medical practice and patient care. Experience with significantly larger classes, already exceeding previously made commitments, has demonstrated that unless facilities of the Medical School are improved and expanded, the quality of education necessary for future physicians will not be sustained.

The faculty of the Medical School has looked at several alternatives whereby the large medical student body might be taught in other surroundings and in other facilities without a concomitant expansion of current Medical School facilities. The school is presently affiliated with several hospitals. The major affiliated hospitals are Hennepin County General Hospital, St. Paul-Ramsey Hospital, Veterans Administration Hospital, and Mt Sinai Hospital. Because of the necessary emphasis upon the service aspects of medical care at these hospitals and the already hard pressed faculty and facilities at these and several other smaller, affiliated community hospitals, it does not seem appropriate to increase significantly assignments of students to these affiliates.

Development of any extensive additional, new affiliation teaching facilities is not feasible among other community hospitals because, in general, those units primarily committed to patient care and service are not able to mount and sustain broad programs of medical student education. In addition, the school must provide a central core of facilities adequate to maintain a critical mass of students and faculty in order to insure the viability of its programs and curriculum.

Rental facilities to accommodate faculty offices and teaching faculty laboratories and a few medical student teaching areas are being utilized. Unfortunately these facilities are located, except in one instance, a mile or more from the Health Sciences campus and are in scattered locations. As temporary short term facilities they have been helpful in alleviating the critical space shortages of the Medical School. They are, however, makeshift arrangments which are distinctly inefficient for students and faculty and have the unfortunate, but temporarily acceptable, effect of drawing faculty and students away from the center of learning in the Health Sciences. In addition these facilities are not adaptable to the instruction of the clinical care of patients since they are located such a distance from the Health Sciences Center.

The rental of clinical teaching facilities closer to the Health Sciences campus is clearly impossible because of geographical

boundaries and the urban nature of the area immediately surrounding the Health Sciences campus. As a suitable long term alternative for certain types of instruction of students, especially in the area of clinical instruction, the School's experience has clearly shown these rental facilities to be impractical and unacceptable.

Other possible State or regional health centers where University of Minnesota medical students might receive instruction are planning Medical Schools in addition to this school. Classes of medical students are due to start in 1972 at the Mayo Medical School and at the Medical Education Program, University of Minnesota - Duluth. These centers will, by their involvement in medical education, further increase the output of physicians in the State of Minnesota. Because of their full institutional commitment to medical education, it would be impossible to instruct this school's students in their settings and facilities.

Due to the general shortage of funds at a national level and the impetus to provide necessary facilities with a more modest expenditure of funds, the faculty of the Medical School has reevaluated, as a viable alternative, the original B/C building program. From the perspective of a minimal building program necessary at this time to sustain the quality of our school's curriculum and the facilities absolutely necessary to teach the large body of medical students, the scope of this program submitted to the National Institutes of Health has been radically revised. Although the present, revised program is still consistent with the teaching objectives of the curriculum and does provide a critical mass of facilities necessary to teach medical students, it only partly satisfies the schools immediate and future needs. Unless this already reduced, less costly program were to become a reality the faculty must inevitability face the prospect of irreparable harm to the Medical School program.

University of Minnesota
Medical School
Undergraduate Medical Student Enrollment Projections

	1st yr.	2nd yr.	3rd yr.					4th yr.	Total Enrollment	Graduates		
			3 yr. prog.	Rural Assoc.	4 yr. prog.	Transfers	Total			3 yr.	4 yr.	Total
1970 (-72)	228	164	-	-	185	-	185	187	764	-	186	186
1971 (-72)	231	226	31	21	110	30	192	189	838	31	189	220
1972 (73)	239	231	37	40	149	30	256	161	887	37	161	198
1973 (-74)	239	239	38	40	156	30	264	222	964	38	222	260
1974 (-75)	239	239	40	40	162	42	284	229	991	40	229	269
1975 (-76)	239	239	40	40	162	42	284	247	1009	40	247	287

PROGRAMS TO BE CONDUCTED IN THE FACILITY

ORGANIZATIONAL STRUCTURE

1. Health Sciences

The University is governed by a board of twelve regents elected for six year terms by the State Legislature. By tradition, eight of the regents are elected from congressional districts and four are elected on an at large capacity. The Regents of the University of Minnesota are by constitutional definition (reaffirmed by court decision) an autonomous body. Responsibility for academic matters has been directed by the Board of Regents to the respective collegiate faculties with all University matters in this area managed through a representative elected senate of faculty and students.

The President of the University is a member of the Board of Regents. Under his authority are six vice presidents with responsibilities as follows: Vice President of Administration; Academic Administration; Finance, Planning, and Operations; Campus and Educational Relationships and Development; Student Affairs; and Health Sciences.

The Vice President for Health Sciences has responsibility for developing goals and operational plans in conformity with the missions of the Health Sciences and for developing inter-unit collaboration in fulfilling the missions of the Health Sciences. In addition, he works in close cooperation with the other Vice Presidents on Health Sciences matters relating to their areas of responsibility.

The Medical School, the School of Dentistry, the College of Pharmacy, the School of Public Health, the School of Nursing, the College of Veterinary Medicine, and University Hospitals comprise the Health Sciences on the Twin Cities campus of the University of Minnesota. Each unit is represented by a dean or director reporting directly to the Vice President for Health Sciences with the exception of the College of Veterinary Medicine which is an adjunct member. In addition, a Council of Deans and Directors serve the Vice President in a cabinet capacity.

The Vice President for Health Sciences has several assistants for functional areas that affect all units. Examples of this include a coordinator of affiliations, a coordinator of continuing education, and a coordinator for Allied Health Programs.

At present, a Health Sciences Faculty Committee is preparing a Health Sciences Constitution which is in a preliminary draft stage of development. It is anticipated that this proposed Constitution will not radically nor materially alter the present organizational structure of the Health Sciences or the Medical School.

2. Medical School Organization

The Medical School is headed administratively by the Dean of the School. He is aided by an associate dean and three assistant deans with responsibilities in the areas of student affairs and planning. The Faculty Advisory Council, an elected committee of the Executive Faculty of the Medical School, advises the Executive Officer in matters of policy for the Medical School.

MEDICAL SCHOOL COMMITTEES

Administrative Board of the Medical School

It shall be responsible for overseeing the administration of the policies of the Executive Faculty relating to educational matters and shall be advisory to the Dean with respect to budgetary and other aspects of the administration of the Medical School. In particular, the Dean will discuss with the Administrative Board all aspects of the preparation of the annual budget, including policies governing the allocation of funds for salary increases and general policies concerning the allocation and expenditure of the various resources of the Medical School not designated for specific purposes.

Faculty Advisory Council of the Medical School

In recognition of the need of the Dean for a small, responsible group of advisors who can meet with him frequently, regularly, and on short notice when necessary, there shall be a faculty Advisory Council that shall include members elected by the Executive Faculty. On policy matters the Faculty Advisory Council shall, through the Dean, make recommendations to the Administrative Board and/or the Executive Faculty, as may be appropriate. It shall take definitive action only with respect to such matters for which responsibility has been delegated to it by the Administrative Board or Executive Faculty. Such delegated responsibilities shall be defined in the Bylaws.

Committee on Committees of the Medical School

The Committee on Committees shall review the scope of the various standing Committees of the Executive Faculty. It shall, after consultation with the Dean, recommend for the consideration of the Executive Faculty at the October meeting each year a slate of candidates for election to each of the various other standing committees of the Executive Faculty. The Committee on Committees shall make a report concerning its activities to the Executive Faculty at least once each year.

Educational Policy Committee of the Medical School

The Committee on Educational Policy shall be responsible for continuing review and evaluation of the undergraduate and graduate educational programs of the Medical School and for making appropriate recommendations to the Executive Faculty for additions to or modifications of the educational programs of the Medical School. It shall make a report concerning its activities to the Executive Faculty at least once each year. Recommendations reported to the Executive Faculty for action shall be subejct to prior consideration by the Administrative Board as described in Section D of the Bylaws of the Medical School.

Medical School Admissions Committee

The Medical School Admissions Committee shall be responsible for the selection each year of the students who will carry out studies toward the degree Doctor of Medicine.

Faculty Academic Promotions Committee of the Medical School

Review of recommendations for faculty promotion made by the various Medical School Departments to the Dean's office; notification to the Dean of the Medical School of the Committee's recommendation concerning each proposed promotion; general advice to the Dean of the Medical School concerning policies and procedures for Medical School faculty academic promotions, in accord with the Academic Promotion Policy of the College of Medical Sciences adopted by the General Faculty of the College on November 7, 1968. (The Medical School Committee elects a Chairman each year from among its members; Dr. John Sciarra is current chairman.)

Committee on Student Scholastic Standing of the Medical School

This Committee will consider the cases of students doing unsatisfactory Medical School work at the end of each academic quarter and recommend appropriate disposition of each case. Acting for the Executive Faculty, it shall be responsible for recommending to the Dean those students eligible for advancement and those students eligible for graduation with the degree Doctor of Medicine. Policy matters not satisfactorily resolved by the usual procedures of the Committee will be referred for final determination to the Executive Faculty as a whole, which shall hold a special meeting for this purpose at the request of the Committee. In any event, the Committee on Student Scholastic Standing will report on its activities to the Executive Faculty at least once each year.

Internship Advisory Committee for the Medical School

Development of policies concerning advising medical students concerning selection of internships; implementation of such policies.

Committee on Minority Student Programs

Provide leadership in the recruitment, counseling, and financial support for financially or educationally disadvantaged students.

3. University Hospitals

The University Hospitals is one of the several Health Science units with the director reporting to the Vice President for Health Sciences. The Hospitals have no board of directors separate from the Board of Regents.

Internally the Hospitals have a formal professional staff organization which both advises and assists the director and administrative staff with clinical operations. This organization is headed by the Medical Staff Hospitals Council, the chairman of which is elected Chief of Staff. It is composed of elected and appointed members of the Hospitals' medical staff which includes physicians, dentists, and psychologists. The chairman of the Council of Clinical Sciences of the Medical School is an ex officio member of the council. The council carries out its functions through the following standing committees.

Medical Staff Hospital Council
Committee of Infection and Employee Health
Utilization Committee
Pharmacy Therapeutics Committee
Medical Records Committee
Operating Room Committee
Bed Allocation Committee
Credentials Committee
Disaster Committee
Outpatient Committee (includes Emergency Service)
Fire, Safety, and Security Committee

Health Services Administration
University Hospitals

Assignments by Departments, Missions,
Projects, and Liaison Responsibilities

John H. Westerman, General Director

Bob Dickler, Administrative Resident

Donald Van Hulzen - Senior Associate Director	
Business Office	Finance Committee
Rep. Hospital Advisory Committee, Metro. Health Board	Budget Committee
Hospital Cost Study	Program Committee
AAMC Education Costs Study	Planning Committee
	Operations Analysis Committee
Dennis Countryman - Associate Director	
Volunteers	Finance Committee
Public Relations & Information	Program Committee
Administrative Trainee Program	Research & Evaluation Committee
Legislative Preparation	
Health Insurance Advisory Committee	
Auxillary Relations	
Westside Clinic	
Merle McGrath - Associate Director	
Payroll - Personnel	Budget Committee
Manpower Development	Finance Committee
Coffee Shop	Personnel & Manpower Development Advisory Committee
Vending	
Medical Art & Photography	
Tom Jones - Associate Director	
Hospital Planning	Finance Committee
Space Allocation	Planning Committee
Remodeling	Program Committee
Engineering and Maintenance	
Clinical Laboratories	
College of Pharmacy Liaison	
Kenneth Schneider - Assistant Director	
Admissions	Planning Committee
Rehab - Occupational Therapy	Personnel & Manpower Development Advisory Committee
Rehab - Physical Therapy	
Legal Affairs	
Communications Center	
Beltrami Clinic	
House Staff Affairs	
Fire, Safety, Security Committee	
Student Health Service Liaison	

Peter Sammond - Senior Associate Director

Secretary, Medical Staff-Hospital Council	Program Committee
Social Service	Finance Committee
Bed Allocation Committee	Planning Committee
Credentials Committee	Budget Committee
Nursing Service	Operations Analysis
Alternate Council Deans & Directors	Committee
Dental School Liaison	
Operations Analysis Department	

Florence Julian - Associate Director & Professor

Consultant to Nursing Service	Personnel & Manpower
Community Services	Development Advisory
Health Sciences Delivery R & D Projects	Committee
Cedar-Riverside Project	Research & Evaluation
Operating Rooms	Committee
Operating Room Committee	Operations Analysis
Nursing School Liaison	Committee
Employee Health Service	
Hospital Infection & Employee Health Committee	
Medical Staff Program Committee	

Robert Baker - Assistant Director

Health Sciences Cancer Committee	Program Committee
Health Sciences Leukemia	Planning Committee
Masonic Hospital	Personnel & Manpower
Clinics	Development Advisory
Emergency Room	Committee
Patient Relations	Operations Analysis
Powell Hall	Committee
Outpatient Committee	
Diagnostic Radiology	
Radiation Therapy	
Minnesota Hearing Center	
Disaster Committee	
Central Sterile Supplies	
Materials Management	

Donna Nehls - Acting Chairman of Nursing Services

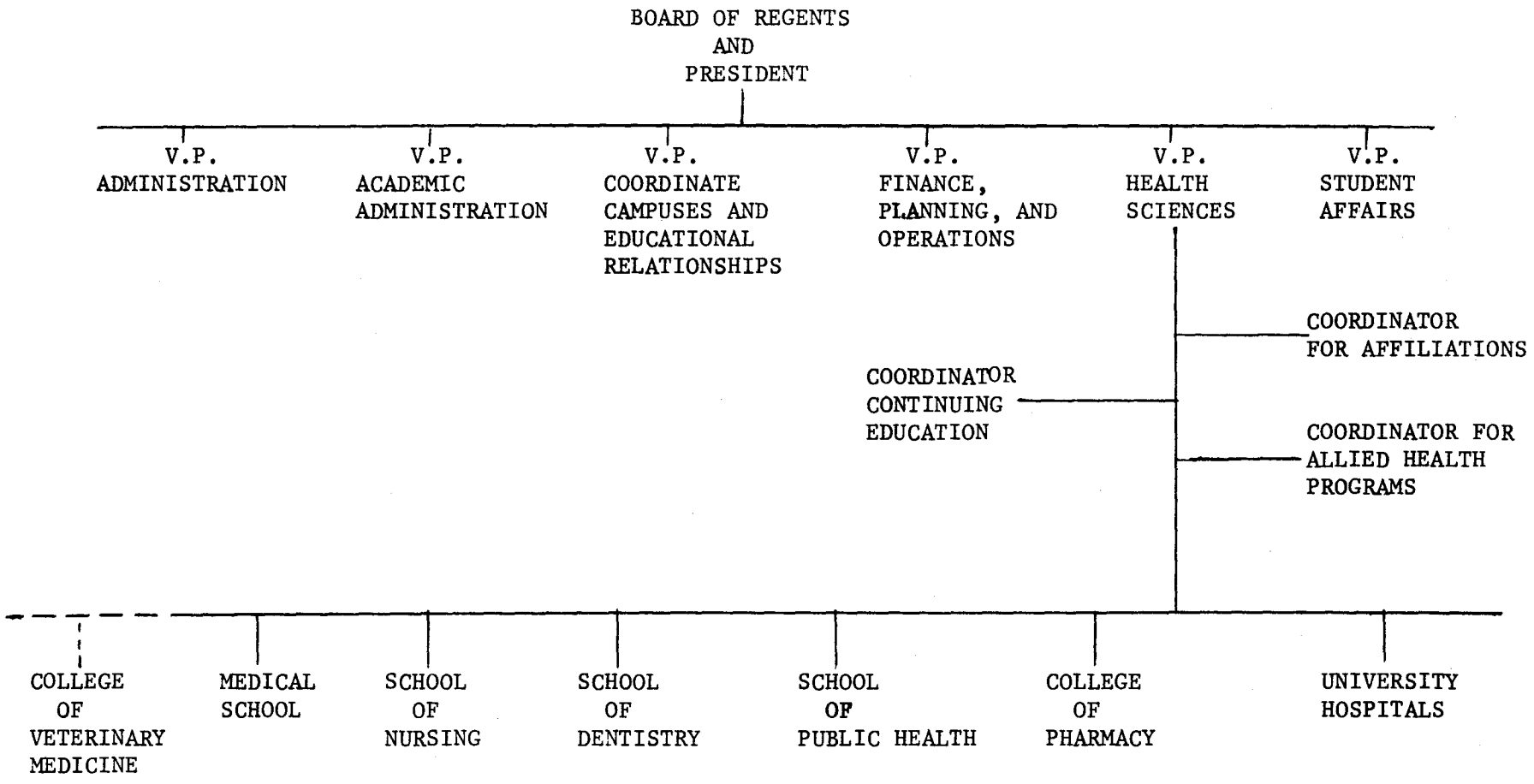
Nursing Services	Budget Committee
	Program Committee

Gary Peterson - Assistant Director

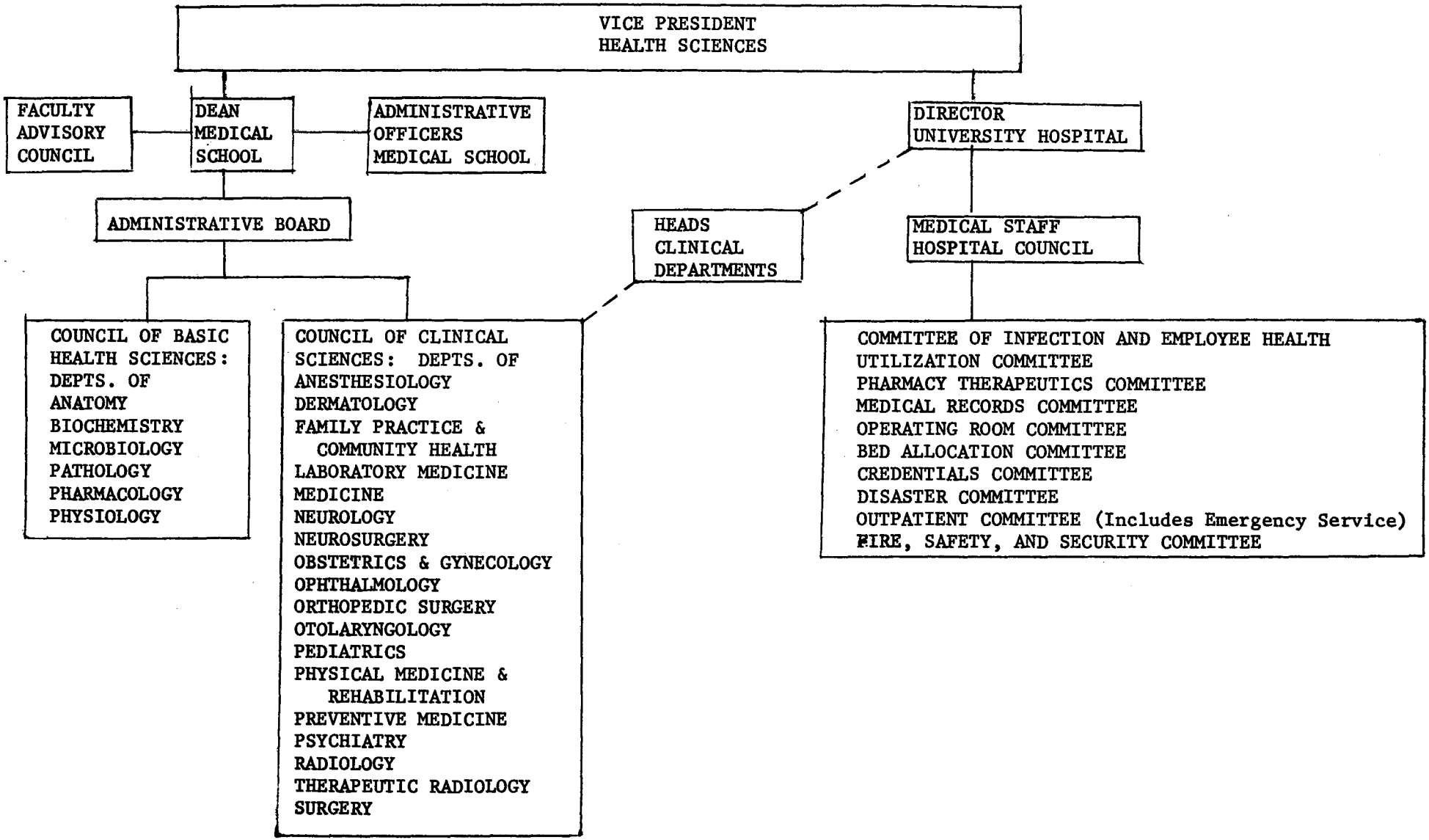
Heart Hospital	Finance Committee
Family Practice	Program Committee
Environmental Services	Personnel & Manpower
C.U.H.C.C.	Development Advisory
Medical Records	Committee
Pharmacy	Operations Analysis
Medical Records Committee	Committee
Utilization Review Committee	
Cardiovascular Committee	
Pharmacy & Therapeutics Committee	
Health Sciences Parking Committee	
Health Sciences Learning Resources Committee	

Stanley Williams - Assistant Director	
Director, Hospital Research & Development	Research & Evaluation Committee
Outreach Clinics Evaluation & Development	
Nutrition	Personnel & Manpower Development Advisory Committee
Nutrition Advisory Committee	
Hospital-Medical Staff Program Committee	
St. Paul Model Cities Health Program	
Jack Malban - Assistant Professor & Mental Health Coordinator	Personnel & Manpower Development Advisory Committee

UNIVERSITY AND HEALTH SCIENCES



MEDICAL SCHOOL AND UNIVERSITY HOSPITALS



MEDICAL SCHOOL FACULTY AT HEALTH SCIENCES CENTER

	Total Faculty[3] 1971-72	Total Projected Faculty[3] 1977[4]
Anatomy	27[1]	32[1]
Biochemistry	16[1]	20[1]
Microbiology	14[1]	22[1]
Pathology	14[1]	32[1]
Pharmacology	18[1]	26[1]
Physiology	19[1]	24[1]
TOTAL	108	156
Anesthesiology	10	14
Dermatology	6	7
Family Practice and Community Health	12	20
Internal Medicine	37	52
Laboratory Medicine	35[2]	47[2]
Neurology	25	30
Neurosurgery	8	11
Obstetrics-Gynecology	14	30
Orthopedic Surgery	5	9
Ophthalmology	7	11
Otolaryngology	12	20
Pediatrics	39	53
Physical Medicine and Rehabilitation	36[2]	54[2]
Psychiatry	32	41
Radiology	12	18
Surgery	26	33
Therapeutic Radiology	8[2]	14[2]
TOTAL	324	464

1. Although administratively within the Medical School, faculty in these departments are responsible for the instruction of not only Medical students, but, also of other Health Sciences Center students including Dental, Pharmacy, Nursing, Ancillary Health and other students.

2. Faculty in these Medical School departments are responsible for the administration and instruction of substantial programs in the Ancillary Health Fields, including Medical Technology, Physical and Occupational Therapy, and X-Ray Technology. Therefore, faculty projections in these departments include several positions designated for instruction in those programs.

3. Projections are for faculty of rank, assistant professor or higher. In a few instances, wherever appropriate, instructors are included.

4. Projections are based upon the availability of all facilities in the Health Sciences Development Program, including those the subject of this grant application and those following completion of the shell portion of Unit B/C.

Faculty Appointments

The Dean of the Medical School, upon the recommendation of a faculty advisory committee, recommends the appointment of a Department Head of a Medical School department to the Vice President of the Health Sciences, who in turn recommends the appointment to the President and Regents of the University for final approval of the appointment. Selection of faculty is initiated by the department head with the approval of the Dean, with subsequent submission for approval of the appointment to the President and the Regents of the University. For appointments at tenure level, the Dean seeks the advice of the Faculty Committee on Academic promotions.

At present the Heads of the Departments of Pathology and Orthopedic Surgery have resigned. Search Committees have been appointed and the new Heads of these departments should be named within the near future.

Instruction of students other than medical students by Medical School faculty

Although administratively within the Medical School, the Basic Health Sciences faculty have responsibility for the basic science instruction of all health sciences students including medical students. The following listing presents, for 1971-72, in terms of student full-time equivalents, the numbers of students, besides medical students, receiving instruction in Basic Sciences. The following table (page 39)presents similar data expressed as student-credit-hours. Facilities of the Medical School are used for instruction of these students.

Dental Students	159 FTE
Veterinary Med. Students	17 FTE
Pharmacy Students	59 FTE
Nursing Students	53 FTE
Other Students*	179 FTE
Total	467 FTE

*Includes students from Agriculture, Forestry, Home Economics, Business, Education, Technology, Biological Sciences, Liberal Arts, University College, General College, Dental Hygiene, Public Health, Mortuary Science, and X-Ray Technology.

Baccalaureate degree programs, Medical Technology, Occupational Therapy, Physical Therapy, and Radiologic Technology are included administratively within the Medical School. Faculty of the School provide instruction in these disciplines and facilities of the School are used for instructional purposes.

Student-Credit-Hours of Instruction in the Basic Health Sciences

	MEDICAL SCHOOL		DENTAL SCHOOL		SCHOOL OF NURSING	COLLEGE OF PHARMACY	OTHER UNDERGRADUATE STUDENTS (2)	GRADUATE COURSES (3)
	M.D. Students (1)	Para-Medical Students	D.D.S. Students	Dental Hygiene Students				
Anatomy	5,400	420	2,691	208	400	360	2,048	769
Biochemistry	2,104	585	1,548	224	448		267	847
Microbiology	2,133	581	708	220	520	150	2,355	1,128
Pathology	1,362	456	590			315		1,517
Pharmacology	See note (1)		852	43	306	774		954
Physiology	2,530	640	960	240	745	749	961	772

teaching;

(1) Does not include organ system teaching in Phase B or Phase D/ Pharmacology has virtually all of its teaching to medical students in the organ system sections of Phase B and cannot be precisely reported in terms of student-credit-hours.
(2) CLA, IT, CBS, University College, General College, etc.
(3) Formal courses exclusive of thesis research advising.

Intramural Practice Program

Until several years ago the clinical faculty of the Medical School engaged in a geographic full-time system of medical practice. Under this system the individual faculty member received a basic salary from the University which he augmented by funds from private practice. Three years ago a strict full-time system was developed and was made available on a voluntary basis.

Under the strict full-time system, an individual receives a total University salary which is thought of as consisting of two components. "Basic salary" is a salary comparable to that received by other people of comparable rank and stature in various other parts of the University, for example, the Basic Science departments, the Department of Psychology, and the Arts College, etc. This segment is subject to the same kind of considerations and negotiated in the same manner as are all University salaries. The second segment is known as a "commutation allowance", which the individual receives in lieu of private fees directly received. This segment is also negotiated each year, but the basis of negotiation is different from that applied to the "basic salary". The commutation allowance is influenced by the particular specialty of the individual and by the nature and extent of his clinical activities within the department. The basic salary and commutation allowance together constitute the individual's University salary for the year in question. The department on the strict full-time basis thus has a substantially higher University salary scale than the department on the geographic type basis.

Commutation allowances are derived from a number of sources, but a good measure comes from the departmental fee pool, into which fees resulting from the professional services of faculty members are placed. Instructional funds provided by the state are not used for commutation allowances. Currently the Department of Pediatrics, the Department of Physical Medicine and Rehabilitation, the Department of Family Practice and Community Health, the Department of Obstetrics and Gynecology, the Department of Medicine, and a group within the Department of Surgery serve on a strict full-time basis. Certain administrative officers serve on a strict full-time basis as individuals.

Faculty on a geographic full-time basis also receive a basic University support salary. As a general rule, income augmentation does not exceed this basic salary, in accordance with a University Regents Policy decision of 1963, modified in 1966.

There are no intramural practice areas, as such, in the University Hospital. All patients admitted to the outpatient and inpatient services are used for teaching purposes regardless of whether their faculty physicians serve on a geographic full-time or strict full-time basis.

Student-Faculty Ratios

Based upon an enumeration of all full time faculty of the Medical School, with rank of assistant professor and above, and the numbers of medical students currently enrolled, the student-faculty ratio is approximately 2 to 1. This ratio will probably remain relatively constant as both faculty size and total medical student enrollment increase commensurately in the next few years.

The ratios, however, do not take into account the much larger total student body taught by Medical School faculty and are an inadequate reflection of the extensive teaching activities of the faculty. A large number of other undergraduate health professional students, at the doctoral and baccalaureate degree level, beside medical students, are taught by the same faculty members. Graduate education and the larger number of graduate students, both basic health science and clinical, are not portrayed in the ratios. Neither is continuing education represented. Listing of faculty does not indicate source of funding or relative portion of faculty effort devoted strictly to teaching activities.

Cost studies, now underway at the Medical School, will be able to provide data which may be meaningful in defining more precisely useful student-faculty ratios. At present, the appropriate data to determine such ratios are unavailable.

THE MEDICAL SCHOOL CURRICULUM

At the end of 1968 the Executive Faculty of the Medical School approved a new curriculum, implemented September, 1969. This approval followed several years of intensive planning by faculty and students under the auspices of the Educational Policy Committee of the Executive faculty.

Because of the explosion in medical knowledge, the public demand for better medical care, the changes in postgraduate training which dictate that all physicians specialize, and the importance of developing student attitudes which are conducive to the improvement of the medical profession and of health care delivery, the Educational Policy Committee formulated certain goals to be satisfied in the new curriculum.

Goal of FLEXIBILITY

To achieve this goal, a three-fold approach has been incorporated: 1) the curriculum will consist of a core of basic medical and clinical science knowledge constituting a part of the medical education of all physicians. It will be followed by continued study and training along "tracks" planned by the student and his advisor from elective offerings related to the student's individual interest; 2) elective courses will be taken concurrently with the later quarters of the core curriculum; 3) selected students will be given the option of completing medical school in three calendar years.

Goal of STUDENT AS LEARNER

To achieve this goal, provision has been made for the student to involve himself early in his student career by selecting certain experiences, such as those relating to the early introduction to the patient, on an optional basis. Later, in Phase B he must not only select a certain minimum number of elective offerings but must to a great extent plan and structure his day to maximize his opportunities for studying and learning. In Phase D, the student must select and develop a program within a track.

In order to augment the development of this goal, particular attention will be paid to newer methods of instruction, including the use of appropriate self-learning devices and audio-visual and TV instructional methods. The student will be encouraged to utilize appropriate print and non-print educational material and aids in a Learning Center environment.

Goal of RELEVANCE

Relevance (a traceable, significant logical connection) of the medical education to the ultimate goal of patient care will be dramatized in the experiences in the introduction to the patient where clinical problems in a variety of settings will be shown to students from the very start of their medical education. Relevance and importance of the basic medical sciences to clinical medicine will be built into the basic clinical correlations used as examples in Phase A, in interdisciplinary teaching sections in Phase B, and by including basic science electives in Phase D.

Goal of IMPROVED COMMUNICATION AMONG FACULTY AND BETWEEN FACULTY AND STUDENT

The most powerful mechanism for bringing the faculty together and improving communication between individuals with similar interest in several departments will be the teaching section method of curriculum planning and presentation in Phase B. The establishment of an effective advisor system will help to bridge the gap between student and faculty.

Goal of PREPARATION FOR THE FUTURE OF MEDICAL PRACTICE

The revolutionary social changes in the work together with the rapid advance in science and technology make it impossible to predict the nature of medical practice in the future. The curriculum will develop in our students the desire for continuing education so that they may be prepared to administer contemporary health care.

Goal of HUMANISM IN MEDICAL PRACTICE

To this end the student will be exposed early to man and will develop an understanding of his inner psychological workings and his relationship to society. This involves early exposure to the behavioral sciences and early exposure to patients in a setting which places emphasis on an understanding of their human problems.

Features of the program designed to attain these objectives include:

1. Small groups of student learners; tutorial teaching.
2. Numerous optional and elective courses.
3. A Learning Resource Center designed to encourage and facilitate self-instruction.
4. Extensive student involvement in curricular planning and in feedback and evaluation.
5. Six alternative pathways (tracks) of special emphasis in the elective final phase (D).
6. An optional three-year shortened curriculum.

7. An optional twelve-month Physician Associate Program.
8. An integrated, systemic approach to "core" curriculum in the second phase (B).
9. Combined and correlative clinical-basic science instruction.
10. Infusion of behavioral science knowledge and skills.
11. Opportunities for work with practicing physicians.

GENERAL DESCRIPTION OF THE CURRICULUM

The curriculum for the Doctor of Medicine degree is to be organized into a core program for all students composed of a Phase A of 4 academic quarters and a Phase B of 4 academic quarters in length. On completion of this core porgram, the student is to begin an individualized program ("pathway" or "track") which will be 3 academic quarters or 5 academic quarters in length, depending on the span of the student's entire program. The standard curriculum for the degree of Doctor of Medicine will be 13 academic quarters, to be completed in less than 4 calendar years. Students will be considered, at their request, for completion of work for the M.D. degree in 11 academic quarters in less than 3 calendar years with the stipulation that the internship will be taken at a University, or a major affiliated, teaching hospital.

Phase A

Phase A is planned for four academic quarters beginning in the fall. The major emphasis of the Phase A curriculum is a presentation of a core of material in five basic medical sciences, anatomy, biochemistry, physiology, microbiology, and general pathology. In addition, there is course work in behavioral sciences and introductory experiences with patients. The content of the quarters is as follows:

Fall Quarter and Winter Quarter (A-1 and A-2)
- Gross Anatomy (Anat 5-100/5-101)
- Human Histology (Anat 5-103/5-104)
- Embryology (Ant 5-106/5-107)
- Medical Biochemistry (MdBc 5-100/5-101)
- Introduction to Clinical Medicine (InMd 5-100/5-101)
- Behavioral Science (AdPy 5-107/6-108)

Spring Quarter and Summer Quarter (A-3 and A-4)
- Medical Physiology (Phsl 5-100)
- Pathology (Path 5-101)
- Neuroanatomy (Anat 5-111)
- Student as Physician (InMD 5-201)
- Behavior of Man (InMD 5-211)
- Microbiology (MicB 5-105)
- Man in His Community (InMD 5-206)
- Pharmacology (InMD 5-213)

All courses stress, in addition to the usual lecture-laboratory format, small group teaching and use of various audio-visual and self-learning aids. Special emphasis is placed upon tutorial teaching in the Introduction to Clinical Medicine, Behavioral Science, Student as Physician, Behavior of Man and Man in His Community courses. Patient contact, often in an outpatient setting, is initiated early in this phase of the curriculum.

Phase B

The four quarter sequence of Phase B begins in fall. There is an emphasis on correlated, integrated interdepartmental teaching designed to highlight fundamental principles and stress patho-physiologic concepts. The courses are organized in relation to 16 organs, systems, or topics. Three additional courses, Student as Physician, Behavior of Man, and Man in His Community in the Phase B sequence are important courses designed to increase the student's clinical skills and knowledge, to enhance his awareness of psycho-pathology and psychological factors related to illness, and to broaden his perception of the role of the physician and the relation-ships of his patients and their medical and health problems to the community.

The Phase B program is not traditionally organized and required classes are reduced to a minimum. "Core" or required attendance will comprise approximately 45 percent of the student's daytime schedule. The remaining 55 percent will be "free" or unscheduled time in which the student arranges his own activities with maximum opportunities for independence and maturity in the learning process. Thus, more than half of regular day house are unscheduled. This arrangement furnishes the student an opportunity to order his own activities and develop his own maturity and independence as he seeks to broaden his medical knowledge and skills and develop professional attitudes and interests. The student may utilize this time in optional activities or he can study in the Learning Center, participate in clinical experiences, or take elective courses available to students in Phase B. The formal Medical School activities in Phase B are thus divided into three categories:

Core Time. Basic didactic lectures or discussions related to specific organ system or topic, schedules in a particular time block (usually first and second hours each day). Attendance is required.

Optional Activities. Supplementary scheduled activities, such as lectures (expanding didactic material offered in Core Time), films, clinical experiences, laboratories, surgical experiences, demonstrations, clinical rounds, teaching rounds, clinical-pathological conferences. Different activities are scheduled each week at various times. Attendance is on a voluntary basis. Some activities because only a limited number can attend, require sign-up by students.

Electives. Courses offered throughout the year covering various topics of interest to medical students, but not necessarily related to Core Time.

The required program in Phase B consists of the following Interdepartmental Medicine (InMD) courses:

REQUIRED PHASE B COURSES

	FALL B-1	WINTER B-2	SPRING B-3	SUMMER B-4
Student as Physician	5-202	5-203	5-204	5-205
Man in His Community			5-209	
Behavior of Man			5-212	
Basic Pharmacology	. . . . integrated.			
Cardiovascular	5-220			
Respiratory	5-221			
Blood I		5-222		
Kidney and Urinary Tract		5-223		
Endocrine and Metabolic	5-224			
Reproduction	5-225			
Blood II		5-226		
Skin		5-227		
Ear, Nose, and Throat		5-228		
Eye		5-229		
Nervous System and Muscle Disorders			5-230	
Gut				5-231
Bones, Connective Tissue, and Joints				5-232
Human Sexuality	5-233			

TYPICAL WEEKLY SCHEDULE--PHASE B
Week of February 22, 1971

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Man in His Community	Man in His Community	Man in His Community	Skin	Blood II	
Blood II	Blood II	Blood II	Blood II	Blood II	
Blood II (optional activity)	Skin (optional)	Blood II Basic Science Seminar	Skin (optional)		
	Skin (optional)			Blood II (optional)	
			Skin (optional)		
Student as Physician (Patient work-up)				Student at Physician (Tutorial)	

☐ Core (required) ☐ Optional

All courses utilize audio-visual aids. Strong emphasis is placed upon small group teaching. Certain courses such as Student as Physician, Man in His Community, and Behavior of Man, are tutorial courses with low student to faculty ratios. These courses stress learning in doctor-patient relationships in an inpatient, and whenever possible, in an outpatient setting. The free time allotted to the student is especially designed for self-learning experiences predominately in the Learning Center.

Phase D

In Phase D, the student, with the help of his advisor, embarks on an elective program of study in one of six career pathways. These pathways are the following:

1) Medicine, Pediatrics, and Medical Specialties
2) Surgery and Surgical Specialties including Obstetrics and Gynecology
3) Psychiatry and Behavioral Sciences
4) Neurological Sciences
5) Family Medicine, Family Practice and Community Health
6) Medical Science

Required electives are different in the several tracks but, in general, each student is urged to include at least 12-18 weeks in an internship type experience in an inpatient and outpatient setting in his program. The opportunity to return to basic science subjects in each of the tracks after some exposure to clinical medicine is one of the attractive features of Phase D. The balance of the individual programs is planned by the student with his advisor from the extensive elective offerings listed by each Medical School Department.

Each pathway is under the supervision of a review committee made up of the faculty involved in the pathway and including at least one member of a basic science faculty in each committee. The committees, which also have representation from the student body and from the junior faculty are appointed by the Educational Policy Committee and have the responsibility of reviewing and approving each student's program on the specific pathway.

The length of Phase D is determined by review of the student's personal needs. Some will plan careers which no longer require an internship, or at least one with classical content; these students probably will prefer a 5-quarter Phase D. Others may see that their educational continuum beyond receipt of the M.D. includes activities likely to duplicate substantial parts of the standard 5-quarter Phase D and these students may opt for a 3-quarter program. Students desiring to complete Phase D in three quarters must make satisfactory progress in their course work and must provide evidence that they will spend

their first postdoctoral year (internship of first year of graduate training) in a university or other major affiliated teaching hospital. There are no restrictions on type of internship or first-year training program for students graduating in four years, in the 13-quarter curriculum.

The Phase D program emphasizes clinical training of the student and, as such, is conducted in an inpatient and outpatient setting. Small group teaching is the rule and tutorial teaching is widespread. Depending upon the elective, audio-visual and other teaching aids are used extensively. The Phase D students utilize the Learning Resources Center extensively, especially to review materials and to expand their own self-learning experiences and aptitudes.

Graduate Education

Virtually all specialties of Clinical Medicine and the Basic Sciences are represented by Graduate Programs at the School. A somewhat unique feature is the registration of all graduate students in the Graduate School of the University of Minnesota. This includes all fellows in the clinical specialties who may be eligible for a degree of Master of Science or Doctor of Philosophy in the clinical specialties. Basic Science graduate students obtain the usual M.S. or Ph.D. degree in the specific field.

Curriculum, plan of study, and thesis work are determined by the student and his advisors within the framework established by Graduate School faculty. In the case of the clinical specialties, curriculum and study plan are consistent with Specialty Board requirements and course work established by the Medical School Department and the Graduate School.

The newest field of graduate work is in the specialty of Family Practice which has developed progressively and rapidly with many graduate students, or fellows, enrolled in the program led by experienced, dedicated faculty.

Postgraduate Education

The Office of Postgraduate Medical Education offers a wide range of continuing education activities which attract registrants from all 50 states plus Canada and a smattering of foreign countries; however, the principal aim of the program is to offer the educational resources necessary to physicians practicing in Minnesota and surrounding areas in order that they might maintain and increase their professional knowledge and skills and thus render the best attainable level of patient care.

During the 1971-72 academic year this office will have conducted a total of 26 scheduled courses and seminars ranging in audience size from six to nearly 600. When the final 1972 courses are completed in June it is estimated that these programs will have reached about 2,800 individuals.

Other activities of this office involve encouragement and support of outreach efforts at the community level, interdisciplinary programs within the Health Sciences, and cooperation with other agencies and organizations having parallel program interests. It is inevitable that the outreach role of this office must increase and expand to include such programs as telephone seminars, encouragement of consultant visits, and other methods designed to assist practitioners to identify and solve their own educational and service needs. Research and evaluation projects in continuing medical education are vitally needed if the University of Minnesota Medical School is to fulfill its scholarly function as well as its obligations to the people of the state to provide the educational resources for optimal health care delivery.

Health-Related Research

Funds designated for sponsored health-related research in the Medical School totalled $12,207,678 for the fiscal year, 1970-71. In addition, the Medical School expended in that year, $2,979,969 for research training primarily derived from federal training grants and research fellowships. Thus the total of all sponsored research and research training programs, $15,187,647, comprimised about 45 percent of the total resources of the School for the period. It is expected that expenditures for sponsored research will increase about 5 percent per year, but the proportion of funds for sponsored research to total resources of the School may decrease slightly during subsequent years as the emphasis on and funding for educational programs increase relatively.

Health-related research of the Medical School is varied in its content. Particular emphasis has been placed upon research in cardiovascular diseases, cancer, neurological disorders, basic cellular biology and immunology, diabetes, renal problems, and clinical and basic aspects of inborn errors of metabolism. A major proportion of faculty engage in research activities. Many students actively participate in health-related research during their free time, under various research scholarship programs and during elective Medical School course work. Several medical students, involved in interdigitated graduate study, such as the M.D.-Ph.D. program, place heavy emphasis on research in the course of their professional curriculum.

The small amount of research space to be provided in the facilities requested in this grant application is mostly replacement of existing areas and probably will not have an appreciable effect upon the course and funding of health-related research at this institution.

The Curriculum and The Proposed Facilities

Since the Medical School just recently adopted a new curriculum, which is currently in its third year of operation, the faculty does not anticipate a major change once the facilities discussed in this grant application become a reality. The new facilities, Unit B/C, are, however, absolutely mandatory for the curriculum to succeed ultimately. Indeed, the B/C facilities are vital if the curriculum is to remain viable and in order that the programs of the Medical School and Health Sciences maintain standards of excellence necessary for the education of students knowledgeable in the appropriate care of patients and the maintenance of health.

The proposed project specifically enhances curricular development in the following manner.

1. It is evident that the emphasis on medical care in the region and in the nation is developing toward more extensive and more efficient use of outpatient clinic facilities. The economics of health care delivery and the need to stress health maintenance mandate clinical evaluation of the public in a milieu different from the traditional inpatient settings. The faculty and the Educational Policy Committee have on several occasions emphasized the need to develop more and better programs of outpatient teaching so that students will be better educated to utilize their professional skills in health care delivery in an era when increased, more efficient outpatient care will be stressed. The faculty has been severely hampered in developing new programs and expanding current programs in outpatient teaching because of the lack of suitable outpatient facilities. The development of widespread, intensive programs emphasizing newer, more efficient ways to deliver health care at the University of Minnesota Health Sciences has been thwarted by the lack of acceptable, integrated outpatient facilities which are efficient and which lend themselves to interdisciplinary teaching and patient care, health care maintenance, and cohesion among programs and specialties.

The Medical School, with the other Health Sciences, has designed facilities in the entire Development Program which are adaptable to interdisciplinary teaching and patient care. The proposed facilities, a further step in this concept, are an absolute necessity if the original intent of the faculty to expedite and improve interdisciplinary teaching at all levels is to become a reality.

Special programs with a specific emphasis on improving primary health care, such as the undergraduate and graduate program in Family Practice, will not thrive unless appropriate outpatient facilities are available to teach students at all levels the basic facts necessary to deliver primary health care.

Even with a curriculum which will stress outpatient care, it is impossible to teach students unless patients in adequate numbers are available. Although outpatient census is progressively rising, there

is serious doubt that the number of patients will remain consistent with the increased emphasis on outpatient teaching unless the proposed facilities, which are pleasant, efficient and convenient for the patient, are provided.

2. The curriculum strongly stresses the student as a learner of the art and science of medicine. Specifically the student is encouraged to develop self-learning capabilities. He is given ample free time to utilize techniques and develop attitutdes of self-learning which will be of extreme importance in his professional life. The tremendous growth of medical knowledge and the relative lack of time in practice to study mandate a program where the student learns to develop skills of efficient self-learning. This program falls far short in its practical realization because of the lack of appropriate facilities. A small learning center, which is heavily utilized by students at all levels, has been developed, but the provision of the facilities in the proposed project will allow a further needed expansion of this concept. It will allow the student to have not only the space necessary to develop these self-learning skills but will also allow the production and utilization of various audiovisual and other innovative self-learning and teaching modalities. The student of today not only has used these devices in the past but also must further develop the techniques of self-learning for the future. The proposed facilities will allow expansion and enhancement of this primary goal of the curriculum to develop in the student the technique of self-learning.

3. The accent in the entire curriculum upon small group teaching and tutorials has necessitated the provision of increased numbers of seminar rooms, adequately equipped. In addition, it is impossible at present to teach large groups of students in an area close to faculty and convenient for patients. The proposed facilities will provide facilities necessary to develop the basic teaching modalities of the curriculum.

4. It is essential to the viability of the curriculum and the ultimate health of the School that adequate central core facilities be established. Such facilities are necessary to teach all phases of the curriculum, including Basic Sciences, inpatient medicine, and outpatient clinical medicine. These core facilities allow the cohesion of a critical mass of students and teachers at all levels necessary for the appropriate interchange among learner and teacher at an institution as large as this Medical School. Fragmentation of student experience, breakdown of student-teacher communication, inefficiency of learning experiences, and inefficiency in the use of valuable time of instruction and study will be minimized by utilization of the facilities in the proposed project. The developing emphasis upon outpatient teaching and self-learning for the student necessitates the inclusion of the critical outpatient laboratory and the Learning Resources Center in the central core of facilities.

The graduate student curricula in the various clinical programs, besides the usual standard inpatient experience, are stressing outpatient care for many of the same reasons as outlined above. This is especially true of the specialties devoted to primary patient care. The proposed facilities will greatly enhance the ability of the graduate student to

develop good outpatient care techniques which will be of particular importance during his future professional experience. In addition, the specialties traditionally stressing learning in an outpatient setting, e.g., otolaryngology, dermatology, opthalmology, will be able to expand training capabilities when the proposed facilities become a reality.

Continuing education programs will be able to expand and diversify with completion of the facilities, which will provide seminar rooms and a large teaching auditorium. In addition, any capability for teaching of continuing education in an outpatient setting, e.g., in the primary care specialties such as Family Practice or Internal Medicine, will be greatly augmented.

At the University of Minnesota Medical School, the curriculum will not be changed when these facilities are complete. Rather the facilities are an absolute necessity if the developing, successful curriculum, recently established and enthusiastically accepted by faculty and students, is to achieve its potential and not languish.

Library Facilities

The Bio-Medical Library serves the Medical School, the School of Public Health, School of Nursing, and the University Hospitals, the School of Dentistry, the Minneapolis Campus of the College of Biological Sciences; and users of biological and medical library materials within the University as a whole. The Library encompasses, therefore, the entire range of the health sciences and contains strong supporting collections in the biological sciences as well. This has provided an enlarged resource for each of the fields or disciplines served by the Library. The School of Dentistry, like most of the other units, maintains a working library collection within the school, but in addition depends heavily on the total library resources for its own and related fields for in depth coverage of the literature.

The Library is conveniently located and accessible for all health science users. It occupies four floors in Diehl Hall, a multipurpose building adjacent to the Health Sciences complex and connected to it by tunnel. Two floors of the Library were completed in 1960, and two additional floors were added in 1964. The total amount of floor space allocated for library purposes is 82,901 square feet exclusive of mechanical equipment rooms. This provides seating space for about 750 readers and a shelving capacity of approximately 250,000 volumes. There is space for growth of the collection until 1975, and additional shelving space can be secured through remodeling and rearranging collections.

Library Statistics
July 1, 1970 - June 30, 1971

Collections	
Number of volumes.	211,795
Number of volumes added during the year.	6,687
Number of current periodical subscriptions.	2,507
Total number of serial titles received.	3,158
Staff	
Professional	10
Clerical	14
Student assistants (FTE)	12
Service	
Annual circulation.	119,737
Total attendance (turnstile count)	364,820

The Bio-Medical Library is part of the University Library system and can draw on all library resources within the University. These resources total approximately 2,600,000 volumes. Departmental libraries, particularly the Veterinary Medicine, Pharmacy, Entomology, and Chemistry Libraries, provide resources which supplement the Bio-Medical Library. Twice daily deliveries enable books and journals to be quickly and easily requested and delivered to and from other library units. Items which are not available on campus are usually secured either from the Mayo Clinic Library in Rochester which

totals more than 100,000 volumes and with whom we have a mutual agreement to provide next day service and free photocopy, or from the Midwest Regional Library located at the John Crerar Library in Chicago. Arrangements with local and out-state hospital libraries enable these libraries to obtain loans or photocopy from the Bio-Medical Library. A total of 7,228 requests were filled for local hospital libraries last year and 4,095 for other libraries. A statewide regional medical library system is presently being considered.

The Library is open 92 hours a week and provides full service whenever open. Trained librarians provide a variety of reference services to users, such as locating specific information or facts, locating and borrowing materials from other libraries, verification of citations, compilation of selected bibliographies, instruction in the use of library indexes and reference books, and providing MEDLINE computer-produced bibliographies using an on-line terminal. MEDLINE service is also being made available to all health practitioners within the State. Interlibrary loans, which are secured for patrons if the materials is not available in the Library or on campus, are transmitted to other medical libraries via teletypewriter and are usually filled by photocopy at no charge to the patron.

The Bio-Medical Library has been developing computer based operations for over four years. An automated system for handling all aspects of journal control went into operation in January 1968, and an acquisitions and accounting system was added in 1969. Plans are in progress to develop a total on-line system for the library including circulation, cataloging, and computer-aided reference.

Learning Resource Center

A Learning Resource Center was established in the Bio-Medical Library in 1970 to provide a variety of self-instructional materials, both print and non-print, primarily for medical students. The center contains 12 carrels for the use of audio tape and slides or filmstrips, tables for 52 readers, and space for the use of special equipment.

Summary of Statistics

Collections

Print:

Number of books.	460
Number of reprints.	410

Non-print:

Number of instructional programs.	197
Models and special learning devices.	6

Staff

Regular staff	1.5
Student assistants	1.4

Use

Number of A-V programs used/year.	6,500
Estimated total attendance/year.	32,500

Hours

Monday - Friday	8:00 A.M. - 11:00 P.M.
Saturday	8:00 A.M. - 5:00 P.M.
Sunday	2:00 P.M. - 10:00 P.M.

Equipment

9 carrels with slide projectors and cassette tape players.
3 carrels with filmstrip projector and cassette tape player.
taperecorders
8mm and 16mm projectors
transparency maker
teaching microscope
xray view box
autotutor teaching machine
computer terminal for programmed instruction
phonocardiosimulator
video tape playback unit and monitors

The center has a well balance collection of print materials which relate specifically to the curriculum. The audio-visual self-instructional collection is better developed for some areas of the curriculum than others and is steadily being expanded as new programs are developed or as appropriate materials are purchased.

Current use of teaching media:

Course Medium:	Time Used* Phase A	Phase B
Computer	0 - 10%	0 - 15%
Programmed Text	0 - 20%	0 - 40%
Films	0 - 20%	0 - 50%
Video tape	0 - 33%	0 - 29%
Closed circuit TV	0 - 10%	0 - 5%
Slides	0 - 50%	0 - 82%
X-rays		0 - 17%

*Estimates of ranges of percent of time used for courses of Phase A and B of the curriculum.

Appropriate data for Phase D of the curriculum, because of its elective nature and the large number of course options, is impossible to obtain for meaningful presentation.

Meaningful, appropriate data of self-instruction by media by faculty and students is also impossible to obtain since appropriate records are not available. Please refer to section on Learning Resources Center.

Educational Resources (Audiovisual) Systems and Facilities

The University has developed a new educational resources organization for improved University-wide coordination and management. Similarly, the Health Sciences have representative faculty developing a new audiovisual organization to be coordinated with the University's central operation. A coordinator for Learning Resources, for the Health Sciences is to be appointed around September, 1972. Final development and implementation of these two audiovisual organizations will improve substantially the efficiency of the audiovisual operation and the innovative use of educational resources within the Health Sciences.

The newly emerging curriculums in the Medical School and the other Health Sciences are designed to utilize more self-learning and small group teaching. More free time is being provided in the student's schedules for autotutorial instruction using print and non-print materials. The School has recently developed pilot-Learning Centers featuring the use of self-contained and electronic study carrels. The audio tapes, slides, and video tapes used for the teaching are being correlated with print materials.
Careful planning has been done for the Phase I construction program to develop integrated and coordinated educational resources facilities. Unit A will house most of the new lecture and siminar rooms which will have television origination and receiving and extensive use of other audiovisual media. The television central control center of some 2500 net square feet will be located in Unit A and will be the hub of the electronic distribution system in the Health Sciences complex. Electronic interconnection to lecture rooms, and departmental production areas will be controlled from this central point. The major teletape operation will be housed in the television central control room. This room will have interconnection capacity (likely by microwave) with affiliated hospitals and other health science centers in the region and could be a segment of any national system which might develop.

Included in the future Health Sciences audiovisual network and operation will be the Learning Resources Center to be built on the second floor of the Bio-Medical Library (Diehl Hall) and the seminar rooms, clinical teaching auditorium, and Medical Arts and Photography production area to be located in Unit C. These areas will be interconnected with the television control center in Unit A. The Medical Arts and Photography operation in Unit C will have facilities for producing audiovisual software and will have a television studio interconnected with the auditoria and seminar rooms in Units A and C and the control room in Unit A. This production area will be able to transmit live programs to the classrooms or instructional information as video-photomicroscipy and video-radiography. The Unit C auditorium is being designed primarily for lectures and demonstrations associated with clinical teaching in medicine including viewing of patients directly and via video magnification.

A Learning Resources Center of some 13,700 net square feet will be constructed in remodeled space on the second floor of the Bio-Medical Library (Diehl Hall). This center will be physically and operationally related to the library and conveniently located near the audiovisual production area in Unit C. Depending on final design, the Learning Resources Center will have some 250-300 self-contained and electronic audiovisual study carrels located closely with special areas for study of print and model materials. Some of the carrels will be equipped for video receiving including retrieval of computer stored information. Support areas in the Learning Resources Center will include the following: (1) Interaction rooms for student-faculty conferences, film previews, small group viewing of audiovisual or video materials, and student discussion groups. (2) Office and work space for the educational resources director and staff and the curriculum coordinators. (3) Audiovisual library. (4) Work space for preparing, previewing, and repairing audiovisual materials specifically used in the study carrels and space for storage and repair of equipment utilized in the study carrels.

The Medical School will be able to offer a much greater range of educational resources for their students when new and remodeled facilities are completed in the Phase I construction program. Obtaining these facilities is crucial and mandatory if we are to increase enrollment and develop innovative educational systems.

AVAILABILITY OF RESOURCES FOR CLINICAL STUDIES

EXISTING TEACHING BEDS

Service	Univ. of Minn. Hospitals	Hennepin County General Hospital	St.Paul-Ramsey Hospital	Veterans Admin. Hospital	Mount Sinai Hospital	Northwestern Hospital
Anesthesiology	4					
Clinical Research	11					
Dentistry	3					
Dermatology	8	5	1			
Family Practice	15					
Gynecology	38	12	16			
Medicine	125	138	94	352[1]	50[1]	125
Neurology	39	24	20	85		
Neurosurgery	31	4				
Obstetrics	24	31	26			
Ophthalmology	24	4	6			
Orthopedics	24	33	36			
Otolaryngology	16	6	8			
Pediatrics (general)	140	53[3]	69[3]			
Pediatrics (newborn)	31					
Physical Medicine (adult)	20		14*	40*		
Physical Medicine (peds)	20					
Psychiatry (adult)	59	20*	48	102*		
Psychiatry (peds)	18		12			
Radiation Therapy	5					
Student Health Service	23					
Surgery	131	59	103[2]	381[2]	45[2]	
Urology	23	10	26			
Nursery		24	20			
Other			36 (TB)			
TOTAL	832	423	535	960	95	125

1-Includes Medical Specialties 2-Includes Surgical Specialties 3-Includes Newborn
*Indicates combined total adult and child

OUTPATIENT VISITS

Service	University of Minnesota Hospitals 1971-72	Hennepin County General Hospital 1971	St. Paul-Ramsey Hospital 1971	Veterans Administration Hospital 1972
Audiology	3,990			
Clinical Psychology	1,664			
Dental Clinic	7,571	5,755	1,123	
Dermatology	4,165			2,128
Ear, Nose & Throat	8,515	4,640	4,136	3,119
Eye	18,745	8,630	7,759	5,014
Family Practice	2,560	4,722		
Medicine	14,239	24,922	19,216	23,317*
Neurology	7,058	2,974	2,948	1,862
Neurosurgery	3,767			1,270
Obstetrics and Gynecology	14,871	13,428	11,929	
Orthopedics	4,418	9,480	5,846	4,309
Pediatrics	15,874	16,923	11,336	
Proctology	1,163			1,270
Psychiatry	5,195	30,169		8,579
Surgery	5,276	12,849	6,902	6,398**
Urology	3,092		2,407	5,539
Cardiac	7,484			1,171
Emergency Receiving	18,979	82,230	61,708	
Physical Medicine & Rehabilitation				778
Vascular				884
Other		3,538(birth control)		48,248 (ancillary lab and support serv
TOTAL	148,626	220,260	135,310	113,886

*Includes medical specialties
**Includes surgical specialties

AVERAGE INPATIENT OCCUPANCY RATE

Univ. of Minnesota Hospitals	Hennepin County General Hospital	St. Paul-Ramsey Hospital	Veterans Admin. Hospital	Mount Sinai Hospital	Northwestern Hospital
1970-71	1971	1972	1972	1971-72	1972
73.7%	82.8%	63%*	77.1%	78.9%	80%

*First quarter average

At the University Hospitals there has been a significant trend towards a decreasing length of patient stay. An increased total number of admissions has resulted, however, in a stable occupancy rate. At the same time, more patients are being seen in the outpatient clinics. Both the decrease in length of inpatient stay and the increased number of outpatient visits reflect the concern of Medical School faculty to provide efficient and economical health care delivery.

Training Courses in current shortage disciplines

Physician Augmentation Program

In September 1970, the University of Minnesota Medical School commenced a major program of enrollment expansion in conjunction with the national emphasis during that year on the Physicians Augmentation Program through the Special Projects Grant program of the National Institutes of Health. Documentation of the Medical School's very substantial increments in numbers of entering medical students, graduates, and total medical student enrollment is provided in detail in the tabular data recorded earlier in this application. The program of expansion of Medical School enrollment will continue through the 1973-74 academic year, during which the fourth succesive class of 227 first-year students will be enrolled.

The considerable magnitude of this large enrollment increase, requiring the rapid marshalling of significant additional resources in personnel, facilities and funding, is emphasized by several statistics and comparisons. As of September, 1969, the base figure for entering medical class size at the University of Minnesota was 162. The increment of 65 additional entering places in the fall, 1970 freshman medical class represents an impresive 40% augmentation in a single year on the input side of an already relatively large institution devoted to high quality physician education. By absorbing this increment, this one medical school accounted for 7% of the total increase in entering medical students in all United States medical schools for the year 1970 (there were 938 new places in the nation's 1970 entering medical class). That increment of 65 students in the University of Minnesota Medical School's entering class represented the largest class increase by any one medical school in 1970, as well as the largest increment funded through the Physician Augmentation Program for that year, and exceeded the total increment that year for all other state-supported medical schools in Big Ten institutions. Clearly, this augmentation program initiated at Minnesota in 1970 represents a major contribution by one institution in "significantly increasing the supply of adequately trained personel in the health professions needed to meet the health needs of the Nation".

The Medical School Physician Augmentation Program was not conceived or launched in isolation from the broader obligation of the University of Minnesota to supply a spectrum of extensive health science education programs. Beginning in 1966, the University of Minnesota commenced an extensive, long-range, ongoing, comprehensive program of planning and development for all health science educational programs at the University, now incorporated within the Health Sciences Center. The program envisioned substantial increments of entering places and enrollment of all of the major health science professional fields by 1973. This plan for expansion of the Health Sciences was dependent on and closely related to a comprehensive physical facilities development program first presented in broad outline to the Minnesota State

Legislature in Spring, 1967. At that time, it was proposed that the Medical School entering class would increase to 200 students by 1973, as one major component of an overall increase in all health sciences students to approximately 5,200 by 1973. The total numerical base of all health sciences students in 1967 was 3,500. The target date of 1973 was selected as the projected time of completion of the first major new building in the long-range physical facilities development program. At this point in time that large construction program remains essentially on its original schedule. With the advent of the Physician Augmentation Program under the Special Project Grant program in 1970, and having the assurance of vitally-needed, expanded teaching facilities within three years, the Medical School faculty and administration proposed to move forward the planned enrollment expansion by 3 to 5 years. There were two strongly motivating considerations which propelled the University of Minnesota forward in this Medical School enrollment project. These were:

1. The realization that a disturbingly large number, probably about 100, of qualified Minnesota resident students aspiring to careers in medicine were being declined admission due to limitations in the number of available places in the entering class. These qualified young persons were thus being unfairly denied fulfillment of their legitimate professional career objectives at a time when the state and nation were calling insistently for more physicians.

2. A well-documented shortage of physicians, both in the nation and the Upper Midwest region, demanded earlier heroic efforts of enrollment expansion on the part of Medical Schools able to respond to the pressing needs for more physician manpower.

This substantial expansion of Medical School enrollment and contribution to the supply of trained physicians, as a portion of a larger Health Sciences expansion program at the University of Minnesota, will continue during the decade of the 1970s. The specific enrollment projections for medical students through 1975-76 are tabulated elsewhere in this application.

Program in Family Practice and Community Health

In 1967, the University of Minnesota Medical School established a training program in Family Practice and Community Health as a Division in the Department of Medicine. The first director of the Division was an experienced general internist with strong interest and considerable background in primary health care and medical education. Later, as the program developed concomitantly with extensive consultation with representatives of the Minnesota Academy of General Practice, it became apparent that new educational leadership needed to be developed from the ranks of general physicians experienced in personal primary health care. In March, 1971, Dr. Edward Ciriacy, a past-

president of the Minnesota Academy of General Practice and a family physician in a northern Minnesota community for 15 years, was appointed administrative head of the unit. Earlier, in November 1968, the Program in Family Practice and Community Health had been elevated to full departmental status within the Medical School. The Department now includes 12 full-time faculty members housed within the University of Minnesota Health Sciences Center and operates a primary, comprehensive health care clinic, called the Family Practice Clinic, in the outpatient section of University of Minnesota Hospitals.

The Department of Family Practice and Community Health has a sound financial base for support of its several educational programs, having received special legislative appropriations from the State of Minnesota of $616,100 for fiscal year 1972 and $724,700 for fiscal year 1973. In addition, there are affiliated semi-autonomous new teaching programs in family medicine at two nearby, large county hospitals having major affiliations with the University of Minnesota Medical School, Hennepin County General Hospital and Saint Paul-Ramsey Hospital.

The Department of Family Practice and Community Health is heavily involved in several instructional programs, both undergraduate and graduate (residency) training. The faculty participates in all three phases of teaching in the M.D. curriculum, beginning with the course on Introduction to the Patient and Clinical Medicine in the first weeks of Phase A. Several Family Practice instructors provide tutorial instruction in the "Student As Physician" segment of Phase B during the second year. One of the six pathways or tracks available for selection and emphasis in the completely elective program of Phase D (third year, fourth year) is entitled "Family Medicine" and is under the direction of faculty advisors in the Department of Family Practice and Community Health. Approximately 50 students of 190 in the 1971-72 Phase D class have selected the Family Medicine pathway as the major special focus for constructing their elective sequences in Phase D, either 3 or 5 quarters in length.

Family Practice and Community Health is the primary base for the highly innovative Rural Physician Associate Program launched in September, 1971. Through this project, 21 third year medical students are spending twelve months in 1971-72 as associates in the medical practices of primary care physicians or groups in 19 non-urban communities. Receiving two quarters of elective credit, and periodically monitoring by visiting Medical School faculty members, these Physician Associates will return to the Medical School in 1972-73 for a final three quarters of elective "tracking" in Phase D of the four-year curriculum before receiving their M.D. degrees in June 1973. Funded by a special legislative grant, the Rural Physician Associate Program will expand to accomodate 40 student participants in 1972-73.

At present, the Department of Family Practice has the largest graduate training program in the United States. About seventeen percent of all first year residents, participating in the Family Practice matching program, will be enrolled in the program at the University of Minnesota in 1972-73.

Clinical Pharmacy

The University of Minnesota College of Pharmacy's curriculum emphasizes education of the student in the clinical setting. A prime emphasis is placed on patient contact, interacting and counseling. Toward this end, the pharmacy located in the new outpatient facility is designed with several patient counseling booths. Pharmacy students enrolled in the clinical sequence will interview outpatients taking a patient drug history. They will develop a "patient drug profile" from this history. Current prescriptions brought to the Pharmacy by the patient will be reviewed by the student for potential interactions or incompatibilities. The patient will be advised by the student how to self administer his current prescription drugs and potential side effects to watch for. The College of Pharmacy believes that experiences of this type are essential to the development of the well-trained clinical pharmacist.

Interdisciplinary Training

One of the primary objectives of the establishment and organization of the Health Sciences Center at the Unviersity of Minnesota was the encouragement of interdisciplinary training among the various Health Sciences. A Health Sciences Educational Policy Committee composed of faculty from the Health Sciences Schools, is currently reviewing the manner in which interdisciplinary training at the University of Minnesota may be augmented and is developing new programs of interdisciplinary training. One example of a program which stresses this concept is the course, "Interdisciplinary training in health care delivery". It is designed to provide behavioral evidence of the reality of the Health Sciences concept by making it a significant part of the curriculum content of the various schools making up the Health Sciences complex. The objectives of the course are as follows:

1. Operational evidence of Health Sciences interdisciplinary education programs.
2. Increased knowledge of students in health disciplines of each other.
3. Increased ability of students for interdisciplinary relations and planning.
4. Ability to develop concrete programs for health care delivery systems.
5. Involvement of the student in his own curriculum.
6. Involvement of the student in his own evaluation process.
7. Opportunity for feed-back to various Health Sciences faculty for future curriculum planning.

It is planned that between 150 and 180 students coming from at least 14 different disciplines, including the six major Health Science disciplines, plus various representatives in the School of Public Health, Social Workers, and Psychologists will participate.

The course will start in the beginning of the academic year in September and run for three quarters. Training in group dynamics and teamwork will be stressed early in the course. A series of topics discussing various problems of health care delivery systems will be presented by various student teams. A pretest and final test will be part of the evaluation of the course. It is hoped that the course will provide a basic building block for the Health Sciences concept and develop a model which can be copied by other Health Sciences units.

Another example of interdisciplinary training at the University of Minnesota is the nurse-practitioner program developed in cooperation with the School of Public Health and the Department of Pediatrics of the Medical School. Grant support from the Public Health Service provides special training in Pediatric techniques to qualified registered nurses in order for the nurse to carry out, on an independent basis, many duties of the pediatrician, especially those related to well-baby care. This program is in its second year and has been highly successful.

Distribution of Health Professions personnel

The unique Rural Physician's Associate Program was developed by the University of Minnesota Medical School as a step toward relieving the shortage of physicians in rural areas and small towns in Minnesota. This is to be accomplished by providing interested medical students with extensive exposure to clinical medicine in smaller communities under the direct guidance of physicians who are in practice in these communities. During his year as a Physician Associate, the student will relate with, and contribute to, the care of a population of patients in a community at the same time that he learns the principles of primary health care delivery and medical practice.

The Program enables students, at the completion of their second academic year, to obtain one year or more of experience and training as Physician Associates in small communities of their choice. This will be carried out under the guidance of a physician or group of physicians selected for their interest in medical education and ability to relate to and teach students. The students are selected for their basic interest in eventually practicing medicine in a smaller community. In the simplest terms, the Program will provide the student with an opportunity to see and experience life as a physician in a non-urban community.

This should increase the number of physicians and encourage the medical student to locate in geographically isolated areas of the Upper Midwest - particularly Minnesota, Wisconsin, Iowa, and the Dakotas. Dakota transfer students, in particular, may be sent back to the Dakotas with practicing physicians interested in teaching as extended faculty from the Department of Family Practice and Community Health in the University of Minnesota Medical School.

This program provides traineeships for full-time medical students to obtain part of their education under a preceptor in family practice, pediatrics, and internal medicine in rural and geographically isolated areas of our region.

The medical students work closely on an ongoing continuous primary comprehensive preventative basis with the population cared for by the physicians, nurses, pharmacists, and other health professionals and workers in a team approach to delivery of health and disease care.

From our present experience in the Department of Family Practice and Community Health, we now have 24 medical students in the field for one year with rural physician groups. We have 50 senior medical student applicants wanting to go out in August, 1972. We have tentatively accepted 40 students with 10 alternates.

From five months' experience with 24 students, we estimate 70% or more will return to similar communities of this region upon completion of their training to become primary pediatricians, internists, or family physicians. There are 240 senior medical students in our school. We believe at least one-half of the class is interested in primary care - in either rural or urban Minnesota and the surrounding region. This program exposes the students to a continuous primary preventative comprehensive health and disease care not seen in our Health Sciences and Medical School and focuses on areas of geographical isolation and great need.

One senior medical student (in Marshall, Minnesota) is teaching nurses intensive care techniques, working closely with a physician group as a preceptee. All are working closely with the numerous other health professionals and workers such as hospital administrator, pharmacists, record librarians, clinic managers, etc. They are becoming experienced and comfortable in the team concept technique of delivering care to the population.

This program should reduce the time necessary to complete a residency in Family Practice by 6-12 months.

In addition, the Department of Family Practice sponsors a six week elective course of preceptor training for medical students in extramural practice settings.

The Rural Physician's Associate Program is now functioning under the sponsorship of the University of Minnesota Medical School. It is being implemented, operated, administrated, and evaluated through a collaboration between the Medical School Administration and the Department of Family Practice and Community Health. High interest by medical students and practicing physicians of the rural areas permits easy recruitment and implementation.

The administrative unit responsible for the program at present is the Department of Family Practice and Community Health of the Medical School.

Evaluation is now being carried out in a number of areas as described below:

A. Attitudes will be observed before and after the experience by an Attitude Questionnaire rating 25 expectations and attitutes (Exhibit B).

B. Knowledge will be assessed in all major specialty areas of pediatrics, medicine, obstetrics, surgery, otolaryngology, family practice, and psychiatry by a 400-multiple choice question test to be given before and after the student's experience.

C. Skills will be documented and levels of responsibility in common diseases and procedures in broad primary care will be documented by the student on an ongoing basis (Exhibit C, Curriculum Booklet).

D. Monthly (or more often) visits by the Program Director, staff, and Medical School faculty will assess progress of student.

E. All data will be evaluated by an educational psychologist and the program director.

F. Outcomes of the student's choice of career and location will be followed on an ongoing basis.

Studies from the Hill Family Foundation study, Health Manpower for the Upper Midwest, published in 1966, demonstrate that generally greater than 50 percent of the Minnesota medical alumni practice in Minnesota, as compiled from data through 1959. Additionally, another smaller group of Minnesota alumni practices in the Upper Midwest area and makes a substantial contribution to the total physician forces of the three state area, North Dakota, South Dakota, and Montana. Data for 1960 through 1965 are not available. However, there is evidence to suggest that this geographic distribution of Medical School alumni has remained relatively constant through 1965, since in the year 1965, 56 percent of all of the physicians in Minnesota were trained at the University of Minnesota School of Medicine. The same figure for 1960 was 56 percent and for 1950, 64 percent. According to the Hill Family Foundation study, one of the major contrubuting factors to retention of Medical School alumni in the state is the availability of postgraduate training courses in the state. Another indication of the stabilization and perhaps improvement in the number of alumni practicing in the state and the region, has been the net increase in the number of physicians taking postgraduate training in Minnesota as compared to those leaving the state for internship and residency training. It is anticipated that the increase in graduate training programs, the preceptor training in Family Practice, and the Rural Physician Associate Program, will strongly influence the graduates of the Medical School to practice in the state and the Upper Midwest region.

Health Professions Auxiliary Training

An objective of the Health Sciences is to promote expanded training opportunities for health porfessions auxiliaries. To this end, a Coordinator for Allied Health Programs, attached to the office of the Vice President for Health Sciences, has been appointed recently. He is currently working with a committee of Health Sciences faculty to ascertain ways to increase the scope of training programs and the numbers of these personnel.

For some years the Medical School has conducted baccalaureate and masters degree programs in Medical Technology, Occupational Therapy, and Physical Therapy. These programs enroll about 120, 60, and 60 students respectively. The programs are located on the Health Sciences campus. Faculty of the Medical School are extensively involved in the instruction of these students both at the level of Basic Sciences and clinical experiences. It is anticipated that enrollment of students in Medical Technology will increase to 150 by 1975. Occupational Therapy student enrollment will increase to 65, and Physical Therapy enrollment will rise to 110 in the mid to late seventies.

In September 1971, the Department of Psychiatry, in co-sponsorship with the General College, introduced a two-year curriculum in mental health leading to an Associate of Arts Degree. The primary purpose of this curriculum is the upgrading of middle level mental health workers to provide increased skills in the mental health service for the State of Minnesota.

The Human Services Generalist Program was planned in consultation with representatives of a number of Twin City area mental health facilities and with the National Institute of Mental Health. It is designed to implement and evaluate the training of mental health workers in a two year college curriculum utilizing the various colleges of the University, consisting of courses in arts and sciences, specialized courses in mental health and supervised practicum experiences. The program is expected to graduate approximately 30 students per year.

The General College of the University of Minnesota and the University of Minnesota Hospitals School of Radiologic Technology jointly sponsor a program of training leading to certification and registration in radiologic technology and an Associate of Arts Degree. The program meets the educational requirements for certification by the American Registry of Radiologic Technologists as well as the standards of the American Medical Association. This is the first program in the State of Minnesota in which the radiologic technologist can acquire a greater academic background through a General College program. The course was established for students who wish to receive some education in basic Arts and Sciences beyond that required by the American Registry of Radiologic Technologists and to be recognized for it by having an Associate of Arts Degree from the University of Minnesota. The program

is an optional program open to anyone who wishes to pursue its goals. It is the primary intent of this program to provide competent, knowledgeable technologists who will fill a needed role in the community. Clinical experience will not be replaced by academic instruction, but rather academic instruction will be upgraded to include courses from the liberal arts and science areas, to provide the individual with a wider educational experience. The broad training obtained throughout this program enables the graduate to qualify for positions requiring general or specialized radiologic technology experience in various types of radiological settings. Approximately 20 students graduate as radiologic technologists per year. This number is expected to increase to 40 by 1975.

Regional Planning and Coordination

The faculty of the Health Sciences and Medical School are quite active in leadership roles in the various regional planning groups. Dean Lawrence C. Weaver of the College of Pharmacy is chariman of the Advisory Committee to the Minnesota Comprehensive Health Planning Program 314(a) and Dean Lee D. Stauffer of the School of Public Health and a member of the Medical School faculty, is a member of the Metropolitan Health Board, the Twin Cities metro 314(b) agency. Mr. John Westerman, Director of University Hospitals is President of the Minnesota State Board of Health. These faculty provide leadership in the Schools planning programs through liaison with the Council of Deans and Directors of the Health Sciences and various members of the Medical School faculty.

The University of Minnesota Health Science Center's participation is Northlands Regional Medical Program (NRMP) is extensive. As one of the nine-member Board of Trustees, the University is a grantee, and Dean Lee D. Stauffer of the School of Public Health is chairman of the Board of Trustees. Doctor Michael M. Paparella, professor and head of the Department of Otolaryngology, is the University's representative to the Regional Advisory Group. Northlands Regional Medical Program core staff at the University are under Associate Director William R. Fifer, M.D., professor of medicine. The University Division employs four full-time equivalent persons, and has an annual budget of about $150,000. Doctor Fifer and his staff have established a statewide system of medical audit in community hospitals to enable physicians to determine their continuing education needs, and relate closely to the Office of Postgraduate Medical Education to respond to those needs. Through short-term project contracts, NRMP funds additional activities in the Health Sciences totaling about $250,000 annually. Examples of these are library services, dial access tape cassettes, development of nurse-clinician programs, and pilot model health systems.

The Medical School is deeply involved in regional health programs in specific areas, such as the statewide system of Emergency Medical Care, and the regional chronic dialysis/kidney transplant network, cooperatively with NRMP. In addition, the Medical School is deeply involved in the planning of a comprehensive statewide system of Area Health Education Centers (AHEC) in which it, as a Health Science Center, establishes linkages with six AHEC's geographically distributed throughout the state.

Finally, the Medical School is actively engaged in health service delivery to an inner city Indian population through the Community-University Health Care Center, and planning to serve the inner city elderly disadvantaged through the Cedar-Riverside Health Services Project, to mention but two examples.

We have enclosed comments from the section 314(a) agency. We enclose also a "letter of intent" sent to the 314(b) agency, the Health Board of the Metropolitan Council. The Council is now reviewing the proposal and comments should be received about August 1, 1972. This review process is being carried out in compliance with "Regulations for Certificate of Need Act," Chapter #628 of Minnesota Statutes, 1971. Health facilities construction in Minnesota cannot proceed without a "Certificate of Need" issued by the State Board of Health upon recommendation of the 314(b) agency. The University of Minnesota Outpatient Facilities program was reviewed and approved in April 1969 by the voluntary planning agency of the metropolitan area, "Metropolitan St. Paul and Minneapolis Planning Council." This agency was the predecessor of the present 314(b) agency.

STATE OF MINNESOTA

STATE PLANNING AGENCY
802 CAPITOL SQUARE BUILDING
550 CEDAR STREET
ST. PAUL, 55101

Wendell F. Anderson
GOVERNOR AND
STATE PLANNING OFFICER

Gerald W. Christenson
State Planning Director

May 22, 1972

Vice President Lyle A. French
Health Sciences Affairs
424 Morrill Hall
University of Minnesota
Minneapolis, Minnesota 55455

Dear Dr. French:

The Advisory Council of the State Comprehensive Health Planning Agency adopted the position given below at its meeting May 17, 1972.

> The Advisory Council of the State Comprehensive Health Planning Agency is familiar with the proposed expansion of the University of Minnesota Health Sciences Center. They encourage the emphasis being placed on the health team approach and the additional involvement with the community by the Center. The proposed expansion is not in conflict with programs being developed by the state agency.
>
> Units A and F are facilities for dentistry and pharmacy, respectively. They are the only schools for these professionals in the state. The need for these facilities is recognized by the Council, and they strongly support their development. The BC unit is for medicine and is likewise supported. However, the Council recognizes that certain parts of the BC unit are subject to Certificate of Need legislation to be evaluated by the appropriate "b" agency.

We recognize the efforts of the University of Minnesota Health Sciences Center to assist in improving health care for all Minnesotans in particular and citizens in the upper midwest in general.

Sincerely yours,

Lawrence C. Weaver, Chairman

UNIVERSITY OF MINNESOTA
TWIN CITIES

University Hospitals
Minneapolis, Minnesota 55455

May 30, 1972

Mr. Richard Slade
Chairman
Metropolitan Health Board
300 Metro Square Building
7th and Robert Streets
St. Paul, Minnesota 55101

Re: Letter of Intent - University of Minnesota Health Sciences
Building B-C Outpatient Facilities

Dear Mr. Slade:

The University of Minnesota Hospitals are proceeding with building plans for a new outpatient facility. This facility, part of the expansion of Health Sciences educational facilities at the University of Minnesota termed Building B-C, is planned for replacement of present outpatient clinics now located in the Mayo complex of the University of Minnesota Hospitals and to provide shell space for future expansion of medical school departments.

The ambulatory care portion of the health sciences program has been given top priority in the building program. A certificate of need has already been issued for an emergency room project. The total program was first presented to the 1967 building commission of the state legislature. Because the clinical portion of the project was not in the first phase, the Metropolitan Hospital Planning Agency did not review the program until 1969. The study committee report for building B-C was approved by the Hospital Technical Advisory Committee and the Planning Agency Board. When the certificate of need legislation was passed it was agreed that the B-C project should be resubmitted prior to federal grant funding. Because we are now prepared to submit an application for federal funds, we should like to present the B-C proposal for consideration at this time.

The building will house the general and specialty outpatient clinics of the University Hospitals and is designed to accommodate an outpatient population which is growing at a rate of 10-15% per year. The total building is composed of 524,000 gross square feet of which 196,970 square feet gross will be completed in the first phase. This phase in addition to outpatient clinics and remodeling includes also space for laboratory research and auditoria, classrooms and seminar rooms for medical students. Preliminary estimate of project cost is $30,000,000.

The Health Sciences Center and the Medical School of the University of Minnesota are making application to the Division of Physician & Health Professions Education, National Institutes of Health, for assistance in construction of this health professions educational facility. The application will be submitted by June 15, 1972 for review by the National Advisory Council on Health Professional Education at the August 1972 Council Meeting. The request for federal funds will approximate $12,000,000. It is anticipated that the remainder of funds will be provided by the State of Minnesota from legislative appropriation and from private donations.

If the National Institute of Health Application is successful, and matching funds are appropriated by the State legislature, we would intend to begin construction of the facility in September 1973. [A detailed proposal is being prepared and will be submitted shortly.]

Sincerely,

John H. Westerman

John H. Westerman
General Director
University of Minnesota Hospitals

JHW:db

Interinstitutional Participation in Training Programs

The Basic Science faculty and curriculum coordinators of the Medical School have provided liaison and consultation with the faculty of the newly developing Medical Education Program, University of Minnesota-Duluth. There has been widespread interinstitutional communication and cooperation on admissions among all of the three Minnesota State Schools, the Medical School in Minneapolis, in Duluth, and the Mayo Medical School in Rochester.

For some years, the Medical School has had a transfer commitment to accept at least nine students each from the North Dakota and South Dakota Medical Schools. In addition, the Medical School has a commitment, starting in 1974, to accept the entire transfer class of twenty-four from the two-year school at the University of Minnesota-Duluth.

The Medical School has agreed to participate in a program supported by a Hill Family Foundation grant to Meharry Medical College in Nashville. Funds have been provided for the purpose of providing transportation and maintenance for visiting faculty members from the medical schools in the Hill Foundation's geographic area (including Minnesota) to serve as guest lecturers at Meharry Medical College. A second portion of the grant would provide support for six Meharry medical students to have summer extern, elective or fellowship experience at the University of Minnesota Medical School.

The legislatures of Minnesota, North Dakota, and South Dakota have established a Midwest Board for Medical and Allied Health Education for the purpose of interstate cooperation for facilitating transfers of Health Science students. This Board is composed of legislators and representatives of the various Health Sciences Schools involved from the three states.

Team Approach: Health Care Delivery

One of the basic, major objectives of the Health Sciences organization at the University of Minnesota is to encourage and develop concepts of the team approach to health care delivery. The extensive, centralized planning effort of the Health Sciences Development Program with its integrated Health Sciences educational facilities is an outstanding example of this approach. The illustrative programs described under the section, interdisciplinary training, are indicative of those which stress the team approach to health care delivery.

Specific research in health care delivery in the Medical School includes programs under the auspices of the Department of Family Practice. For example, the department is undertaking an in-depth medical and sociological study of a small community in Minnesota in an attempt to determine what kind of health care professionals and how many might be necessary to provide optimal health care in this prototype rural community. A field study of health care in army reserve training centers during summer camp will be undertaken to determine some of the sociological and psychological factors responsible for consumer choices of health care professionals. Various physicians, nurses and other health professionals, sociologists, and psychologists are performing studies of health care delivery currently in the clinical setting in the Department of Family Practice. The medical students, participating with other Health Sciences students, are intensely interested in this area and are actively engaged in programs of health care education for consumers. The very active organization of Health Science students, known as CHIP (Council for Health Interdisciplinary Participation), has sponsored numerous highly affective student projects in health care delivery and consumer or student education. These include programs on venereal disease education for secondary school students, several free community clinics, and minority-disadvantaged student recruitment.

The Health Sciences Development Program, including Unit B/C, has been designed to encourage interdisciplinary teaching and the team approach to health care delivery. When completed, the various teaching units of the Health Sciences will be closely integrated in facilities which provide optimal interchange among various Health Sciences faculties and students leading to increased interdisciplinary cooperation in health care delivery. The outpatient facilities are particularly adapted by the nature of their modular arrangement to programs of interdisciplinary health care delivery. The Family Practice Clinic is specifically designed to promote this concept, with space to be provided in that unit for various health professionals and supporting personnel such as sociologists and psychologists. The evolving programs of the Health Sciences in the team approach to health care delivery will be greatly augmented by the provision of the B/C facilities, which in their design integrate the Health Sciences and provide the appropriate settings in which to do

applied research in health care delivery. In addition, the facilities, because of their flexibility, will be adaptable to any evolving system of interdisciplinary or team approach to health care maintenance, disease prevention, and correction.

Composition of Student Body

Number of Qualified Applicants for Admissions

Year	No. of Applicants	No. of Admissions
1971-72	1653	227
1970-71	974	227
1969-70	833	168
1968-69	619	164
1967-68	643	162
1966-67	639	160

Geographic Distribution of Students Enrolled, Current Year

Phase A		Phase B	
Minnesota	203	Minnesota	187
Bombay, India	1	California	3
California	2	Hong Kong	1
Georgia	1	Illinois	6
Hawaii	1	Idaho	1
Hong Kong	1	Indiana	2
Illinois	1	Kenya, Africa	1
Iowa	1	Mississippi	2
Maryland	1	Michigan	3
Mississippi	1	Montana	4
Montana	1	New Jersey	1
Massachusetts	2	New Mexico	1
Nebraska	1	New York	3
New Jersey	1	Ohio	1
North Dakota	1	North Dakota	2
New Mexico	2	Pennsylvania	1
South Dakota	2	South Dakota	3
Tennessee	1	Virginia	1
Utah	1	West Virginia	1
Washington	1	Wisconsin	1
Wisconsin	6	Wyoming	1
Total	232	Total	226

Geographic Distribution Continued

Phase D	
Minnesota	143
California	1
Hong Kong	1
New Jersey	2
Massachusetts	1
Mississippi	1
Montana	1
New Jersey	2
North Dakota	21
Pennsylvania	1
South Dakota	6
Wisconsin	4
Total	184

Graduating Class	
Minnesota	180
Bangkok, Thailand	1
California	2
Connecticut	2
Illinois	5
Indiana	1
Iowa	1
Michigan	1
Mississippi	1
Montana	1
North Dakota	13
Oregon	1
New Jersey	1
Panama	1
South Carolina	1
South Dakota	1
Sumatra, Indonesia	1
Virginia	1
Wisconsin	3
Total	218

Geographic Distribution of Students Enrolled in the Preceeding 5 Years

Graduates of 1967	
Minnesota	129
Arizona	1
California	4
Connecticut	1
Illinois	6
Indiana	1
Kansas	1
Montana	1
New York	2
Nevada	1
North Dakota	2
Oregon	1
South Dakota	2
Utah	1
Wisconsin	3
Total	157

Graduates of 1968	
Minnesota	130
California	1
Florida	1
Illinois	2
Korea	1
Mississippi	1
Montana	3
Massachusetts	1
New York	3
North Dakota	4
Oregon	1
Pennsylvania	1
South Dakota	2
Wisconsin	2
Total	153

Graduates of 1969	
Minnesota	138
Delaware	1
Illinois	3
Indiana	1
Korea	1
Montana	2
Nebraska	1
North Dakota	10
Pennsylvania	1
South Dakota	1
Wisconsin	4
Total	162

Geographic Distribution continued

Graduates of 1970	
Minnesota	153
Illinois	1
Iowa	1
Montana	3
Nevada	1
North Dakota	11
Nebraska	2
Oregon	1
South Dakota	3
Virginia	1
Wisconsin	4
Total	181

Graduates of 1971	
Minnesota	161
Athens	1
California	1
Canada	1
Iowa	2
Latvia	1
Michigan	1
North Dakota	6
Ohio	1
South Dakota	3
Washington	1
Wisconsin	2
Zanzibar	1
Total	183

Number of Medical Students from Minority and Disadvantaged Groups

Year (All Classes)	Total Number Enrolled
1971-72	45
1970-71	27
1969-70	12
1968-69	11
1967-68	3
1966-67	2

School Name University of Minnesota Medical School
Academic Year 1971-72

Class Year	SEX		ETHNIC BACKGROUND				
	Male	Female	Black	American Indian	American Spanish Surname	Asian Americans	Other
1st	200	26	11	0	3	3	0
2nd	205	21	8	4	1	1	1
3rd	169	19	1	0	0	3	0
4th	164	15	0	0	1	3	1
Post Grad							

Admissions Policy

There have been no appreciable changes in admissions policy for the Medical School within the last five years except for an increased emphasis upon recruitment of minority or disadvantaged students which is discussed in a separate portion of the grant proposal.

Since the Medical School is a state supported institution, the School has felt the primary obligation to accept legal residents of the State. This year over 90 percent of the accepted students are legal residents of the State; residents of one of the states in the area where there is no four-year medical school (South Dakota, North Dakota, Montana, and Wyoming); those who have had previous residence in the state or have attended college in the state. These residency requirements have not applied to minority applicants.

A real, substantive change in the admissions program has been related to the increasing number of applicants, with a corresponding increase to over-all qualifications of the applicants. There appears to be no shortage of qualified Minnesota or non-resident applicants to the School.

Each year the School has admitted a somewhat higher percentage of women who have applied compared to the men applicants. In each year's class there has been a somewhat higher percentage of women in the class proportionate to the number that applied than that of men.

The Medical School has maintained an agreement with the two-year Medical Schools at North Dakota and South Dakota, wherein at least nine transfer students from each school are accepted at the University of Minnesota Medical School for the clinical training portion of the curriculum.

Increased enrollment and retention of financially or educationally disadvantaged individuals.

The University of Minnesota Medical School has conducted for several years an increasingly effective program for recruitment and education of disadvantaged students. Although the program was initially designated as concentrating on disadvantaged students, within two years from its inauguration, the designation was changed to "Special Educational Program for Minority Students". The committee active in this field felt that the most urgent priority for action among disadvantaged groups resided in the pressing social, economic, and educational problems of minority persons. Prior to the advent of this recent program, the Univeristy of Minnesota Medical School had graduated no more than a dozen black physicians in the last half century.

Concern for the Medical School's role of providing educational opportunities for minority students in medicine and other health professions was expressed increasingly among faculty and students in 1967-68. In fall 1968, a committee of the Executive Faculty of the Medical School was asked to develop a proposal in this field for early consideration by the faculty. That proposal, presented to the Executive Faculty in April, 1969, outlined an extensive program calling for the encouragement, recruitment, admission, counseling, and financial support of minority individuals for medical education at the University of Minnesota. The program was adopted unanimously by the Executive Faculty in spring of 1969 and the implementing committee was modified to include adequate participation by students, persons from minority groups, and specially knowledgeable consultants.

Quantitatively, the program for minority students was not able to accomplish significant gains in the entering medical school class of 1969, since the time of inauguration of the program a few months earlier was too late to permit effective recruitment for that class. Substantial advances were made subsequently, resulting in the enrollment of nine such students in September, 1970, entering class and fourteen in the present first-year medical student class for 1971-72. Most of the students are blacks, although a few are from American Indian and Mexican-American origins. In October 1971, the Executive Faculty of the Medical School accepted and approved a progress report of the Committee on Minority Students, including the recommendation that the Medical School should accept for admission in September 1972, to the extent that qualified applicants are available, approximately 23 students from minority groups. This number would represent about 10 percent of the entering freshman medical class, a level which the committee considers an appropriate goal to sustain for the next few years. The attrition rate of students in the program has been relatively small, less than 10 percent.

In 1969, the Medical School joined forces with the School of Dentistry in a joint program for recruitment and education of disadvantaged students in these two health professions. Emphasis has been placed on both a short-range and long-range program directed toward the special socio-economic and educational problems of the American Indian, since the State of Minnesota contains a relatively large population in this category. An inner-city area of Minneapolis, only a few miles from the site of the Health Sciences Center, is frequently cited as containing the largest urban concentration of American Indians in the United States. The two health science units, medicine and dentistry, through their expanded joint student-faculty committee, applied for and received one of the several subcontract grants from the Office of Economic Opportunity administered by the Association of American Medical Colleges for establishment and promotion of minority student programs in the health professions. Utilizing local consultants and experienced workers among American Indians and

other minority populations, the program has provided a channel for contacts, encouragement, dissemination of information, and recruitment for health professionals fields among local minority groups. Through additional grants from the Minnesota Medical Foundation during the summers of 1969, 1970, and 1971, minority high school students have been placed in laboratories of research investigators in the Medical School and other health sciences. This facet of the program, spearheaded by two imaginative and dedicated Medical School faculty members, has been labeled "Career Opportunities in the Health Sciences (COHS)." Since the development of a coordinated administrative structure for all health sciences at the University of Minnesota beginning in July, 1970, the entire program for education of disadvantaged and minority students has been placed under a representative health sciences-wide committee of faculty, students, and appropriate consultants and advisors. The Medical School committee continues to play a leading role in that coordinated activity.

In addition to the salutory effect the proposed facililites will have upon the Medical School curriculum in which the minority or disadvantaged student participates, the facilities will be vital to the particular enhancement of the academic career of these students. Many of these students, because of their disadvantaged educational background, have learning difficulties. The provision of appropriate learning resources facilities where these students can utilize various learning modalities, in conjenction with personal attention from faculty and other students, will help to insure a satisfactory Medical School academic experience and minimize attrition. The learning resources area will provide appropriate surroundings for learning and increase the efficiency with which the disadvantaged student assimilates basic and clinical medical knowledge.

Many of the disadvantaged students will return to practice in areas where provision of good, economical and efficient health care is mandatory. The adequate, appropriately designed outpatient facilities will provide the setting in which this student will learn good patterns of outpatient health care delivery which will be particularly adaptable to those necessary in his professional career.

UNIVERSITY OF MINNESOTA
Medical School
Projected Expenditures Through 1976-77*

This table of data follows the format for itemization of expenditures presented in reports to the Liaison Committee on Medical Education, American Medical Association--Association of American Medical Colleges.

	1970-71
A. Expenditures for Sponsored Medical School Programs	
1. Federally-Sponsored Teaching and Training(1)	4,464,072
2. Non-Federal Sponsored Teaching and Training(2)	4,288,257
TOTAL, Sponsored Teaching and Training Programs	8,752,329
3. Federally Sponsored Research(2)	9,306,799
4. State, County and City Sponsored Research	-0-
5. Private Gifts and Grants Sponsoring Research(2)	2,393,879
TOTAL, Sponsored Research	11,700,678
6. Other Sponsored Programs--Federal(2)	263,977
7. Other Sponsored Programs--Non Federal(2)	131,509
TOTAL, Sponsored Medical School	20,848,493
B. Expenditures for Regular Teaching, Research, and Service Programs of the Medical School	
1. Expenditures from Medical School Budget(4)	5,711,187

University of Minnesota
Medical School
Projected Expenditures Through 1976-77
(continued)

	1970-71
2. Administrative Buildings and Grounds, Library and other Medical School costs paid by the University but not included in item a.(5)	2,984,726
Medical Service Funds (Professional Fees)(3)	1,428,673
3. Teaching Hospitals or Clinics Costs related to teaching.(6)	1,793,271
4. Special Unrestricted Funds	89,625
5. Other(2)	406,544
TOTAL Expenditures for Regular Medical School Programs	12,414,026
TOTAL Medical School Costs	33,262,519

* See page for further explanation.

UNIVERSITY OF MINNESOTA
Medical School
Projected Expenditures Through 1976-77

This table of data follows the format for itemization of expenditures presented as reports to the Liaison Committee on Medical Education, American Medical Association of American Medical Colleges.

	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
A. Expenditures for Sponsored Medical School Programs						
1. Federally-Sponsored Teaching and Training	4,687,275	6,111,826	6,098,491	6,175,504	4,666,227	4,713,747
2. Non-Federal Sponsored Teaching and Training	3,645,018	3,827,269	4,018,632	4,219,564,	4,430,542	4,652,069
TOTAL, Sponsored Teaching and Training Programs	8,332,293	9,939,095	10,117,123	10,394,068	9,096,769	9,365,816
3. Federally Sponsored Research	9,492,935	9,967,582	10,465,961	10,989,259	11,538,722	12,115,658
4. Private Gifts and Grants Sponsoring Research	2,441,753	2,563,841	2,692,033	2,826,634	2,967,966	3,116,364
TOTAL, Sponsored Research	11,934,688	12,531,423	13,157,994	13,815,893	14,506,688	15,232,022

UNIVERSITY OF MINNESOTA
Medical School
Projected Expenditures Through 1976-77
(Continued)

		1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
5	Other Sponsored Programs-- Federal	269,254	282,717	296,853	311,695	327,280	343,644
6.	Other Sponsored Programs-- Non Federal	134,138	140,845	147,887	155,282	163,046	171,198
	TOTAL, Sponsored Medical School Expenditures	20,670,373	22,894,080	23,719,857	24,677,938	24,093,783	25,112,680
B.	Expenditures for Regular Teaching, Research, and Service Programs of the Medical School						
1.	Expenditures from Medical School Budget (4)	8,967,057	10,321,534	12,402,593	14,074,835	17,305,586	18,992,421

UNIVERSITY OF MINNESOTA
Medical School
Projected Expenditures Through 1976-77
(continued)

	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
2. Administrative Buildings and Grounds, Library and other Medical School costs paid by the University but not included in item a.	3,104,115	3,290,362	3,487,784	3,697,051	3,918,874	4,154,006
3. Medical Service Funds (Professional Fees)	1,485,819	1,574,968	1,669,466	1,769,634	1,875,812	1,988,361
4. Teaching Hospitals or Clinics Costs related to teaching.	2,062,261	2,144,751	2,230,541	2,319,763	2,412,554	2,509,056
5. Special Unrestricted Funds	91,417	30,000	30,000	30,000	30,000	30,000
6. Other	414,674	435,408	457,178	480,037	504,039	529,241
TOTAL Expenditures for Regular Medical School Programs	16,125,343	17,797,023	20,277,562	22,371,320	26,046,865	28,203,085
TOTAL Medical School Costs	36,795,716	40,691,103	43,997,419,	47,049,258	50,140,648	53,315,765

* See page for further explanation.

UNIVERSITY OF MINNESOTA

Medical School

Projected Expenditures through 1976-77

(1) Amount projected in this category is based on an assumed constant support from Federally sponsored teaching and training at the 1971-72 level plus increments (or decrements) based upon the estimated annual net change in Physician Augmentation and Capitation grant support.

(2) Amounts projected in these categories are based on a percentage increase of 5 percent per year.

(3) Amount projected in this category is based on a percentage increase of 6 percent per year.

(4) The projected Medical School budget has been increased annually in accordance with the following assumptions:

A. Annual academic salary increases of 5 percent.

B. Further new academic position funds required to bring funding to faculty staffing standards presented by the University of Minnesota, based on present teaching obligations and established University student-faculty ratios.

1973-74	289,170	1975-76	318,600
1974-75	303,750	1976-77	334,800

C. New faculty positions required by student enrollment increases (undergraduate medical students, graduate students, allied health students and students enrolled in other collegiate units), based on current University student-faculty ratios.

1973-74	595,138
1974-75	329,553
1975-76	310,968
1976-77	240,721

D. Funds for Civil Service (non-academic) new positions = 0.250 times amounts allocated for academic new positions.

E. Civil Service salary increases, alternating 4 and 8 percent each year, starting with 4 percent in 1972-73.

(5) These amounts have been computed through application of a standard formula developed by the University of Minnesota; an annual 6 percent increment has been included.

(6) This category includes items in the University of Minnesota Hospitals budget that have been reported as appropriately chargeable to Medical School educational programs; an annual 4 percent increment has been included.

General

Fringe benefit costs are included on all expenditures related to salaries.

UNIVERSITY OF MINNESOTA HOSPITALS
COMPARTATIVE INCOME STATEMENT
1968 TO 1977

	1968-69	1969-70	1970-71	1971-72 Estimated	1972-73 Estimated	1973-74 Estimated	1974-75 Estimated	1975-76 Estimated	1976-77 Estimated
Patient Charges:									
Gross Patient Charges	$23,042,175.53	$27,004,115.50	$32,622,710.00	$37,322,046	$38,452,255	$41,827,002	$43,109,558	$45,640,853	$47,099,218
Acct's Receivable Adjust.	-0-	-0-	$ 1,164.41	-0-	-0-	-0-	-0-	-0-	-0-
Total	$23,042,175.53	$27,004,115.50	$32,623,874.41	$37,322,046	$38,452,255	$41,827,002	$43,109,558	$45,640,853	$47,099,218
Less: Bad Debts/Charitable Care	$ 981,969.77	$ 1,647,241.37	$ 1,198,812.31	$ 2,137,371	$ 2,429,614	$ 2,718,755	$ 2,802,121	$ 2,966,655	$ 3,061,449
Total	$22,060,205.76	$25,356,874.13	$31,425,062.10	$35,184,675	$36,022,641	$39,108,247	$40,307,437	$42,674,198	$44,037,769
Less: Pro Fees Paid	$ 778,772.12	$ 799,305.34	$ 1,121,667.13	$ 1,677,149	$ 1,710,691	$ 1,753,458	$ 1,797,294	$ 1,842,226	$ 1,888,282
Net Patient Charges	$21,281,433.64	$24,557,568.79	$30,303,394.97	$33,507,526	$34,311,950	$37,354,789	$38,510,143	$40,831,972	$42,149,487
Expenditures:									
Salaries	$14,731,207.02	$17,139,046.57	$19,191,838.67	$21,106,490	$23,491,422	$25,370,736	$26,385,565	$28,496,410	$29,636,266
Fringe Benefits	$ 1,377,871.51	$ 1,581,922.75	$ 1,746,468.00	$ 1,850,529	$ 2,536,215	$ 3,298,196	$ 3,430,123	$ 3,704,533	$ 3,852,715
Supplies/Expense	$ 6,796,953.54	$ 7,250,667.75	$ 8,982,682.69	$ 9,156,764	$ 9,294,907	$ 9,527,280	$ 9,765,462	$10,009,599	$10,259,839
Depreciation	$ 1,754,932.00	$ 1,717,600.00	$ 1,673,903.00	$ 1,714,067	$ 1,874,016	$ 2,193,510	$ 2,106,137	$ 2,019,475	$ 1,955,816
Other Expenses	($ 291,711.98)	$ 759,401.90	$ 1,015,168.90	$ 1,837,927	$ 1,645,399	$ 1,686,534	$ 1,728,697	$ 1,771,914	$ 1,816,212
0930 & 0500 Fund Expenses	$ 254,979.48	$ 237,606.18	$ 376,285.71	$ 250,000	$ 272,000	$ 286,960	$ 302,743	$ 319,394	$ 336,961
Total Expenses	$24,624,231.57	$28,686,245.15	$32,986,346.97	$35,915,777	$39,113,959	$42,363,216	$43,718,727	$46,321,325	$47,857,809
Other Income:									
Appropriation/Support Funds	$ 3,256,845.16	$ 3,843,418.69	$ 3,917,202.68	$ 4,369,104	$ 4,572,754	$ 4,847,119	$ 5,041,004	$ 5,343,464	$ 5,557,203
Cafeteria/Powell Hall/ Laundry	$ 249,658.96	$ 258,862.36	$ 309,140.90	$ 344,000	$ 344,000	$ 350,880	$ 357,898	$ 365,056	$ 372,357
Non-Patient/Departmental & Cross Charge Income	$ -0-	-0-	$ 192,198.45	$ 166,000	$ 333,827	$ 340,504	$ 347,314	$ 354,260	$ 361,345
Appropriation Interest	-0-	-0-	-0-	$ 70,000	$ 77,250	$ 55,350	$ 57,564	$ 62,169	$ 64,656
0930 & 0500 Fund Income	$ 230,275.71	$ 287,095.73	$ 315,989.23	$ 400,000	$ 422,000	$ 445,210	$ 469,697	$ 495,530	$ 522,784
Miscellaneous	($ 28,566.53)	$ 37,717.81	$ 55,014.17	$ 55,000	$ 55,100	$ 55,600	$ 56,100	$ 56,600	$ 57,100
Total Other Income	$ 3,708,213.30	$ 4,427,094.59	$ 4,789,545.43	$ 5,404,104	$ 5,804,931	$ 6,094,663	$ 6,329,577	$ 6,677,079	$ 6,935,445
Net Operating Revenue	$ 365,415.37	$ 298,418.23	$ 2,106,593.43	$ 2,995,853	$ 1,002,922	$ 1,086,236	$ 1,120,993	$ 1,187,726	$ 1,227,123
Extra Ordinary Gain/(Loss) From Medicare/Medicaid Cost Over Charges	$ 69,080.58	$ 99,360.80	($ 99,000.00)	($ 500,000)	($ 500,000)	($ 500,000)	($ 500,000)	($ 500,000)	($ 500,000)
Hold Back	$ 10,979.00	$ 16,510.00							
Total Extra Ordinary Gain/(Loss)	$ 80,059.58	$ 116,370.80	($ 99,000.00)	($ 500,000)	($ 500,000)	($ 500,000)	($ 500,000)	($ 500,000)	($ 500,000)

UNIVERSITY OF MINNESOTA HOSPITALS
COMPARATIVE INCOME STATEMENT
1968 TO 1977

	1968-69	1969-70	1970-71	1971-72 Estimated	1972-73 Estimated	1973-74 Estimated	1974-75 Estimated	1975-76 Estimated	1976-77 Estimated
Net Operating Revenue Including Extra Ordinary Gain/(Loss)	$ 445,474.95	$ 414,789.03	$ 2,007,593.43	$ 2,495,853	$ 502,922	$ 586,236	$ 620,993	$ 687,726	$ 727,123
Restricted Gifts/Grants/ Endowments:									
Income From Restricted Gifts/Grants/Endowments	$ 586,580.07	$ 776,961.13	$ 719,584.05	$ 270,313	$ 226,381	$ 226,381	$ 226,381	$ 226,381	$ 226,381
Expenses From Restricted Gifts/Grants/Endowments	$ 236,702.14	$ 175,652.73	$ 243,654.33	$ 248,527	$ 997,776	$ 258,560	$ 263,731	$ 269,006	$ 274,356
Net Increase/(Decrease) in Gifts/Grants/Endowments Available	$ 349,877.93	$ 601,308.40	$ 475,929.72	$ 21,786	($ 771,395)	($ 32,179)	($ 37,350)	($ 42,625)	($ 48,005)
Net Revenue	$ 795,352.88	$ 1,016,097.43	$ 2,483,523.15	$ 2,517,639	($ 268,473)	$ 554,057	$ 583,643	$ 645,101	$ 679,118

Patient Visits Past and Projected -- Clinics to be Moved to Building B-C*

	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
AUDIOLOGY	3629	3824	4030	3990	4190	4441	4707	4942	5436	6034	6757	7569
CLINICAL PSYCHOLOGY	986	674	774	1664	1996	2376	2804	3308	3837	4411	5072	5833
DENTAL CLINIC	6424	7267	7447	7571	7799	8033	8273	8522	8862	9218	9586	9970
DERMATOLOGY	2996	3312	2983	4165	6042	8458	11419	14845	18558	22270	26724	32068
EAR, NOSE AND THROAT	5768	6564	7273	8515	9793	11263	12952	14895	17130	19700	22655	26054
EYE	16972	16885	17351	18745	20241	21049	21697	21730	23903	26293	28922	31814
FAMILY PRACTICE	0	0	325	2560	4608	7374	8848	10089	14125	19777	25711	30853
MEDICINE	12119	12283	12707	14239	15375	16453	17443	18313	20510	23176	26312	30258
NEUROLOGY	5145	5516	5558	7058	7555	8011	8411	8831	9714	10782	12076	13526
NERUOSURGERY	2610	3016	3404	3767	4220	4726	5293	5928	6698	7569	8630	9923
OB-GYN	10664	12647	15732	14871	15169	15625	16249	17059	18256	19720	21495	23645
ORTHOPEDICS	4173	3685	4129	4418	4726	5058	5311	5523	5963	6559	7251	8155
PEDIATRICS	12412	12366	13461	15874	17779	20091	22904	26339	31607	37929	45515	54619
PROCTOLOGY	1284	893	975	1163	1511	1964	2454	2723	3267	3921	4705	5647
PSYCHIATRY	5659	5120	5490	5195	5351	5513	5678	5849	6139	6505	6960	7520
SURGERY	3527	4136	4425	5276	5910	6619	7413	8302	9713	11363	13297	14228
UROLOGY	829	3845	2900	3092	3216	3343	3475	3615	3796	4024	4305	4649
TOTAL	95197	102033	108964	122163	135481	150397	165331	180813	207514	239251	275973	316331
PERCENTAGE CHANGE		+7.2	+6.8	+12.1	+10.9	+11.0	+9.9	+9.4	+14.8	+15.3	+15.3	+14.6

* Cardiac, Masonic, and Emergency Receiving will remain in their present positions in peripheral units.

CONCERNING THE PLANT AND THE FACILITIES

Extent of Need for the Facility

The need to develop facilities to accommodate increasingly larger numbers of medical and other Health Sciences students was established formally in 1966, when the shortage of physicians in Minnesota and the Upper Midwest was documented in the Louis W. and Maud Hill Family Foundation Study, "Health Manpower for the Upper Midwest". Commissioned by the Regents of the University of Minnesota, it provided the basis for a recommendation by a Citizens Advisory Commission that the Medical School increase its entering class size by the mid-70's to at least 200 and the Dental School to 150 students.

Consequently, planning of facilities to accommodate these larger numbers of students culminated in the Health Sciences Development Program, an interdisciplinary, integrated program of Health Sciences units. The first step of this program, Unit A, was approved in 1969-70 and the eligibility of the second step, Unit B/C, was established on the basis of a commitment of the Medical School to increase its entering class size to 220 by 1976-77 from a base of 163 in 1969. Unit A, consisting primarily of a new facility for the Dental School and Basic Science interdisciplinary teaching laboratories, and including auditoria and classroom facilities and a small amount of Medical School departmental space, was funded with a Federal participation of approximately $4 million for the Medical School portion of the Unit. A separate application for Unit B/C, requesting approximately $30 million in Federal funds, was submitted to the National Institutes of Health in 1970 and was approved but not funded.

Responding to nationally expressed needs to produce more physicians, the faculty in 1969 agreed to participate in the Physician Augmentation Program (PAP) with the then reasonable assurance that the facilities contained in Unit A and B/C, necessary to house the increased class sizes under PAP, would be forthcoming. Thus, in September 1970, after approval of Unit A and establishment of eligibility of Unit B/C had been obtained, 227 students were enrolled in the Medical School. The major increase of 60 entering students constituted the largest increment by a single Medical School under the Physician Augmentation Program and accounted for approximately 7 percent of the total increase nationally in the entering classes of the Fall, 1970.

With the passage of the 1971 Health Manpower Act and the subsequent decision to make all pending construction grants inactive, the Medical School was in the position of enrolling increasingly larger numbers of students without reasonable assurance that facilities absolutely essential to accommodate these students would become a reality. In addition, a further commitment to increase the entering class size to 239 in 1972-73 became mandatory.

Therefore, because of the urgency of need to obtain appropriate facilities and the relatively modest Federal budget for construction of facilities, the faculty drastically reduced the Unit B/C program to be considered for Federal participation and placed its highest priority

on the remaining essential program which is the basis of this grant request of approximately $13 million.

Thus, the Medical School, in responding early to the health manpower shortage in this country by markedly increasing its production of physicians in numbers already exceeding commitments made for previously approved, but unfunded, physical facilities, remains in dire need of new facilities to accommodate a medical student population which will exceed 1000 by 1975-76. The facilities requested in the grant application, already drastically reduced from documented projected needs, based upon even less student numbers than the School is currently enrolling, are absolutely mandatory if the School is to retain curriculum viability, program strengths, and the high quality of medical education characteristic of the University of Minnesota.

In essence, from a fiscal viewpoint, the Medical School is requesting a total of approximately $18 million in Federal funds ($5 million previously awarded for Unit A plus $13 million for Unit B/C in this grant request) to provide facilities to accommodate the needs of an additional 76 entering medical students, currently enrolled under commitments related to Unit A construction and a potential B/C unit, the Physician Augmentation Program, and the mandatory enrollment increase required by the Federal Capitation Program. The fact that these numbers of students were enrolled much earlier than mandated, based upon expectation of the early availability of the facilities, intensifies the urgency of the present request for construction in Unit B/C.

In making its decision to reduce the Unit B/C portion eligible for Federal participation, the faculty considered specific functions absolutely necessary for student learning. This resulted in a facilities program which included outpatient clinic space, general teaching areas, a learning resources center, and several small support areas for research by teaching faculty.

1. Outpatient Clinics. Specifically, by 1975-76 it is estimated that 530 third and fourth year medical students will be enrolled in Phase D, the highly clinically-oriented portion of the curriculum. 490 of these students will be active in regular full-time clinical teaching programs of the Medical School. Of that number, it is estimated that, at any one time, 90-100 medical students will be located for learning experiences in the outpatient clinic facility. Current outpatient facilities would be unable to accommodate these teaching loads and numbers of students. The number of examining rooms is inadequate. The rooms are small, cramped, inefficient and in many cases, obsolete. Various departmental clinics are geographically separated, an unfortunate situation resulting in fragmentation of teaching. Communication modalities are poor. There is an almost total lack of seminar rooms and teaching space. Hallways, patient waiting rooms, and nurses' stations necesarily are now used for discussions of patients and problems and for teaching of students.

In 1968-69 there were 88,733 outpatient visits in those selected University of Minnesota Hospitals Clinics which are planned for the proposed Unit B/C. These figures do not include visits to Dental Clinics and those clinics (e.g., cardiovascular, cancer, and emergency receiving) which are not planned for Unit B/C and remain in other areas of the Health Sciences Center. By 1971-72 this corresponding number had risen to 114,592. Based upon a conservative, average rate of increase of 10% per year, it is estimated that by 1976 there will be 172,291 outpatient visits. Continued use of current inadequate, antiquated facilities will markedly inhibit this projected growth in patient population, which is vital to fully implement curricular development and to provide teaching opportunities for the greatly increased numbers of medical students.

Current facilities are functionally obsolete and do not lend themselves to renovation. The clinics lack air conditioning in most places. Waiting facilities are poor. Cramped quarters in some clinics require patients to wait in major, heavily-travelled hallways, a condition cited for remedy by the Joint Commission in Accreditation of Hospitals. Patient traffic patterns are poor and, because of archaic architectural design, cannot be effectively improved. One large clinic operates in an old dormitory building separated from other major clinic operations. Patients must move relatively large distances for use of support facilities. Record retrieval is difficult because of lack of an adequate materials transportation system. Ancillary support services are poorly arranged, resulting in inordinate travel and loss of time for patients, staff, and students. It is increasingly difficult to attract the needed patients into these outmoded and uncomfortable facilities.

Specific programs in primary health care delivery on an outpatient basis, such as those spearheaded by the Family Practice Department, are greatly hindered by the inability to accommodate in their clinics the number of undergraduate and graduate students seeking to obtain experience in this new and vital specialty of Medicine.

It would be impossible to develop new, imaginative programs in health care delivery in current outpatient facilities because of their obsolete nature and lack of adaptability.

Currently several faculty office and conference rooms for the Department of Family Practice are located in an old dormitory area distant from patients and students. In order for this program to develop and continue to provide leadership in this new crucial field of Health Education, newer, expanded departmental facilities are mandatory.

2. General purpose teaching space. Planning of the Health Sciences Development Program has stressed adequate amounts of general teaching space. Based upon projected courses and classroom use matrices, it has been determined that, for Medical School use alone, two auditoria, each seating 325 persons, and 25-27 seminar rooms would be needed in new facilities.

At present there is only one auditorium-classroom on the Health Sciences campus which can just barely accommodate a full class of medical students. This room, used now by Phase A students, is at full capacity and is utilized a major share of the week. There is no room for other paramedical, medical graduate students, or other Health Sciences students to participate in the educational exercises now conducted in this classroom. The room is poorly designed, with pillars obstructing vision, and is able to accommodate only the bearest modicum of audio-visual facilities absolutely necessary for classroom instruction of medical students.

Currently the school, in order to accommodate the Phase B class, must utilize an antiquated general University classroom, removed from the Health Sciences campus. This classroom is also filled to capacity and scheduling of Medical School classes must compete with other, non-Health Sciences University programs. There is no room for extra auditors and audio-visual facilities are limited. There are no facilities for patient presentations although the integrated Phase B curriculum emphasizes clinical interrelationships which would be enhanced by patient clinical correlations.

In Unit A, one classroom seating 350 students is to be provided. This classroom will allow use by Phase A students. The school has a critical need, therefore, for another large auditorium for the instruction of Phase B and Phase D (second, third and fourth year) students, as well as for medical graduate and postgraduate students.

The heavy emphasis upon small group teaching and tutorial training in the Medical School necessitates extensive utilization of seminar rooms just for undergraduate medical education alone. Presently the School heavily uses every available seminar room in the Health Sciences complex. In addition it is necessary to hold regularly scheduled seminar sessions in rooms away from the medical center in other parts of the University. This use of distant teaching space is inconvenient for staff and students, leads to loss of time from educational activities and creates great difficulty in appropriate scheduling. It has been determined that at least 25 seminar rooms will be needed in Units A and B/C. Seventeen of these will be provided in Unit A; eight more are planned in the proposed Unit B/C.

At present the school utilizes a small but extremely active learning resources center in temporary, unsuitable space. Besides being cramped, there are limited spaces for carrels and study. Storage of print and non-print material is markedly limited. There are no facilities for projection of learning materials. Because of the small size of the unit it is impossible to provide for even a few students, a space where they can sit and study and which they can, for a period, claim as their own.

Because of the enthusiastic acceptance of this unit by the students and faculty and the emphasis in the curriculum upon self-learning, encouraged by the provision of ample free time for this activity, the facilities are markedly strained. Without a new expanded

learning resources center, this vital aspect of the curriculum will be jeopardized and the students will not be able to develop the aptitudes and attitudes necessary to function as self-learners in their professional career.

Although space for faculty ultimately will be included in the shell, or unfinished portion of Unit B/C, which is not the subject of this grant request, a small amount of space for support of research by teaching faculty and for animal storage is included in the program for architectural and structural reasons. Most of these facilities constitute replacement space, including storage of animals directly used in teaching courses for medical students presented by a few basic science and clinical departments. The need for faculty space is also pressing, but a major amount of this type of space was not included in this program because of the higher priorities attached to the programs included in this grant request.

To accommodate the large numbers of medical students currently enrolled in the Medical School and the total increased enrollment expected as large entering classes move into more advanced stages of the curriculum, it is mandatory that an appropriate critical core of facilities be available to accomplish optimal training of medical students. Provision of adequate educational facilities is critical in the near future to forestall inefficiencies of time and effort of students, fragmentation of experience and depersonalization of relationships between faculty and students.

The student must be able to conveniently utilize extensive library facilities, a learning resources center, the academic and intellectual advantages of the University, and the various interdisciplinary program critically important for good student training. He must be able to participate with other Health Sciences students in programs which stress the team approach to health care delivery and the increased interchange among the various Health Sciences professionals so vital to the future of health care delivery. Without the facilities proposed in this grant request, it will be exceedingly difficult to maintain a critical mass of students, faculty and facilities which will promote these learning advantages for the students. Without the facilities, because of the large bulk of students, the school will be forced increasingly to assign students to programs located inconveniently distant from the Health Sciences Center. Some clinical care experiences for each student in various programs away from the Center are certainly desirable, but the students must be allowed to have major segments of their educational experience at the Health Sciences Center with its wide and extensive opportunities for academic involvement. This basic aspect of medical education, so vital for the long term viability and strength of the medical educational program at the University of Minnesota, will be greatly augmented by provision of the proposed facilities.

CONCERNING THE PLANT AND THE FACILITIES (ITEM 10)

MASTER CAMPUS PLAN:

The University of Minnesota Health Sciences Expansion provides facilities for the consolidated units of the Health Sciences: School of Medicine, University Hospitals, School of Dentistry, School of Public Health, School of Nursing and the College of Pharmacy.

The complex of new and remodeled existing buildings comprising the Health Sciences Facilities is the Architects' response to the University's goal of physical and curricular integration of the Health Sciences units with each other and the rest of the Minneapolis campus of the University.

The problem as defined by this goal was to develop a high density building system on a tight urban site with strong relationships to major existing facilities. This system needed to respond to the initial phase of expansion as well as to the continuing need for growth and change inherent in health sciences units.

The Architects' initial effort was to develop a master plan which provided for short and long term expansion and responded to the integrated relationships called for in the program. This master plan serves as a framework for growth by establishing the major paths of circulation knitting together new and existing buildings. A centralized receiving unit (Unit KE) is the focus of a separate service circulation network connecting existing buildings and new construction two floors below grade. One floor above that a major pedestrian spine with branches to existing buildings and new construction and in addition, a 3,000 car parking ramp provides the capability of moving to all parts of the Health Sciences without being exposed to the frequently severe weather (see diagrams pages). Two floors above grade another enclosed connection is provided permitting access to all Health Sciences areas.

Phase I of the master plan is scheduled to be complete by January 1976. Phase I is comprised of Units A, BC, KE, and F as shown on the site plan on page

Unit A, which houses the School of Dentistry, Basic Sciences teaching laboratories, Auditoria, and programs from the Schools of Public Health and Medicine is presently under construction with completion scheduled for October 1973.

Unit BC, a portion of which is the subject of this application, was scheduled to be completed in its entirety by Fall 1975. Unit BC, which in its entirety housed programs of the Schools of Medicine and Dentistry, Outpatient Clinics and Hospital Departments, was the subject of an application for Federal Assistance for Construction of Health and Educational Facilities. This application was submitted in November 1970 and did receive approval of the National Advisory Council but was not a funded project. Due to new legislation and a change in Federal funding policies this unit is now being resubmitted

at a reduced scope and is therefore out of phase with the schedule as outlined in the original master plan. The adjusted master plan now calls for constructing and enclosing the shell of the entire unit as designed and finishing only the space associated with the programs as outlined in other parts of this application. The programs which are not part of this application will be finished when the necessary funding becomes available.

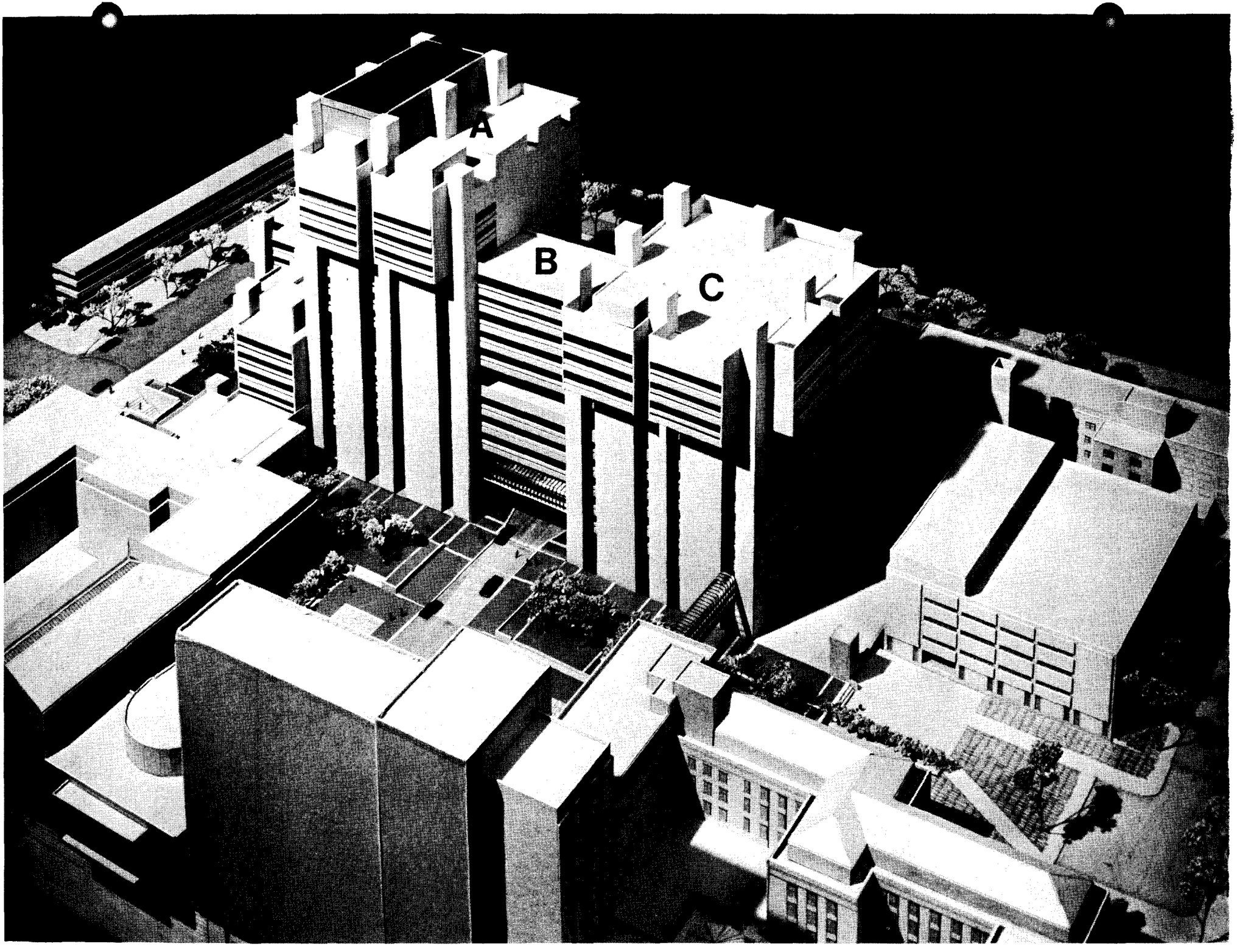
The lower floors of Unit KE, as previously mentioned, constitute the centralized receiving unit for the Health Sciences. The upper floors house a Cardiovascular Research and Teaching Center. Construction of the Unit is currently under way, with completion scheduled for June 1974.

Unit F, which houses the College of Pharmacy, is scheduled to start construction in the Fall of 1973 with completion scheduled for Fall 1975.

The University has prepared a long-range plan for parking and circulation on the Twin Cities Campus. The Health Sciences facilities program includes provision of a 3,000 car parking ramp which will be constructed simultaneously with the construction of Unit A. This ramp has first priority in the implementation of the overall parking plan. The University is also cooperating with the Metropolitan Transit Commission and other agencies to develop improved public transportation for the area. Among the possibilities being considered is a series of satellite parking lots connected to the University by a rapid transit system. Within the past year a system of express bus routes was initiated jointly between the University and the Metropolitan Transit Commission.

A long range plan for housing is now in preparation and although a high proportion of student and staff housing will, of necessity, be provided by the private sector, it is likely that plans will include some University owned apartments or town houses in the vicinity of the Health Sciences facilities. A low cost housing development is about to be constructed on University land 1 1/2 miles west of the Health Sciences facilities.

Foreseeable expansion of the Health Sciences beyond the Phase I planned program for completion in 1975 includes: new facilities for the School of Public Health, Unit G; and a new hospital, Units J and H, to replace beds now located in the existing Mayo Building. Space vacated by these beds and other hospital functions will be remodeled and used for expansion in the areas of clinical teaching and research, student study spaces, faculty and administrative offices.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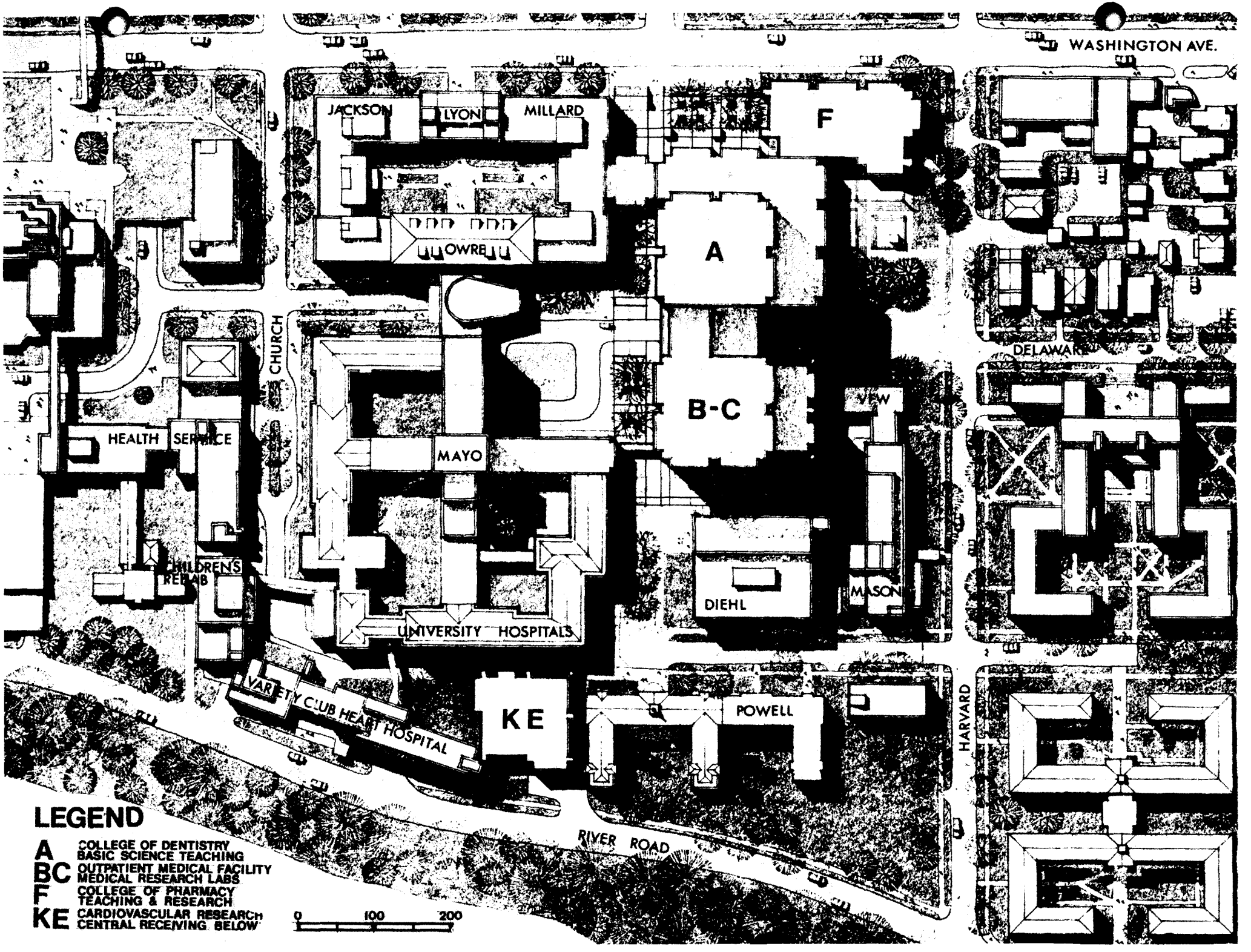
WASHINGTON AVE.
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DELAWARE
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HEALTH SERVICE
MAYO
CHILDRENS REHAB
DIEHL
MASON
UNIVERSITY HOSPITALS
VARSITY CLUB HEART HOSPITAL
KE
POWELL
HARVARD
RIVER ROAD
LEGEND
A COLLEGE OF DENTISTRY BASIC SCIENCE TEACHING
BC OUTPATIENT MEDICAL FACILITY MEDICAL RESEARCH LABS
F COLLEGE OF PHARMACY TEACHING & RESEARCH
KE CARDIOVASCULAR RESEARCH CENTRAL RECEIVING BELOW
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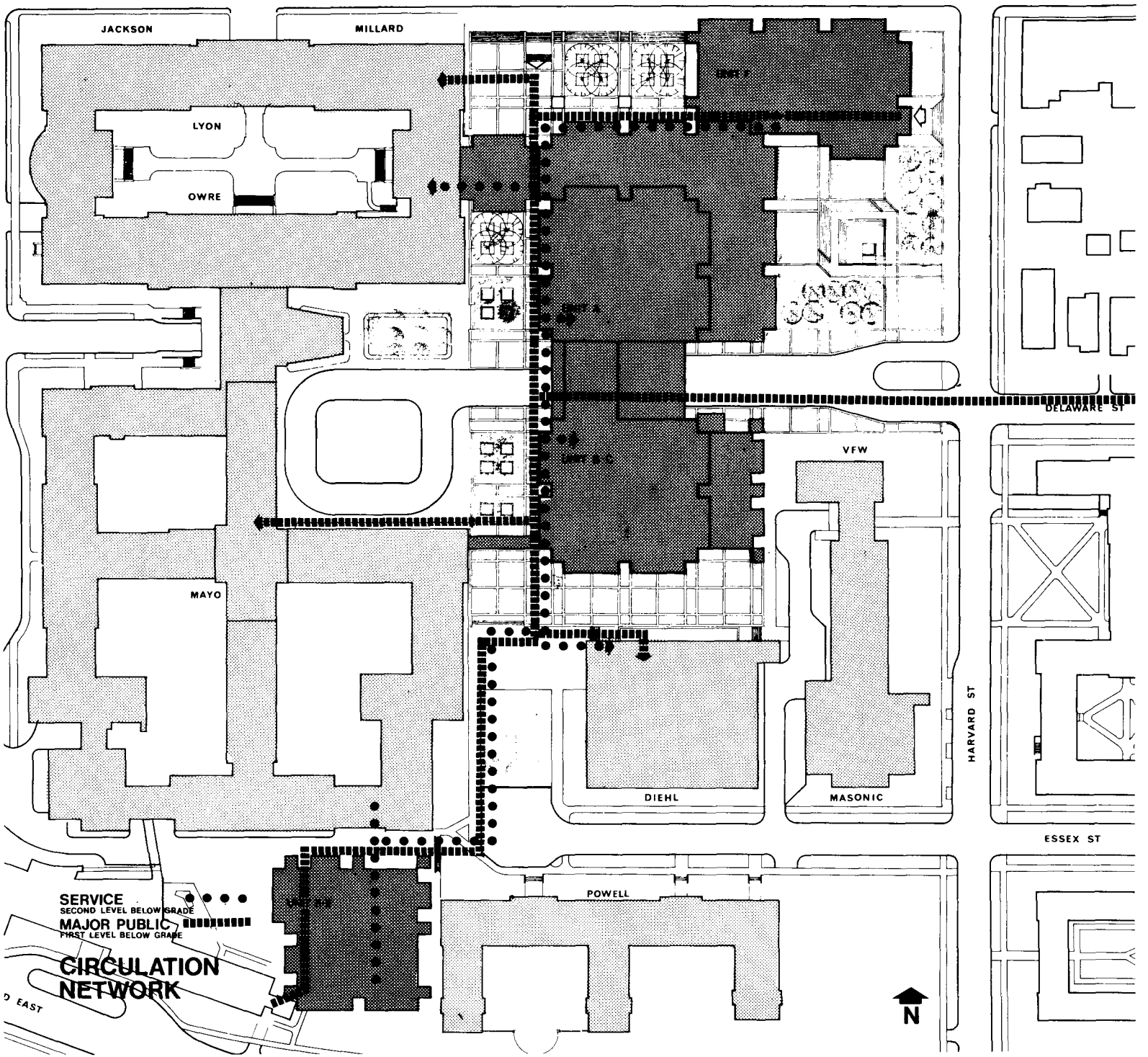
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SECOND LEVEL BELOW GRADE
MAJOR PUBLIC
FIRST LEVEL BELOW GRADE
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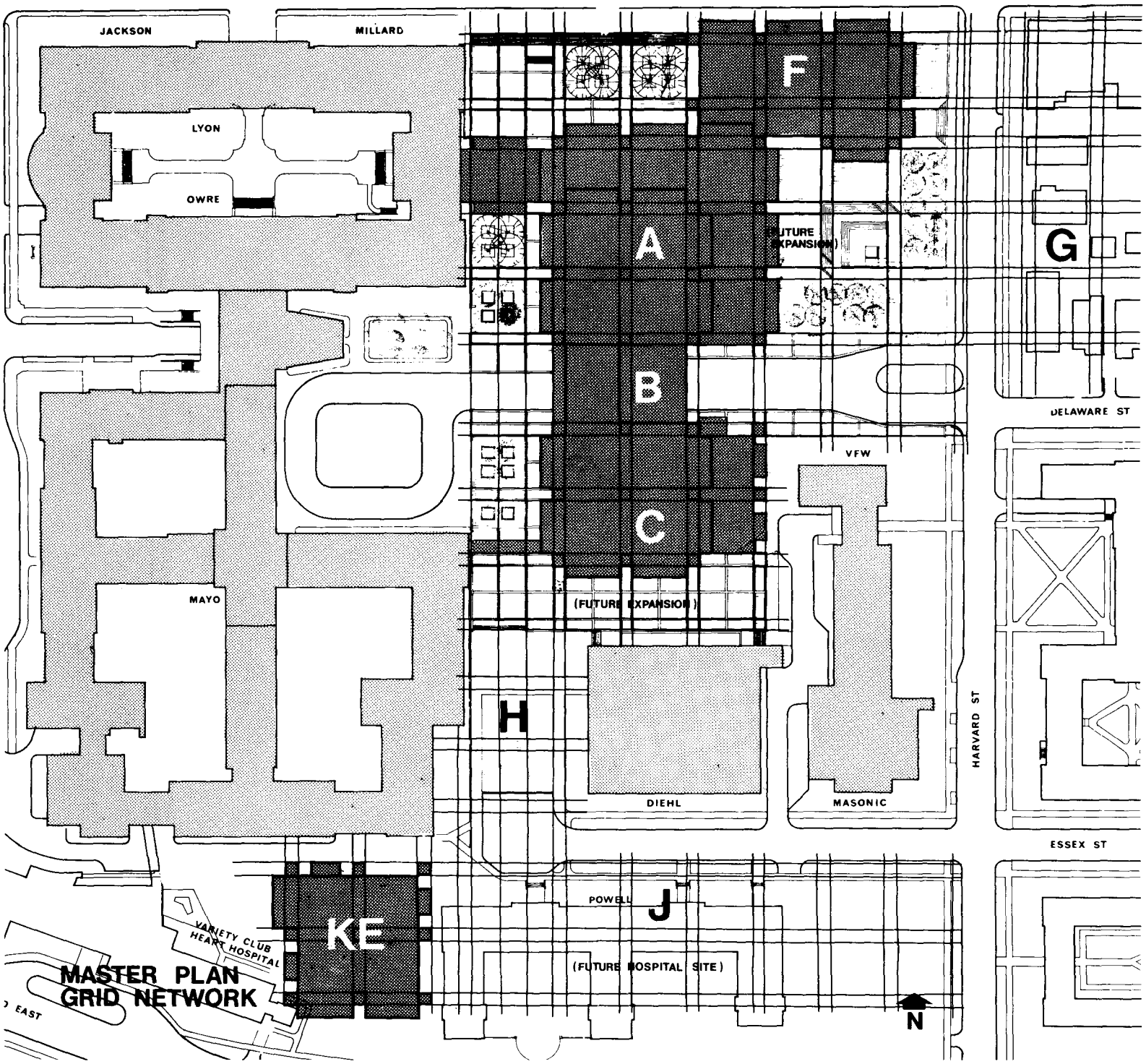
JACKSON
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DIEHL
MASONIC
HARVARD ST
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KE
VARIETY CLUB HEART HOSPITAL
(FUTURE HOSPITAL SITE)
MASTER PLAN GRID NETWORK
EAST
N

CONCERNING THE PLANT AND THE FACILITIES (ITEM 10)

FUTURE PLANT EXPANSION:

As explained in the Master Plan narrative, first priority of future construction would be finishing areas in Unit B/C associated with the programs not included in this application. Programs which would be completed at this time would include the following:

1) School of Medicine - departmental office and research space.

2) School of Dentistry - departmental office.

3) Outpatient Clinics for Hospital dentistry.

4) Ambulatory Care Unit.

5) Food Service Areas.

These facilities will be used to house faculty needed to teach the expected total enrollment of the Medical School by 1975-76. No increase in the size of the entering class of medical students is currently anticipated. The approximate scheduling of construction is planned between 1974-1979. At present we are not requesting Federal participation for completion of these facilities; however, depending upon the status of eligibility under the Health Manpower Act, future Federal participation may be requested. It is expected that funds for construction might be obtained from private sources, Departmental funds, specific research funds and, possibly, State Legislative funds.

Foreseeable expansion of the Health Sciences contemplated between 1980 and 1985 would include: new facilities for the School of Public Health, Unit G; and a new hospital, Units J and H, to replace beds now located in the existing Mayo Building. Space vacated by these beds and other hospital functions will be remodeled and used for expansion in the areas of clinical teaching and research; student study spaces; faculty and administrative offices.

CURRENT MEDICAL SCHOOL SPACE AND ITS UTILIZATION

Medical School Space Summary (net square feet)

Basic Sciences		
Anatomy	34,539	
Biochemistry	24,212	
Microbiology	22,150	
Pathology	25,231	
Pharmacology	19,995	
Physiology	30,928	
Subtotal		157,055
Clinical Teaching & Research		
Anesthesiology	2,373	
Dermatology	3,504	
Family Practice	665	
Laboratory Medicine	8,800	
Medicine	24,320	
Neurology	12,826	
Neurosurgery	1,962	
Obstetrics-Gynecology	3,996	
Ophthalmology	4,232	
Orthopedic Surgery	1,287	
Otolaryngology	4,784	
Pediatrics	28,933	
Physical Medicine & Rehabilitation	21,618	
Psychiatry	17,597	
Radiology	8,610	
Surgery	24,892	
Therapeutic Radiology (In temporary space)	0	
Administration	18,959	
Subtotal		191,358
MEDICAL SCHOOL TOTAL		348,413

MEDICAL SCHOOL REPORT FORM

Existing Space
Net Square feet

BASIC SCIENCES

DEPARTMENT	ADMINISTRATION & FACULTY	RESEARCH & SUPPORT	TEACHING							
			Classrooms				Laboratories			
			No.	Sq. Ft.	Cap.	Use	No.	Sq. Ft.	Cap.	Use
Anatomy	4,792	16,903	1	489	40	23%	13	12,355	491	80%
Biochemistry	3,053	16,480	2	610	24	50%	3	4,069	88	75%
Microbiology	2,389	14,337	1	690	60	88%	4	4,734	148	78%
Pathology	3,557	19,098	1	460	40	62%	3	2,116	90	55%
Pharmacology	4,105	14,084	1	948	23	80%	1	858	16	75%
Physiology	6,835	20,368	1	799	80	90%	7	2,926	84	55%

ADMINISTRATION	ADMINISTRATION & FACULTY	RESEARCH & SUPPORT*	TEACHING CLASSROOMS			STUDENT FACILITIES (ADYTUM)
Medical School Administration	2,528	9,269	2	3,123	208 100%	4,039

*Includes research space utilized by several departments but assigned to Medical School; animal hsopital space; Medical Arts and Photography.

MEDICAL SCHOOL REPORT FORM

Existing Space
Net Square Feet

CLINICAL SCIENCES

**Percentage based on a (40 hour week)

DEPARTMENT	ADMINISTRATION & FACULTY	RESEARCH & SUPPORT	TEACHING							
			Classrooms				Laboratories			
			No.	Sq. Ft.	Cap.	Use	No.	Sq. Ft.	Cap.	Use
Anesthesiology	745	1,012	1	336	24	100%	3	280	4	100%
Dermatology	970	2,253	0	0	0	0	1	341	4	100%
Family Practice	665	0								
Laboratory Medicine	2,082	5,734	1	174	10	75%	2	810	25	125%
Medicine	5,113	18,873	1	334	20	100%				
Neurology	1,362	10,601	2	863	90	85%	0	0	0	0
Neurosurgery	888	374	0	0	0	0	2	700	4	100%
OB/Gyn	520	2,908	1	568	40	79%	0	0	0	0
Ophthalmology	1,244	776	1	317	30	*43%	7	1,895	18	100%
Orthopedic Surgery	914	373	0	0	0	0	0	0	0	0
Otolaryngology	1,536	742	2	671	40	*71%	7	1,835	33	102%
Pediatrics	2,518	25,735	1	680	30	85%	0	0	0	0
Physical Med. & Rehab.	7,020	8,851	6	2,229	145	94%	3	3,518	75	84%
Psychiatry	5,891	10,451	4	1,255	150	91%	0	0	0	0
Radiology	1,911	6,324	1	375	20	95%	0	0	0	0
Surgery	2,772	21,222	1	898	45	90%	0	0	0	0

* Shared with ENT
* Shared with Ophthalmology

TEMPORARY OR INTERIM SPACE

Clear evidence with regard to the Medical School's expanding teaching functions can be found in the increasing use of leased dormitory space and leased off-campus office and laboratory facilities.

The original application for Building B/C reported total rented facilities of 37,094 net square feet. The School's leased space has new increased to a current total of 59,322 net square feet. These facilities are located in structures ranging from a dormitory one block from the Health Sciences center to a converted electronics warehouse 6½ miles from the Health Sciences. The leased area includes the following:

1.	714 Washington Avenue S. E. (primarily office area)	864
2.	1633 Eustis Avenue (Village of Lauderdale located 6½ miles from the Health Sciences) (labs, offices, animal quarters)	5,952
3.	425 Harvard (rented dormitory space immediately outside of Health Science complex)	2,712
4.	Stone Laboratories (421 and 429 29th Avenue S. E. - approximately 1½ miles from the Health Sciences) (laboratories, offices, animal quarters)	4,500
5.	2630 University Avenue S. E. (1 mile from the Health Sciences) (laboratories, offices, animal quarters)	36,500
6.	2016 16th Avenue South - (approximately 3 miles from the Health Sciences)	8,794
	TOTAL:	59,322 Square Feet

The above figures do not include temporary space now occupied by the Medical School in the former dormitory, Powell Hall. This structure has 107,504 assignable square feet. The individual rooms have been converted to offices and service rooms with approximately 40% used by the Medical School, 50% by the University Hospitals and 10% by other Health Science divisions. It provides faculty offices, seminar and conference rooms, clinical facilities. A minor portion is used for ambulatory patient and on-call Hospital personnel housing.

Recently, the University Hospitals has created more space for its crowded outpatient locations by moving the handling of daily medical supply functions and its hospital equipment facility from storage areas within the hospital to a University-owned warehouse located on Como Avenue approximately one mile from the hospital center.

MEDICAL SCHOOL TEACHING

USE OF GENERAL PURPOSE CLASSROOMS

General Purpose classrooms are scheduled through the all-University Room Scheduling Office. This office provides 17 medium to large classrooms for Health Science use ranging in capacity from 40 to 515 students. These rooms are partially used for Medical School teaching as their size and location permits them to be scheduled.

The date on these rooms are summarized:

No.	Square Feet	Total Capacity	Used by Medical School Per Quarter	
17	27,614	3,146	Fall	33%
			Winter	28%
			Spring	24%
			Yearly Average	28%

The above yearly average must be measured keeping in mind that Medical School has a controlled use only. Its scheduling of these facilities is restricted due to the fact that the School is competing with the entire University teaching program in their use of these teaching rooms. The Room Scheduling Office maintains a 68 % average scheduled total use pattern on the above classrooms based on a 40-hour week.

Another limiting factor with respect to Medical School use of these general purpose rooms is that 5 of the 17 available are located out of the Health Science complex.

MEDICAL SCHOOL TEACHING

TUTORIAL PROGRAM

With the increase in size of the student enrollment in the Medical School and the recent changes in the curriculum of the school resulting in more tutorial, or small group, teaching, it was necessary to find convenient locations where these activities could be held.

Multi-purpose rooms, conference rooms and sometimes labs were "borrowed" from already-crowded departmental facilities, dormitory rooms were used and part of this tutorial teaching now takes place in rooms outside the Health Science complex.

How the Tutorial Teaching is Accommodated:

1. 8 rooms provided thru University Room Scheduling Office
2. 25 rooms provided by using Medical School departmental teaching space.
3. 5 rooms provided by converting temporary dormitory rooms.
4. 15 rooms provided by scheduling the small groups in areas out of the Health Science complex.

   53 = currently scheduled for Tutorial use

Most of the above rooms have a capacity ranging from 10 to 20 people. The average use of these rooms is from 2 to 6 hours per week for each quarter for just the Tutorial portion of Phase B of the curriculum alone. This Tutorial teaching load is superimposed upon an already full utilization of most of these seminar-type rooms on and off the Health Sciences campus.

MEDICAL TEACHING NEW SPACE - BUILDING A
INTER-DISCIPLINARY TEACHING CLASSROOMS

Building A, now under construction, will offer five small auditorium classrooms, ranging in capacity from 100 students to 354 students. In addition there will be 3 classrooms offering 25 to 50 student capacity. Thirdly, Building A will offer 17 small seminar-type rooms with capacity ranging from 8 to 15 students, with one 20 capacity room.

AUDITORIA:

No.	Capacity	Sq. Ft.
A (#160)	354	4,500
B (#153)	240	2,880
C (#167)	240	2,880
D (#186)	200	2,250
E (#187)	100	1,250

CLASSROOMS:

No.	Capacity	Sq. Ft.
1. #171	25	312
2. #172	25	312
3. #173	50	624

SEMINAR/CONFERENCE ROOMS

No.	Capacity	Sq. Ft.
1. #142	10	246
2. #143	10	246
3. #145	10	246
4. #147	10	246
5. #148	12	288
6. #156	10	246
7. #157	8	144
8. #158	10	246
9. #162	10	246
10. #163	8	144
11. #164	10	246
12. #175	10	246
13. #178	10	246
14. #179	15	300
15. #180	20	430
16. #181	15	300
17. #169	12	288

The auditoria, classrooms and seminar rooms are slated to augment primarily the already-crowded teaching facilities in the Basic Sciences of the Medical School.

All the above inter-disciplinary teaching rooms are scheduled to be completed in Fall or early winter of 1973.

MEDICAL SCHOOL REPORT
NEW SPACE- BUILDING A

BASIC SCIENCES Departments

There are 5 Medical School departments who will accrue additional teaching lab space in the new Building A. There will be 24 departmental labs, all for teaching with capacities ranging from 24- student to 50- student size. The normal service areas are included in this two-floor complex in the new building. In addition, there is a Room 117 which is a 150- seat demonstration room shared principally by Pharmacology and Physiology.

A breakdown of these laboratories by department follows:

BIOCHEMISTRY

No	Cap	Sq.ft.
1. #101	32	1536
2. #104	32	1536
3. #109	32	1536
4. #113	24	1728

MICROBIOLOGY

No	Cap	Sq.ft.
1. #135	50	1280
2. #136	50	1536
3. #140	50	1280

PHARMACOLOGY

No	Cap	Sq.ft.
1. #103	24	864
2. #104	24	864
3. #105	24	864
4. #106	24	864
5. #107	24	864

PHYSIOLOGY

No	Cap	Sq.ft.
1. #125	24	768
2. #126	24	768
3. #127	24	768
4. #129	24	768
5. #130	24	768
6. #131	24	768

PATHOLOGY

	No	Cap	Sq.ft.
1.	#132	50	1152
2.	#135	Tissue Staining	612
3.	#136	24	768
4.	#137	24	768
5.	#139	24	768
6.	#140	24	768

CLINICAL DEPARTMENTS

There are 4 clinical departments that will receive additional space in Building A. The department and total space that each will receive is as follows:

		Sq.Ft.
1.	Dept. of Medicine	7,398
2.	Dept. of Obstetrics-Gynecol.	7,969
3.	Dept. of Pediatrics	7,151
4.	Dept. of Surgery	9,854
		32,372

The above space is projected to be completed in December, 1973.

UNIVERSITY HOSPITALS

The net space used by University Hospitals is located in four permanent buildings: Mayo Memorial Hospital, Variety Club Heart Hospital, Masonic Memorial Hospital and Children's Rehabilitation Hospital. Together with one temporary building, Powell Hall, their space totals 506,288 useable square feet. All of the above buildings are shared with the Medical School.

The breakdown of University Hospitals net total space in the five buildings is:

1.	Hospital Operation		283,957
	A. All Administration	60,350	
	B. Primary Services	22,193	
	C. Support Services	125,135	
	D. Ancillary Programs and Service	20,854	
	E. Building Maintenance & Custodial	55,425	
2.	In-Patient Area (Nursing Stations)		173,735
	Station 12	4,277	
	Station 22	4,333	
	Station 23	1,344	
	Station 30	3,044	
	Station 31	6,261	
	Station 32	3,857	
	Station 35	2,843	
	Station 40	3,801	
	Station 41	3,906	
	Station 42	4,388	
	Station 43	3,605	
	Station 44	2,838	
	Station 45	2,983	
	Station 46	705	
	Station 47	5,606	
	Station 48	3,868	
	Station 49	3,679	
	Station 50	6,327	
	Station 51	4,161	
	Station 52	4,269	
	Station 55	3,115	
	Station 56	1,289	
	Station 57	7,005	
	HH 201	9,669	
	HH 301	7,079	
	HH Heart Cath.	632	
	MAS I	6,000	
	MAS II	7,475	
	MAS III	7,237	
	REHAB. LV	6,909	
	REHAB.	6,784	

-2- University Hospitals

2. In-Patient Area		
Psychopathic Hospital	506	
Child Psychiatry	196	
Nursing Service Station 60	5,940	
Rehab. Center	10,527	
3. Out-Patient Area (Clinics)		24,510
Dental Clinic	714	
Dermatology Surgery	1,627	
Otolaryngology	1,266	
Pediatrics	2,583	
North Clinic	3,926	
OB/Gyn	2,978	
Med. Spec. Clinic	2,190	
Ophthalmology	2,199	
Audiology Clinic	922	
Cardiac Clinic	1,988	
Neurosurgery	813	
Family Practice Clinic	3,234	
4. Teaching Related Area		3,318
Autopsy Room	925	
Nutrition Inter. Prog.	2,393	
UNIVERSITY HOSPITAL TOTAL:		506,222.

Proposed Project (including cost estimate and space utilization)

A small segment of the facilities necessary to satisfy the needs of an increased class size of the Medical School is included in Building A, previously approved and now under construction. Unit B/C, the subject of this application, is designed to provide further facilities for meeting needs of the Medical School's expanded student enrollment, to fully implement the new Medical School curriculum, and to insure the continuing appropriate number of outpatients which are essential for the teaching program of the Medical School. Toward these objectives, Unit B/C, in this first phase of development, includes classrooms and seminar rooms, a learning resources center, laboratory support areas, and an outpatient clinic unit.

All medical students will use the learning facilities of this building. The major auditorium, seating 325 persons, is designed especially for clinical presentations as well as for general use. Patient preparation rooms, appropriate audiovisual facilities and a configuration adaptable for patient presentation are included in its plan. The auditorium is arranged in a location convenient to major traffic passageways and outpatient care units. The size of the auditorium is planned to handle the expanded size of the Medical School class and will allow the attendance of additional auditors, graduate students, and other Health Science students at instructional exercises. Based on several studies of projected needs of this auditorium-classroom, it is estimated that the facility will be used at least 35-40 hours per week for medical students, graduate students, departmental grand rounds, and Continuing Education instructional activities of the Medical School alone.

A significant emphasis in the new medical student curriculum is on extensive use of small group sessions. To facilitate this teaching mode, eight 20-seat seminar rooms are located on floors one through five of Unit B/C. The seminar rooms will be provided with appropriate audiovisual connections and will be used extensively by medical students in all phases of the undergraduate M.D. curriculums.

The Educational Resources Center is planned in juxtaposition to the Bio-Medical Library. The center will contain space for 250-300 carrels for student use of audio-tapes, slides, film strips, and cassettes. Terminals for computer-aided instruction are included. Space for storage and study of print materials and models as well as study space for sixty students is a feature of the unit. Support areas include a service desk and approach area, audio and video playback equipment (Dial Access) and an audiovisual library. Office space for the coordinator of learning resources and curriculum coordinators is included. "Interaction" rooms occupy a portion of the facility. In these rooms will occur student-faculty conferences, film previews, and small group discussion and viewing of audiovisual or video materials. Technical support space is included.

The auditorium, classrooms, seminar rooms, and educational resources-retrieval area are located on the same levels as the major traffic concourses which interconnect Unit B/C with the other facilities of the Health Sciences Center. This location provides for easy movement of medical students to and from their major teaching facilities.

Clinical education emphasizes care in the ambulatory setting. Therefore, a new outpatient clinic is planned. Ten general clinic modules are provided with an average of 16 examining rooms per module, including also waiting room space, utility rooms and other support areas. The modules are to be assigned on a need basis to various teaching services of the Medical School. Furthermore, the flexibility of the module system lends itself to any possible future change in methods of health care delivery.

Two hundred and twenty-eight examining rooms in total are planned for the new outpatient building. This total includes general clinic modules, specialty modules, and the Family Practice Clinic. This compares with the present 102. The numbers of examining rooms for the new building is based on an analysis of part and projected growth rates of each clinic. The projected rates are adjusted for each clinic by several variables (see attached chart and comments). "Optimal utilization" (or maximum) of five patients per examining room per clinic day for each clinic module was the standard used for analysis of examining room needs. This standard was based on present utilization statistics and was substantiated by time studies. Based on projected growth rates, optimal utilization will be realized two to three years post-occupancy. The two hundred and twenty-eight rooms are planned to meet the projected patient load for this unit expected in the late 1970's. (See chart pp.123 & 124)This is consistent with the design intention to accommodate approximately 90-100 medical students receiving instruction in the clinic at any one time, by the assignment of one medical student per two examining rooms. This ratio is generally accepted for a busy teaching outpatient clinic where students at all levels and faculty are actively engaged in teaching and patient care. It is consistent with experience of senior faculty intensively involved with the instruction of undergraduate medical students.

The size and configuration of the examining rooms was determined by studies conducted with mock-up models under simulated conditions of interactions among student, faculty, patient, and supporting personnel. The examining rooms and the clinic modules are designed to facilitate optimal student/patient staff interaction in this teaching setting.

In order to provide an optimal setting for student learning, seminar rooms are included in clinic modules. This allows increased interaction among faculty, student and patient and the availability of ancillary support close to the center of the learning experience. Specialty modules are planned for services in Audiology, Otolaryngology, and Ophthalmology. The major portion of the teaching programs in these specialties requires an outpatient setting. These clinic modules are designed to facilitate the specialized teaching programs on those clinical disciplines.

An ambulatory treatment center, which includes minor surgery operating rooms with associated support facilities, is included for the instruction of students in minor surgical procedures. This provides experience for the student in the care of patients requiring surgery which might be done on an inpatient service but which could be more effectively and economically performed in a suitable outpatient facility.

Provision will be made for appropriate amenties conducive to efficient, modern, personal care of patients. These support facilities, including good communication systems, adequate transportation, functionally-designed patient-flow patterns, adequate waiting room space, and central air-conditioning, will insure that the University of Minnesota Hospitals can remain in a physically competitive position to promote continued growth of an outpatient volume essential to strong teaching programs for large numbers of clinical students. Support facilities, which include an outpatient pharmacy, clinical laboratory, radiology section, and an outpatient business office and reception area, are provided and are so located to promote easy patient and student access. Parenthetically, it might be stated that a new parking facility, adequate to accommodate the patient population in this outpatient clinic, will be completed in 1973.

An entire floor is to be occupied by the Family Practice Clinic and is designed to provide a model for the student participation in comprehensive health care. Spaces are provided in this clinic area for various ancillary, para-medical personnel such as clinical psychologists, social service workers, and others. The clinic is designed as a complete entity in itself to simulate a physician's office practice in the community. It is designed to accomplish investigation of newer, more innovative methods of patient care delivery and student instruction in health care systems. In order to facilitate faculty-student interchange and promote learning in the important specialty of Family Practice, the faculty offices and departmental teaching space are located in Unit B/C.

Most of the research and animal facilities are provided to replace space lost in Diehl Hall renovation for the Learning Resources Center and the space lost by the necessity to provide connecting passageways with other Health Science units. Specifically, the animal facilities will be used to provide support areas for research of teaching faculty necessary to teach the expanded Medical School classes. These faculty eventually will be housed in the unfinished, shell portion of Unit B/C. Importantly, a good share of the animal support facilities will be used to provide animals for instruction of medical students, especially in courses in Microbiology and Surgery.

OUTPATIENT EXAM ROOMS

	Present Exam Rooms	Present Patients	Proposed Exam Rooms B-C	Projected Patient Visits 1975-76 (Occupancy)	Optimal Utilization
I. General Clinic Modules	77	80,782	161	111,697	201,250 (1978-79)
II. Specialty Modules (Eye, ENT, Audiology)	18	31,250	37	46,469	46,250 (1976)
III. Family Practice	7	2,560	30	14,125	37,500 (1980-81)
TOTAL	102	114,592[1]	228	172,291[1]	

1. This figure differs from Outpatient visit chart totals by deletion of Dental Clinic visits. The Dental Clinic is not part of the present grant request.

2. Proposed exam rooms X 5 patients per day per room X 250 clinic days per year.

Explanation of Clinic Census Data

Audiology -- The Audiology Clinic is limited primarily by a lack of space. Patient population is available but often seen at Minnesota Regional Hearing Center. Growth should be about 5-6% for the period until B/C is construction about 10-12% thereafter.

Clinical Psychology -- Experierencing a very rapid growth curve and somewhat space restricted, this clinic should grow at an average of 15-20%.

Dental Clinic -- Closely tied to the inpatient oral surgery case-load, fluctuations should be minor, 2-4%.

Dermatology -- With the coming of a new director, growth rate is expected to be 40% + for about two years and level off at about 30%.

Ear, Nose and Throat -- Better time and space utilization will allow this clinic to grow an average of 15% annual rate.

Eye -- Clinic growth will be severely restricted by space until 1976. Recent addition of two rooms has allowed growth of 10% + in 1971-72 and 1972-73 will increase at a lower rate, approximately 8% and 3-4% until 1976-77 when rate should rise again to about 10% annually.

Family Practice -- Very little historical data to base projection. Unit B/C will treble available examining room numbers.

Medicine -- This clinic has nearly reached its space limits. Rate of growth should be 5-8% until 1976, then 12-15% thereafter.

Neurology -- Recent addition of clinic time has allowed large increase in visits. This will level off to about 5-7% until Unit B/C is built, then jump to 10-12% in Unit B/C.

Neurosurgery -- Because of limitations in amount of neurosurgery performed, clinic growth should be stable at about 12-15%.

Ob-Gyn Clinic -- Lack of medical staff will severely hamper the growth of this clinic until Unit B/C is completed. Growth of 2-5% until 1976 and then 7-10%.

Orthopedics -- Lack of space and facilities has caused a decline in orthopedic growth rate. This will continue until 1976 then increase at 8-12% per year.

Pediatrics -- Space limitations on Pediatrics Clinic will slow growth rate to 12-15% until 1976, then will rise to about 20% annually.

Explanation of Clinic Space Data

Audiology -- The Audiology Clinic is limited primarily by a lack of space. Patient population is available but often seen at Minnesota Regional Hearing Center. Growth should be about 5-6% for the period until B/C is constructed, about 10-12% thereafter.

Clinical Psychology -- Experience has a very rapid growth curve and somewhat space restricted, this clinic should grow at an average of 12-20%.

Dental Clinic -- Chiefly used to the important oral surgery caseload, fluctuations should be minor, 2-4%.

Dermatology -- With the coming of a new director, growth rate is expected to be 10% + for about two years and level off at about 20%.

Ear, Nose and Throat -- Better time and space utilization will allow this clinic to grow an average of 15% annual rate.

Eye -- Clinic growth will be severely restricted by space until 1976. Recent addition of two rooms has allowed growth of 10% + in 1971-72 and 1972-73 will increase or a lower rate, approximately 8% and 3-4% until 1976-77 when rate should rise again to about 10% annually.

Family Practice -- Very little historical data to base projection. Unit B/C will handle available examining room numbers.

Medicine -- This clinic has nearly reached its space limits. Rate of growth should be 3-8% until 1976, then 12-15% thereafter.

Neurology -- Because addition of clinic time has allowed large increase in visits. This will level off to about 5-7% until Unit B/C in built, when jump to 10-12% in Unit B/C.

Neurosurgery -- Because of limitations in amount of neurosurgery performed, clinic growth should be stable at about 12-15%.

Ob-Gyn Clinic -- Lack of medical staff will severely hamper the growth of this clinic until Unit B/C is completed. Growth of 2-3% until 1976 and then 7-10%.

Orthopedics -- Lack of space and facilities has caused a decline in orthopedic growth rate. This will continue until 1976 when increase of 6-12% per year.

Pediatrics -- Space limitations on Pediatrics Clinic will slow growth rate to 12-15% until 1976, then will rise to about 20% annually.

Proctology -- The advent of a new clinic director should increase patient load rapidly to physical space limits, then, in Unit B/C to about 20% per year.

Psychiatry -- Expected to be relatively stable until Unit B/C is built, then, in Unit B/C to about 20% per year.

Surgery -- Patient volume for this clinic is also directly related to the amount of surgery performed. Rate of increase should be around 12% until 1976, then increase to 17% as minor surgery suite is opened.

Urology -- These clinics are reaching physical limits and staff limits. Expect even growth curve until Unit B/C, then moderate increase.

PROPOSED FACILITY

Detailed Description of Unit B/C

Unit B/C in its entirety will consist of sixteen floors of space located directly south of and adjoining Unit A. Three of these floors are below ground level; the remaining rise thirteen stories above the street. The adjusted master plan for Unit B/C now calls for constructing and enclosing the shell of the entire Unit as designed and finishing only the space noted as such in the following narrative, in other sections of the application, and on the accompanying plans. A floor by floor description of functions in Unit B/C is as follows:

Basement

This level will provide primary location for major mechanical components serving the new construction. Mechanical space on this floor will be an expansion of facilities provided in Unit A. Steam from University Central Plant will be piped via the tunnel to Unit A on this level. Switch-gear pumps, chiller, and emergency generating equipment will be located on this floor as well as floor 10. Major utilities will be distributed in vertical utility shafts located on a 62' - 0" grid to all floors. In addition to the major mechanical space this floor will house laboratory facilities for the Departments of Laboratory Medicine and facilities for Medical Art and Photography.

Space to remain unfinished is animal quarters and laboratory facilities for the Departments of Medicine; Department of OB-Gynecology; Department of Surgery; Department of General Surgery.

Floor B_1 West

Facilities provided on this level are animal quarters and laboratory space for Microbiology.

Floor 1

The central service corridor for the Health Sciences at this level connects with the service corridor of Unit A and will provide access to the new receiving center, Unit K/E. Major program elements accommodated on this floor are: the lower level of the major shared teaching auditorium, three outpatient clinic modules; one to be used by Orthopedic Surgery and Physical Medicine and Rehabilitation; one to be used by Obstetrics-Gynecology; and the other one to be used by Surgery-Urology. In addition, a Treatment Center which includes minor operating room, a satellite X-ray facility,

as well as Proctology treatment rooms and a cast and gait room for Orthopedics is adjacent to the clinic modules. In addition, lab medicine will have a specimen collecting and drawing station and a hematology unit on this floor. An EKG unit will be adjacent to this satellite clinical lab. Employee locker and lounge space will be provided adjacent to the service corridor. Social Service offices, Employee Health Service will also be located on this floor. Escalators will connect this floor to floors 2 and 3 which is the ground level. Elevators for Unit B/C are grouped in two cores, one on the east side primarily for public and patient traffic containing six elevators, and another on the west side for staff, student and service traffic also containing six elevators. A 3 car elevator bank from each grouping will be installed initially with the remaining to be installed in the future.

Space to remain unfinished includes the Medical Records File Room.

Floor 1 West

Facilities provided on this level include animal quarters for laboratory Medicine, Department of Surgery and a central receiving and service unit for Animal Hospital Committee. The latter will be connected by a service elevator to the basement level of the new construction providing segregated access between the new animal quarters and laboratory areas and the central receiving area.

Diehl Hall remodeling on the first floor will provide expansion for the Anesthesia Department, Pediatrics Department, Neurology Department, Radiology Department, Neurosurgery and Urology Departments. These facilities are primarily animal quarters and related laboratory facilities.

Floor 2

Floor 2 of Unit B/C, one floor below street level, will be the main entry point to the clinical facility. A proposed tunnel connection at this level to a new 3,000 car parking ramp located near the intersection of Oak Street and Delaware Street will be the main entry point. Outpatient Support Departments such as Admitting, Business Office, Pharmacy, will be located on this floor. In addition, an Outpatient Clinic module for medicine will perform triage functions on this floor. Entry to the clinical teaching auditorium, seating 325 students will be provided on this floor. A link between the main north-south concourse and the main elevator core in the Mayo Building will be provided.

The new Educational Resources Retrieval Center will be located in the Biomedical Library at this level with direct access from the Main Concourse.

Space to remain unfinished includes Medical Records; Outpatient Administration; Nutrition Clinic; Food Service and portions of the Outpatient Support Departments - Admitting and Business Office.

Floor 3, Ground Level

Unit B/C at street level will be occupied by the Family Practice Clinic. This location will afford direct access and visibility required by this clinic. It will also provide a main drop-off entry for the building.

Floor 4

Floor 4 of Unit B/C will house two outpatient clinic modules. Pediatric Clinic will occupy one of the modules (and will have additional departmental space to provide for staff who will be spending a major amount of their time in the clinic). The other outpatient clinic module will be occupied by Dermatology. The standard clinic module design which accommodates Dermatology, Medicine, Neurology, Neurosurgery, OB-GYN, Orthopedics, Pediatrics, Physical Medicine and Rehabilitation, Psychiatry, Surgery, Tumor, and Urology Clinics typically consist of eighteen examination rooms, four consultation rooms, and allied support facilities. Teaching areas in the outpatient clinic modules include a major seminar room which is divisible into two smaller rooms.

Departmental Office space adjoining the clinic modules on this floor will remain unfinished.

Floor 5

Floor 5 of Unit B/C will provide for a major horizontal connection between Millard, Unit A, Unit B/C, and the Mayo Building. Functions which will be located on this floor include two clinic modules for Neurology and Neurosurgery. Shared teaching seminar rooms for the Medical School are located on this floor.

Food Service space will remain unfinished.

Floor 6

The two outpatient clinic modules which occupy this floor will be used by the Psychology clinic and the Psychiatry clinic. The standard module will be modified to include all consultation rooms except one examination room in the Psychiatry clinic

module. In addition, television facilities related to group and individual consultation rooms will be provided in the Psychiatry clinic. Family practice will have Departmental facilities on this floor.

Floor 7

This floor will remain unfinished in its entirety.

Future use of this space will be to house Hospital Dentistry Clinic and departmental space. The sections which will be accommodated on this floor include Oral Surgery, Pediatric Dentistry, and Multi-Purpose clinics. Patients coming to this clinic will be admitted through the outpatient admissions in Unit B/C, through the Unit A Dental Clinic admissions, and from other patient areas of the University Hospitals. Lab and x-ray facilities will be provided on this floor in the future.

Floor 8

Clinic and departmental space for Otolaryngology will be accommodated on this floor. The clinic facilities will be divided into the ENT clinic and the Audiology clinic. They will share a common waiting room and business office.

Departmental facilities which will provide laboratories and offices for faculty as well as seminar conference rooms and administrative offices for the department will remain unfinished at this time.

Floor 9

This floor will accommodate the Ophthalmalogy Clinic. The Ophthalmalogy Clinic will be divided into a Children's Eye Clinic and an Adult Eye Clinic. Seminar and classroom space for the Medical School will also be provided on this floor.

Ophthalmalogy departmental space on this floor which will provide offices and laboratories for faculty members, and in addition teaching areas and administrative office for the department will remain unfinished at this time.

Floor 10

Mechanical space will occupy this entire floor. Only mechanical equipment necessary to serve the finished programs as outlined in this application will be provided at this time.

All space above floor 10 is to be shell space. No finishing of this space will be undertaken for the present. What follows is a narrative description of what is presently planned to occupy the available space at some future date.

Floor 11

This floor, at a future date, will be occupied by the Department of Surgery and will relate horizontally to surgery space in Unit A on the same floor. Departmental facilities will provide office and laboratory space for faculty members and teaching and administrative areas for the department. Animal quarters will be provided for laboratory work on this floor and will be linked directly to the central animal holding areas on the basement level by an exclusive use animal elevator. This elevator will also provide access to animal quarters on floors 8,9,12 and 13 of Unit B/C.

Floor 12

The future Neurology Department space on this floor will house faculty offices teaching and administrative areas. In addition, laboratory space and animal holding facilities will be provided for the department of Obstetrics-Gynecology, which will relate to Unit A space for that department on the same level.

Floor 13

This floor will, in the future, accommodate the remaining expansion area for the Department of Pediatrics. The department will also occupy Unit A space on this floor. The spaces which are to be provided on this floor will include faculty offices and laboratories, conference rooms for teaching, as well as administrative areas for the department.

Floor 14

Department of Medicine will, in the future, occupy this space adjacent to Unit A, Floor 14 Department of Medicine space. Administrative areas, teaching areas, faculty offices and laboratories will comprise the functions on this floor. Laboratory space is flexible and modular and will have central support facilities.

Floor 15

Floor 15 of Unit B/C will, someday, accommodate Food Service facilities and the Ambulatory Care Unit. This self-care unit will provide 20 rooms for patients whose visits to the clinical facilities are more than one day in duration, but who can take care of themselves. Two treatment rooms and a doctor's work and recording room plus teaching area and nurses' space will provide support facilities. The remainder of the space on Floor 15 will be occupied by mechanical equipment.

ALTERNATE PHYSICAL AND DESIGN CONCEPTS

In the early stages of planning the expansion for the Health Sciences consideration was given to eventual abandonment of the existing facilities and constructing an expanded facility on a new site. It was decided that because of the great investment from public and private sources in existing facilities, and the proximity of the existing facilities to programs within the rest of the University that the planned expansion should take place in conjunction with the existing facilities.

As mentioned under the Master Plan and Design Flexibility narratives, the three dimensional framework that has been established for new construction was derived by evaluating the criteria generated by the program functions. All programs proposed to be housed in new construction were studied in the following manner:

> All typical rooms of each program were studied in detail to determine the dimensional characteristics which best satisfied the functional requirement of the programs. Likewise, various combinations of typical rooms which generated the functional unit configurations were studied in great detail. These studies were then evaluated against the characteristics of other sub systems and adjusted accordingly.

The standard outpatient clinic module is a good example of this planning. The size of the exam room was partially determined as mentioned previously by a mock-up of the same. The number of rooms per clinic and the number of clinics were determined by utilization factors both present and predicted, administrative operations and evaluating potential scheduling alternatives.

Numerous studies to determine the size and organization of the clinic module were developed and are available upon request. These studies evaluated each configuration for functional requirements, such as:

> Distance of travel for patient/staff;
> Record movement;
> Material movement;
> Efficient administrative organization.

The proposed standard clinic module, as shown on the plans, incorporates sharing of waiting, reception and clerical areas between two standard clinic modules. The proposed organization centralizes as many functions as possible and yet permits the same amount of space through scheduling to be utilized by one, two, or 4 services. Overflow from one clinic module to another is possible, allowing for easy handling of peak patient loads.

In addition to the previously mentioned alternatives, Unit B-C was evaluated to determine the most economical and logical construction package. These studies in addition were tied to potential funding sources and the magnitude of funds which could be committed. Analysis yielded three packages: the first encompassed constructing floor B to plaza with the remaining portion broken into two successive construction packages; the second was to construct floors B through 10 with the remaining space to be constructed on a delayed schedule; the third was to construct the entire building in one time frame. The above packages were evaluated for construction access, separation of contracts, coordination with existing facilities and on going construction. (Unit A & KE) etc.

Due to the complexities of existing construction below grade and the proposed ties with new construction, it was essential that all below grade work be executed in each scheme. The more the building became subdivided into separate construction packages with separate schedules, the more costly it became allowing for less and less program space to be finished.

Due to an extremely tight site and the density of building within the site area the most economical package in terms of initial construction, overall time frame, occupancy, costs, etc. is to construct Unit BC as an entity within one construction duration.

The next most economical package is to construct the unit as outlined in other parts of this application; that is, to construct the entire frame of the unit as designed, floors B through 15, and finish only the space associated with programs as outlined in this application.

SPACE REQUIREMENT LOGIC

Allocation of space within the University is administered by the Office of Space Allocation. This office operates under a set of policy guidelines established with the counsel and advice of a faculty advisory committee. Actual allocations are based upon the guidelines which are modified by statements of programmatic needs submitted by faculty and administrators at the Departmental and Collegiate levels.

The proposed size of the outpatient exam rooms and clinic configuration was the resultant of a lengthy in depth study. Members of the Outpatient Planning Committee, Nursing Staff and others, along with the architects, visited numerous facilities to view firsthand physical characteristics of various functions and their relationship to the operation of the particular institution. Comparisons were made between physical facilities, curriculum, and operational procedures of institutions visited with that proposed at the University of Minnesota. The original outpatient clinic program was evaluated and modified to incorporate the things learned on the site visits. This then became the basis on which a full size mock-up was built for evaluation. The mock-up was adjustable and permitted various combinations of length, width, door location; position of fixed and movable equipment, etc.

The intent of the Outpatient Committee and the mock-up was to develop one size exam room which various services could use on an interchangeable basis to allow maximum scheduling flexibility. The mock-up established the adequacy of the exam room/consultation space.

228 Exam Rooms are planned for the new outpatient building. This compares with the present 102. The number of exam rooms for the new building is based on analysis of past and projected growth rates of each clinic. The projected rates are adjusted for each clinic by several variables.

"Optimal utilization" (or maximum) of five patients per exam room per clinic day for each clinic module was the standard used for analysis of exam room needs. This standard was based on both present utilization statistics and substantiated by time studies. Based on projected growth rates, optimal utilization will be realized two/three years post occupancy.

Examples of space guidelines for other functions as administered by the Office of Space Allocation are:

Dean's Office	300 square feet
Assistant Dean	300 square feet
Assistant to Dean	100 to 130 square feet
Department Head	195 square feet
Department Assistant Head	195 square feet

SPACE REQUIREMENT LOGIC (cont.)

Departmental Multi-purpose	200 square feet and up (400 maximum)
Faculty Office	130 square feet
Double Faculty Office	195 square feet
First Secretarial Position	195 square feet (1 person + fil
(General Office)	65 square feet (for each additional person)
Classroom	15 square feet per student stat
Study Room	25 square feet (up to) per student station
Laboratory	According to number of people, function and equipment

PROPOSED PROJECT

DESIGN FLEXIBILITY:

The complex of new and remodeled existing buildings comprising the Health Sciences Facilities is the architect's response to the University's goal of physical and curricular integration of the Health Sciences units with each other and the rest of the Minneapolis campus of the University.

The problem as defined by this goal was to develop a high density building system on a tight urban site with strong relationships to major existing facilities. This system needed to respond to the initial phase of expansion as well as to the continuing need for growth and change inherent in health sciences units.

The architects initial effort was to develop a master plan which provided for short and long term expansion and responded to the integrated relationships called for in the program. This master plan serves as a framework for growth by establishing the major paths of circulation knitting together new and existing buildings.

The units designated by the master plan to be housed in new construction were analyzed for common systems criteria. These criteria generated one building system which, with appropriate variations, could respond to the requirements of teaching and research labs, dental clinics, hospital outpatient clinics, offices, classrooms and auditoria. And in addition could provide a high degree of flexibility and expandability.

The building system employs a module of 12'-4" x 12'-4" throughout the site area. Service towers 12'-4" x 12'-4" (nominal) are spaced 49"-4" apart in two directions creating a tartan grid which is broken in one direction by a pair of columns placed midway between the towers. A one way structural system integral with the service shafts has steel girders spanning the 24'-8" direction and steel trusses spanning the 49'-4" direction (see Building Systems Framework Isometric and Dimensional Characteristics Diagram). Building services are distributed vertically through the service shafts and horizontally through the depth of the floor construction. The frequency of the service towers allowed a minimum 4'-4" floor depth which is divided into separate strata for power and communication, mechanical, plumbing, and lighting. In general, all partitioning stops at a totally accessible continuous ceiling plane 9'-0" above the floor permitting the services above to be distributed without interference. Typical floor to floor height is 13'-4".

All sub-systems were developed and designed to accommodate the criteria generated by the program functions. A detailed description follows of several sub-systems which will establish the degree of thought that has gone into the development and coordination of the various subsystems resulting in the overall building flexibility:

SUPER-STRUCTURE:

Typical floor slab construction is a composite cellular steel deck with a lightweight concrete topping. The selection of this floor construction is based on the economies inherent in the lightness of the floor itself as well as the supporting steel framing and foundations. The system provides electrical raceways within the floor construction both for present and future needs and provides the required 2-hour fire rating without the need for additional fireproofing on the underside of the deck.

"Regular Weight" concrete floor slabs shall be used for mechanical equipment floors. This is necessary to provide additional load carrying strength for these floor areas as well as to produce sufficient mass to reduce vibrations in the building frame which will result from the operation of the equipment.

Two beams provide a horizontal slot at each typical floor level between the corner columns of the mechanical and electrical shafts. This "slot" creates maximum size access openings to the areas between the floor and ceiling below. The upper, and shallower, beam supports the floor and shaft walls with the lower deeper beam providing the rigid-frame action, acting with the columns to resist lateral wind loads on the building.

Open-web trusses are provided as floor supporting members to provide maximum flexibility for lateral distribution of the mechanical and electrical systems between the floor slab and ceiling below.

The framing of the building is designed to support future horizontal expansion one bay to the south from the basement to floor 15.

STAIRS:

The stairs have been designed with an aim to minimize field labor. Two alternates are to be considered; one varying from the other only in the amount of pre-fabrication. The first alternate is composed of 10' stair run and suspended landing components with the second alternate assembling similar components into angle framework, 2 or 3 stories in height per unit. It is proposed that the component and unit concepts be tested competitively in the market place.

CEILING SYSTEM DESCRIPTION:

The ceiling system will facilitate a degree of planning flexibility equal to that afforded by the structural and mechanical system. The ceiling is conceived as a continuous suspended plane extending from exterior wall to exterior wall under which partitions can be located and relocated as necessary. Above the ceiling ducted mechanical services can be arranged and rearranged as required without interference from walls or other vertical barriers.

To accomplish this the ceiling has to embody the following characteristics:

1. The suspension system must be capable of supporting the head of all partitions and door frames and provide adequate lateral stability without additional bracing. Walls must be attached and detached without damage to the ceiling. Although most walls occur in modular locations, attachment at random locations must be possible.

2. The suspension system must provide a framework in which light fixtures, air supply and return elements, sprinklers, smoke detectors, speakers, laboratory service columns and infill panels can be located and rearranged in various combinations.

3. The ceiling must offer architectural characteristics suitable for small, intermediate and large areas.

4. The ceiling must be accessible to allow routine maintenance and rearrangement of mechanical equipment at any location above the ceiling.

The proposed ceiling system is composed of continuous service strips and of infill. The service strips are oriented in an east-west direction and are located 6'-2" o.c. at the quarter points of the 12'-4" architectural grid. The infill closes the space between the all purpose strips and provides for access to the plenum and acoustical separation of rooms.

The service strip furnishes the location for all mechanical service penetrations in the ceiling system. It is made up of alternating 4'-0" flourescent light fixture locations and 2'-2" service panel locations. The modular locations of a 4'-0" flourescent fixture is centered on the quarter points of the architectural grid but such a fixture must be relocatable at any point in the strip to accommodate non-modular rooms.

The service panel provides locations for sprinklers, smoke detectors, speakers, laboratory service columns and down lights.

Linear supply air handling elements are located as required, perpendicular to the service strip astride the cross runners with point returns located as required at the service panels.

N-S and E-W partitions may be attached to the ceiling system by bolting the partition head to cross runners which run perpendicular to the service strip on 2'-2/3" centers. E-W walls may thus be attached along any line in the zone between service strips. N-S partitions are located astride the cross runners. Non-modular N-S partitions require an additional cross runner for support.

In order to insure that partitions can be freely moved without unnecessary difficulty or damage to the ceiling system mechanical services passing between partition and plenum above are minimized. Plumbing fixtures located in areas not subject to change, are loop-vented underfloor. We recommend low-voltage switch legs be used in these areas. In areas subject to extensive future change, piped services to laboratory benches shall be fed down from the plenum space in umbilical chases.

Detailed study of code requirements regarding fire rated walls indicates that each level be divided by only one partition which must interrupt the suspended ceiling plane. In each case the penetrating wall has been chosen as being the one least likely to be relocated.

The wall system has been designed to provide an STC rating of 45 (plaster) 54 (drywall). A one inch sound blanket increases these ratings respectively to 49 and 58. The ceiling typically provides an STC rating of 43. This may be increased by the use of acoustically backed board and hold-down clips. Areas which require additional isolation will be separated from adjoining areas by acoustical blanketing hung directly above the wall in the ceiling plenum. Alternatively, walls surrounding non-flexible areas such as auditoria may be extended to the structural slab to insure acoustical isolation.

PARTITIONING SYSTEM:

The partitioning system achieves the degree of economy and flexibility at the planning level provided by the basic mechanical and structural systems.

The total project was studied to find the basic sets of functions to be served by partitioning systems. Seen in conjunction with the ceiling system, the basic approach to the partitioning system is that it should be floor to ceiling light-weight space division. The partitions should be removable without damaging the floor or ceiling and without interrupting the activities in adjoining spaces. In this approach, doors and glass are treated as panels in the partitioning system and attached at the ceiling and floor in the same manner. The partitioning system must be locatable according to the module developed by the ceiling system - and the mechanical services provided by it, but it also must be able to adjust to non-modular conditions when functional requirements necessitate it. Prefabricated cold rooms, freezers and the like will be used and the partitioning system must accept them. There will also be several spaces which require R-F shielding and partitioning systems must be able to provide this.

Several alternatives for each required basic type were proposed and studied. The cost of each proposal was compared to the requirements for adequate sound isolation, flexibility, durability and the particular requirements of each type. Resulting from this study a selection was made.

1. Gypsum plaster on gypsum lath screw attached to channel studs is proposed as the basic system on floors 1 through 9. These floors contain outpatient clinics which will be intensively used by large numbers of patients, undergraduates, and therefore are subject to infrequent change.

2. Drywall on channel studs is proposed as the basic system for the laboratory and office functions located on floors 10 through 14. These functions will require constant rearrangement of plan and will be used by a limited number of staff and graduate personnel.

3. Fireproof gypsum paneling is proposed to acheive the required fire rating around the floor to floor penetrations at stairs, mechanical cores, and elevator shafts.

4. Masonry is proposed for two applications:

    a. Masonry with acoustic treatment will be used for the auditoria.

    b. Both finished and unfinished masonry is proposed on mechanical floors and the animal room complex on Floor B, B1, 1.

In areas of high humidity and/or where a high degree of cleanliness is required, a glazed coating is proposed such as the animal room complex or the manufacturing suite. This application may be used on plaster, dry wall and masonry.

CASEWORK:

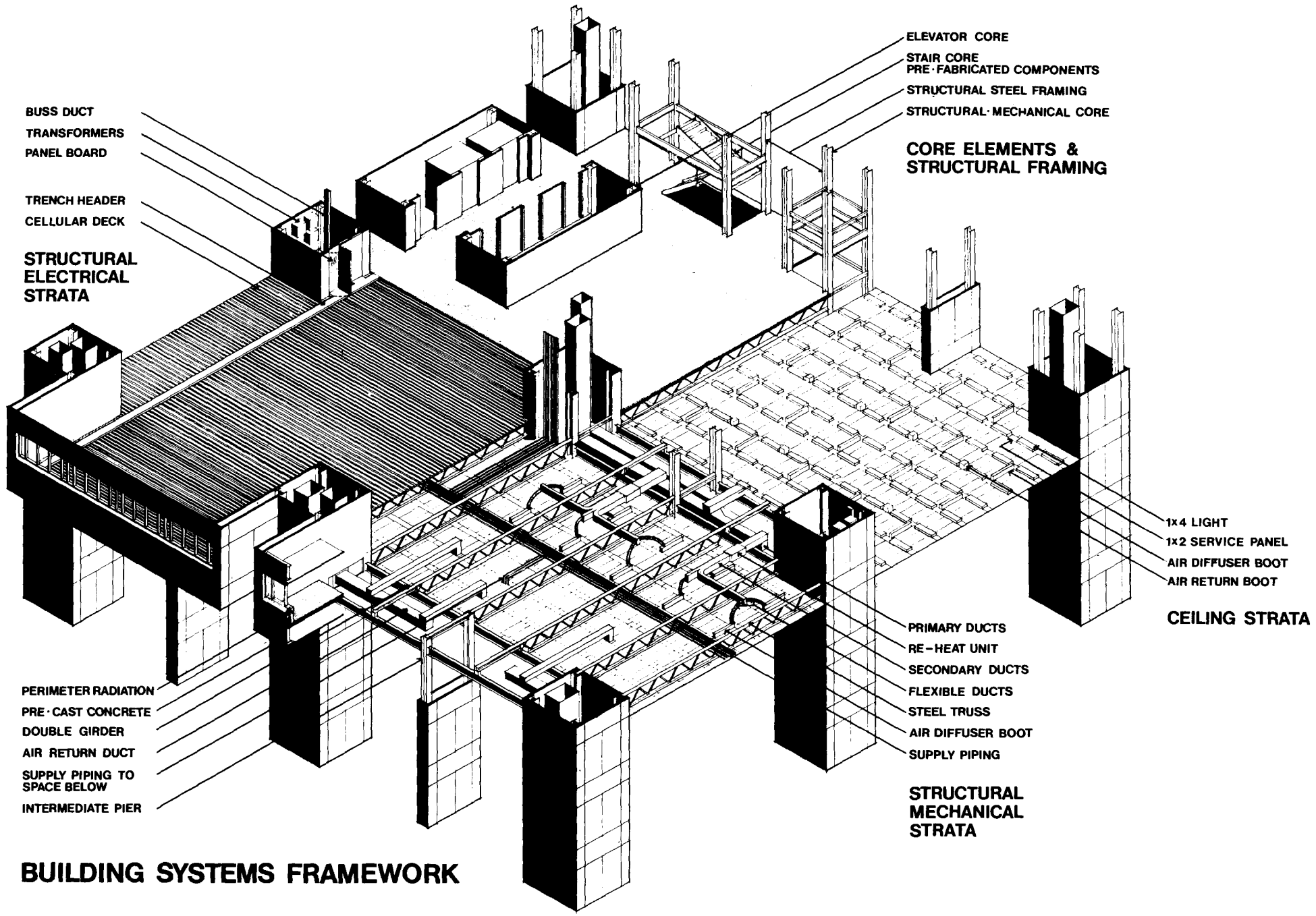
The flexibility afforded by the structural/mechanical system, interior partitions and ceilings will be matched by the system of casework. Elements will be dimentionally coordinated and capable of simple rearrangement to suit changing needs,

Historically casework for a project such as this has assumed five distinct forms--namely, hospital casework, laboratory cabinetry, special cabinetry such as that used in darkrooms and dental labs, dental operatory casework and station concept units as in medication and nourishment units. This has been so, primarily due to the sources of manufacture and a preoccupation on the manufacturers part to limit his production to one, two or three types of the specialized casework mentioned above.

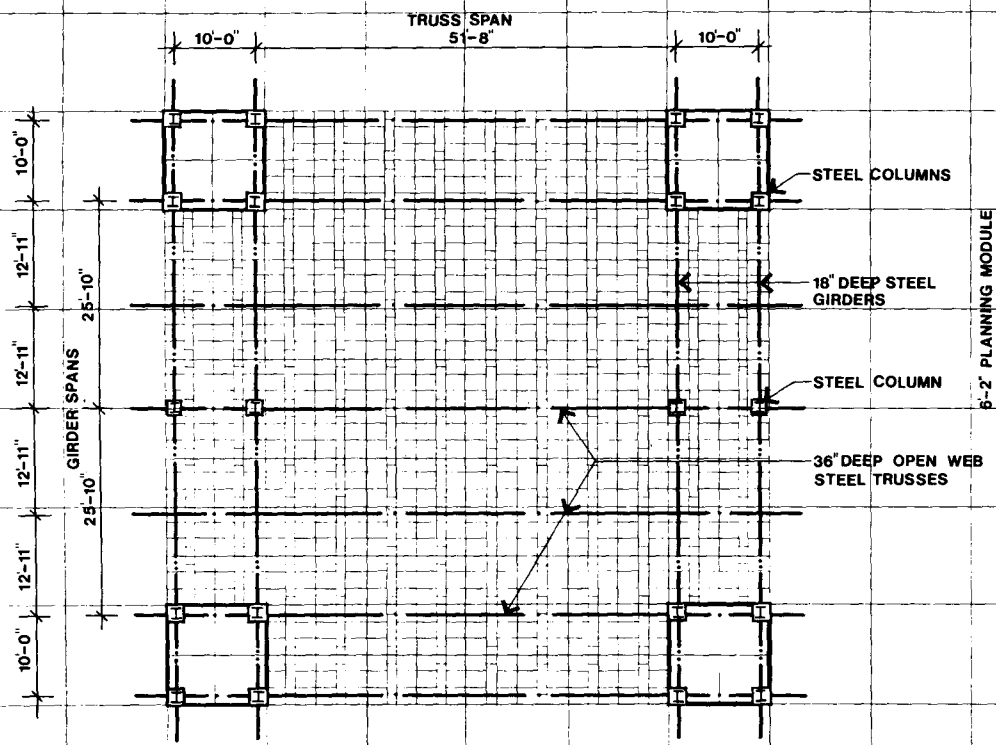
We proposed to develop a single specification for all of the casework. The attempt would be to consolidate all of the inconsistencies of the traditional system and to develop a truly interchangeable cabinetry. This would appear to be particularly desirable in view of the fact that the whole tendency in good health science planning, is to stress the interrelationship of patient care, teaching and research. If the cabinetry to accommodate these disciplines can be coordinated, the esthetic and utilitarian possibilities are manifold. A consistency of design detail, fittings and finish would be assured. The

maintenance management would be made consistent and simpler. And least, the initial cost should be less, due to the magnitude of the order.

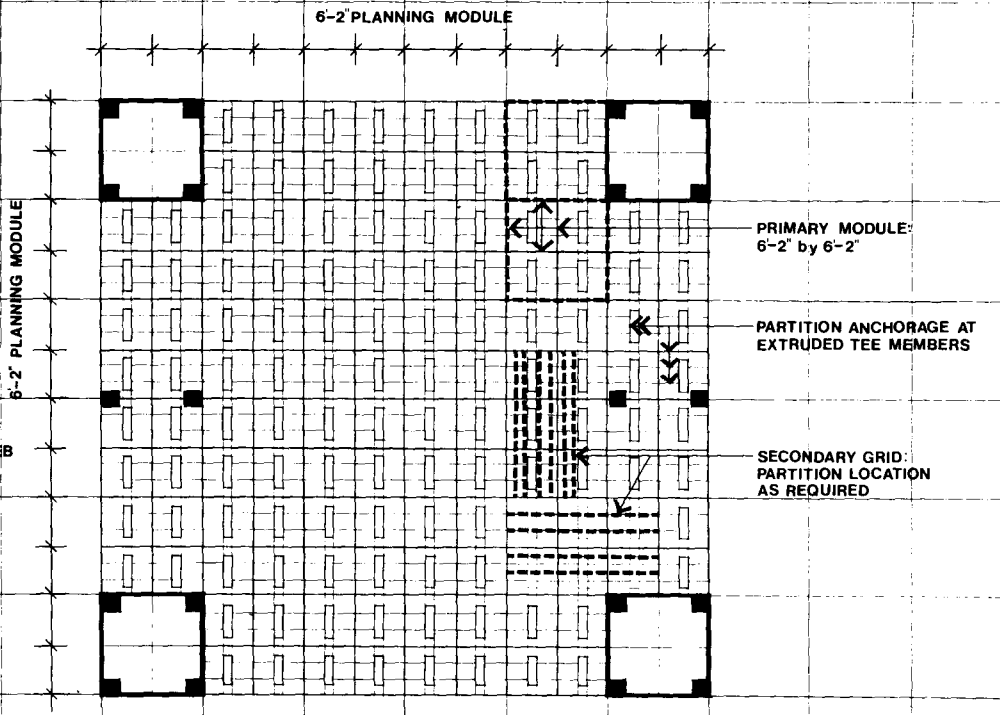
The recommendation is to produce a non-proprietory performance specification which will lay emphasis on the consistency of design and detail to be maintained and that will delineate the differences of working surfaces and base conditions that can be accomodated. This specification will be accompanied by a catalogue of modularly coordinated casework components. Elevations and basic dimensions of units that will be used consistently throughout the facility.



BUILDING SYSTEMS FRAMEWORK



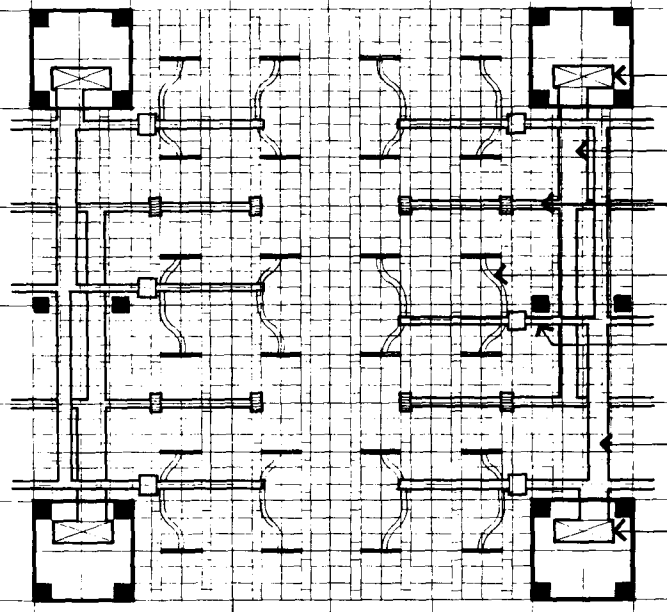
STRUCTURAL GRID



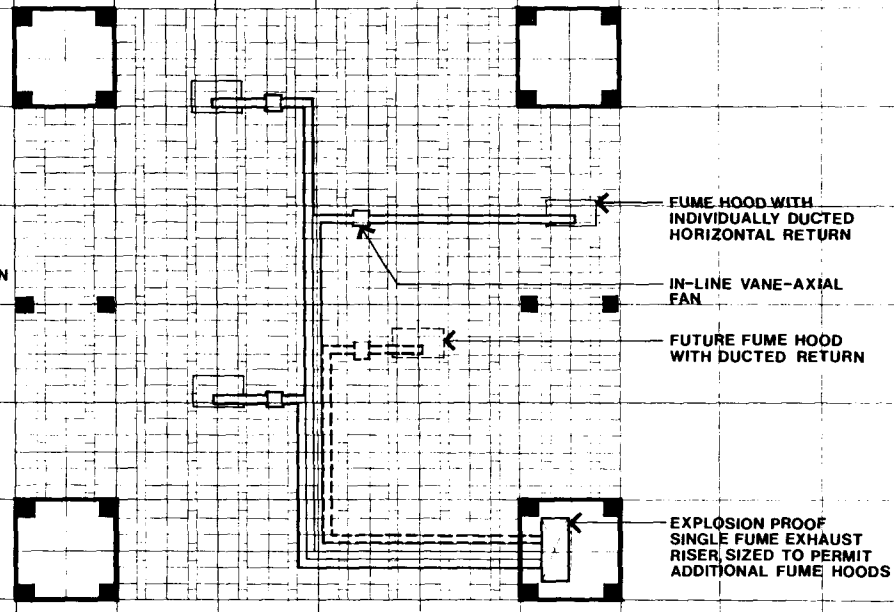
PLANNING GRID

FOR MODULAR OR NON-MODULAR FUNCTIONS

DIMENSIONAL CHARACTERISTICS

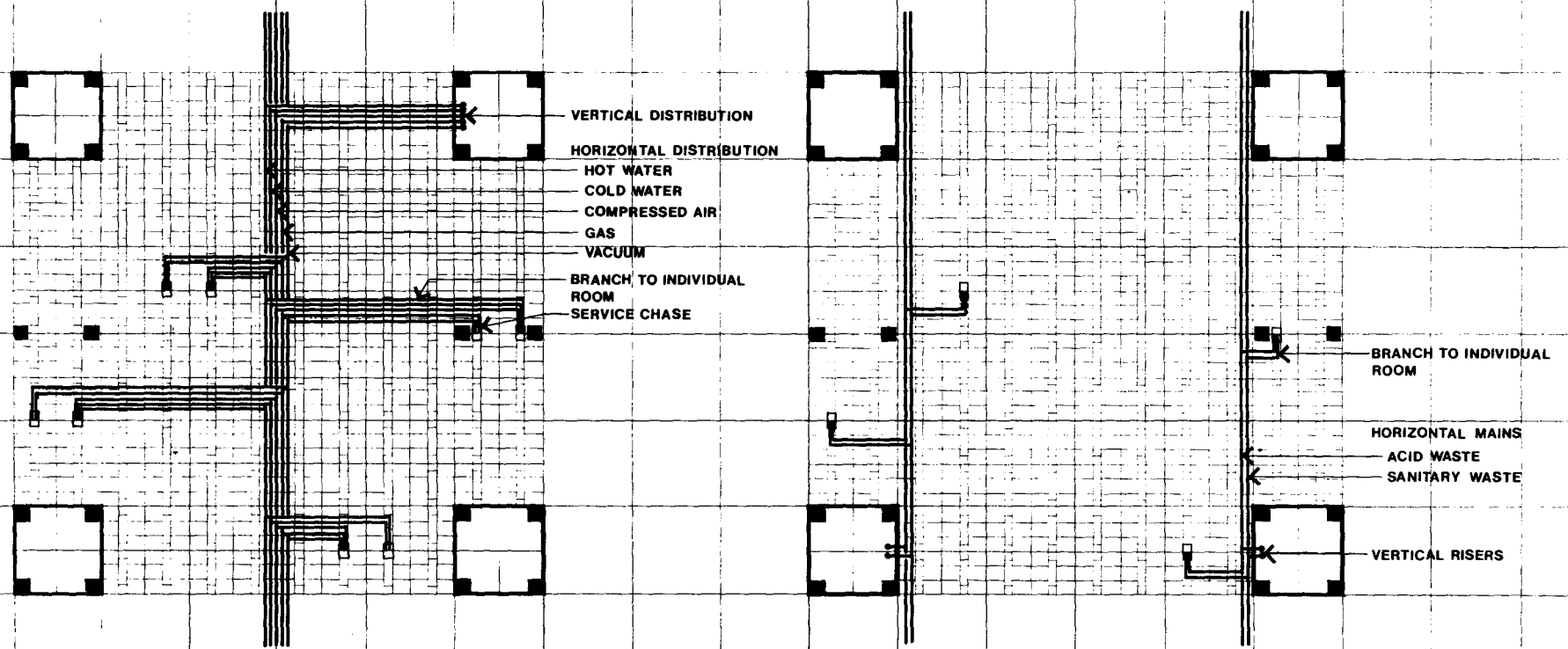


AIR DISTRIBUTION



FUME HOOD EXHAUST

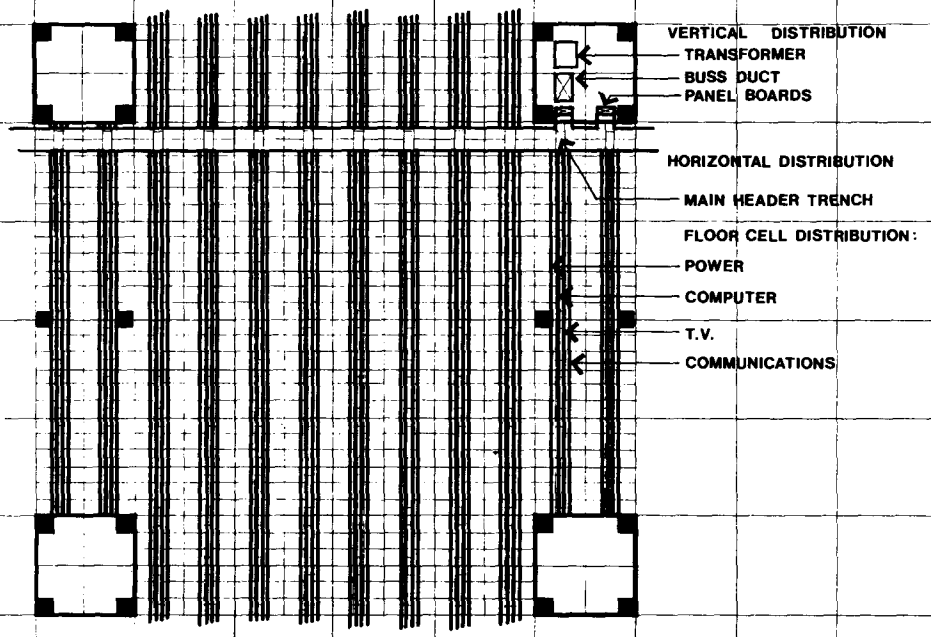
H·V·AC



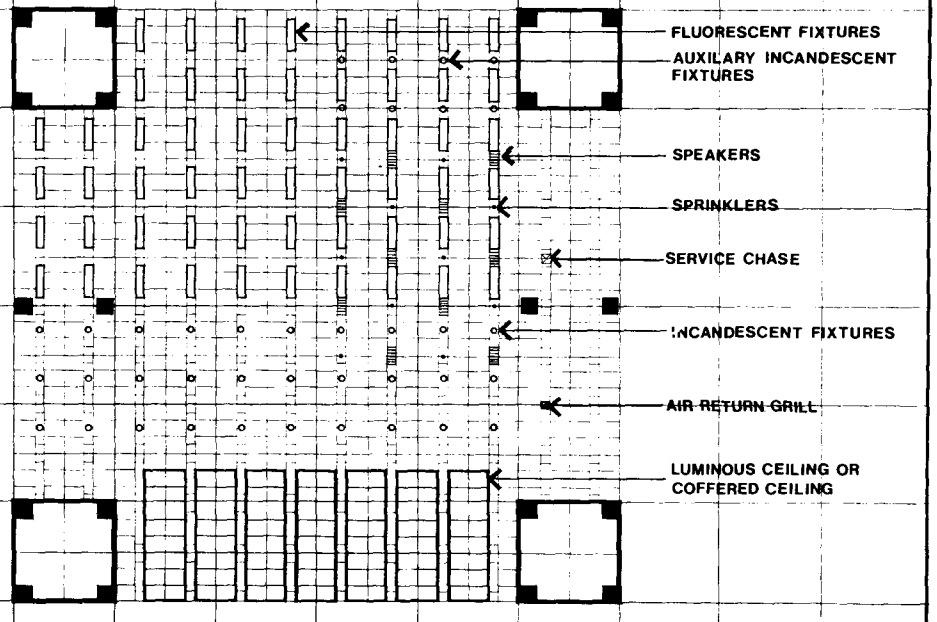
SUPPLY

WASTE

PIPED SERVICES



DISTRIBUTION OF SERVICES



LIGHTING PATTERNS - REFLECTED CEILING

ELECTRICAL SERVICES

SUMMARY OF TEACHING AND TEACHING RELATED SPACE

DISCIPLINE	TOTAL SFN NEW	TOTAL SFN DIEHL	TOTAL ASSOC SFG NEW	TOTAL ASSOC SFG DIEHL
Auditorium & General Classrooms	8,680		17,739	
Learning Resources	2,829	25,250	3,500	26,350
Outpatient Clinics & Seminar Rooms	85,847		168,086	
Teaching Faculty Research/Teaching Faculty Support	12,961	11,600	23,405	12,000
Faculty Offices (Family Practice)	3,537		4,500	
TOTALS	113,854	36,850	217,230	38,350

SPACE SUMMARY BY FLOOR

	TOTAL SFN NEW	TOTAL SFN DIEHL	TOTAL SFN	TOTAL ASSOC. SFG NEW	TOTAL ASSOC. SFG DIEHL	TOTAL FLOOR SFG NEW
FLOOR B	3,655		3,655	6,100		65,771
FLOOR B1	4,593		4,593	7,872		11,077
FLOOR 1	36,135	11,600	47,735	64,807	12,000	71,072
FLOOR 2	14,984	25,250	40,234	41,669	26,350	75,333
FLOOR 3	9,134		9,134	19,940		26,587
FLOOR 4	7,657		7,657	16,840		26,049
FLOOR 5	8,273		8,273	14,570		27,768
FLOOR 6	10,478		10,478	15,620		25,141
FLOOR 7						30,761
FLOOR 8	8,730		8,730	13,250		32,081
FLOOR 9	10,215		10,215	16,562		33,191
FLOOR 10						23,471
FLOOR 11						20,179
FLOOR 12						20,179
FLOOR 13						27,529
FLOOR 14						27,529
FLOOR 15						27,529
ROOF						2,888
TOTAL	113,854	36,850	150,704	217,230	38,350	574,135

SUMMARY OF PRIMARY TEACHING SPACES

SEMINAR ROOMS IN OUTPATIENT CLINICS

DEPARTMENT	ROOM NUMBER	NUMBER OF STUDENTS	SFN
OB/GYN	C1-146	18	185
	C1-147	18	185
ORTHO	C1-196	18	185
	C1-195	18	185
MED	C2-151	18	185
	C2-152	18	185
FAM-PRAC	C3-165	25	225
	C3-166	25	225
	C3-167	25	225
	C3-168	25	225
PEDS	C4-132	18	185
	C4-133	18	185
	C4- 47	18	185
	C4- 48	18	185
NEUROLOGY	C5-126	15	150
	C5-130	15	150
NEUROSURGERY	C5-117	18	185
	C5-118	18	185
PSYCHIATRY	C6-125	18	185
	C6-152	18	185
PSYCHOLOGY	C6-117	18	185
	C6-143	18	185
FAM-PRAC	C6-172	30	295
	C6-173	35	375
TOTAL			4,830

AUDITORIUM AND GENERAL CLASSROOM

DEPARTMENT	ROOM NUMBER	NUMBER OF STUDENTS	SFN
CLINICAL AUDITORIUM	FL-1		870
	FL-2	350	4,232
	C4-205	25	220
	C4-204	25	225
	C5-171	40	390
	C9-137	45	450
	C9-136	60	600
	C9-103	30	337
	C9-179	25	220
	C9-178	25	225
TOTAL			7,769
TOTAL - PRIMARY TEACHING SPACES			12,599

FLOOR B
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
MEDICAL ART AND PHOTOGRAPHY				
CB-110	TOILET/DRESS. ROOM	25		
CB-111	CAMERA EQUIP. ST.	18		
CB-112	FILM LOAD DARK ROOM	22		
CB-113	PHOTOGRAPHY STUDIO	514		
CB-114	TV STUDIO	750		
CB-115	ART SUPERVISOR	150		
CB-116	TV CONTROL ROOM	225		
CB-117	ART STUDIO	1125		
	TOTAL	2,829	3,500	
LAB MEDICINE				
CB-134	LAB	330		
CB-135	E.M. ROOM	128		
CB-135	DARK ROOM	75		
CB-137	PHOTO LAB	115		
CB-138	UTILITY ROOM	128		
	TOTAL	826	2,600	
	TOTAL FLOOR B	3,655	6,100	65,771

FLOOR B_1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
MICROBIOLOGY ANIMAL				
BIW-101	LAB	63		
BIW-102	GERMFREE ANIMALS	170		
BIW-103	LAB	94		
BIW-104	GERMFREE ANIMALS	210		
BIW-105	LAB	86		
BIW-106	ANIMALS	210		
BIW-107	LAB	107		
BIW-108	ANIMALS	170		
BIW-109	LAB	62		
BIW-110	ANIMALS	170		
BIW-111	LAB	68		
BIW-112	ANIMALS	170		
BIW-113	CAGE PREP	356		
BIW-114	FOOD & BEDDING	240		
BIW-115	CAGE WASHING			
BIW-116	ANIMALS	170		
BIW-117	LAB	220		
BIW-118	ANIMALS	170		
BIW-119	ANIMALS	170		
BIW-120	LAB	220		
BIW-121	ANIMALS	170		
BIW-122	ANIMALS	170		
BIW-123	LAB	220		
BIW-124	ANIMALS	170		
BIW-125	ANIMALS			
BIW-126	RECORDS	166		
BIW-127	LOCKERS	150		
BIW-128	LOCKERS	162		
BIW-129	COLD ROOM	105		
BIW-130	ANIMALS	154		
	TOTAL	4,593	7,872	
	TOTAL FLOOR B_1	4,593	7,872	11,077

FLOOR 1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
CLINICAL AUDITORIUM			
C1-105	TOILET	25	
C1-106	DRESS	10	
C1-107	PATIENT WAIT	230	
C1-109	ANTEROOM	145	
C1-110	STORAGE	145	
C1-111	STORAGE	315	
	TOTALS	870	3,808
OB-GYN OPD CLINIC			
C1-112	CHILD WAIT	175	
C1-113	CONSULTATION	163	
C1-114	SCALE	17	
C1-115	EXAM W/TOILET	170	
C1-116	STORAGE	7	
C1-117	STORAGE	7	
C1-118	EXAM W/TOILET	170	
C1-119	EXAM W/TOILET	170	
C1-120	STORAGE	7	
C1-121	STORAGE	7	
C1-122	EXAM W/TOILET	170	
C1-123	EXAM W/TOILET	145	
C1-124	EXAM W/TOILET	145	
C1-125	SOILED UTILITY	112	
C1-126	TREATMENT	112	
C1-127	TREATMENT	112	
C1-128	NURSE CLERICAL	112	
C1-129	DOCTOR	82	
C1-130	TRANSCRIBE	53	
C1-131			
C1-132	RECEPTION	260	
C1-133	WAITING	400	
C1-134	COATS	20	
C1-135	DOCTOR	82	
C1-136	NURSE CONSULTATION	112	
C1-137	SCALE	35	
C1-138	STORAGE	35	
C1-139	CLEAN UTILITY	139	
C1-140	EXAM W/TOILET	145	
C1-141	EXAM W/TOILET	145	
C1-142	EXAM W/TOILET	130	
C1-143	EXAM W/TOILET	130	
C1-144	EXAM W/TOILET	130	
C1-145	EXAM W/TOILET	130	

FLOOR 1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
OB-GYN OPD. CLINIC			
C1-146	SEMINAR (18 Students)	185	
C1-147	SEMINAR (18 Students)	185	
C1-148	CONSULTATION	112	
C1-149	EXAM W/TOILET	145	
C1-150	EXAM W/WHEELCHAIR TOILET	145	
C1-151	EXAM W/TOILET	145	
C1-152	EXAM W/TOILET	145	
C1-153	CONSULTATION	112	
	TOTALS	5,003	9,275
CLINICAL LABORATORY			
C1-154	CLERICAL RECEPTION	234	
C1-155	TOILET	40	
C1-156	TOILET	40	
C1-157	LAB OFFICE	115	
C1-161	LAB SUPPORT	300	
C1-162	CLINICAL LAB	1,415	
C1-163	OFFICE	74	
C1-164	DRAW	74	
C1-165	DRAW	74	
C1-166	DRAW	74	
C1-167	OFFICE	74	
C1-168	WAITING (SHARED)	375	
	TOTALS	2,815	5,746
ORTHOPEDICS - PM & R OPD CLINIC			
C1-168	WAITING (SHARED)	300	
C1-169	COATS	20	
C1-170	CONSULTATION	112	
C1-171	EXAM	112	
C1-172	EXAM	112	
C1-173	EXAM	112	
C1-174	EXAM	112	
C1-175	CONSULTATION	112	
C1-176	EXAM	130	
C1-177	GAIT ROOM	125	
C1-178	OBSERVATION & CAMERA	25	
C1-179	CAST ROOM	300	
C1-180	SPLINT	45	
C1-181	PLASTER	60	

FLOOR 1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
ORTHOPEDICS - PM & R OPD CLINIC			
C1-182	SPLINT	45	
C1-183	EXAM	112	
C1-184	CLEAN UTILITY	112	
C1-185	NURSE CLERICAL	112	
C1-186	DOCTORS	82	
C1-187	RECEPTION	260	
C1-188	TRANSCRIBE	55	
C1-189	DOCTORS	82	
C1-190	PATIENT EDUCATION	112	
C1-191	SOILED	112	
C1-192	TOILET	30	
C1-193	TOILET	30	
C1-194	EXAM	112	
C1-195	EXAM	130	
C1-196	SEMINAR (18 Students)	185	
C1-197	SEMINAR (18 Students)	185	
C1-198	EXAM	112	
C1-199	EXAM	112	
C1-200	EXAM	112	
C1-201	EXAM	112	
C1-202	EXAM	112	
C1-203	CONSULTATION	112	
	TOTALS	4,105	8,549
EKG			
C1-168	WAITING (SHARED)	75	
C1-204	EKG RECORD	112	
C1-205	EKG RECORDING	112	
C1-206	EKG CLERICAL	142	
	TOTALS	441	
EMPLOYEE HEALTH			
C1-207	NURSES' OFFICE	100	
C1-208	E. H. CLERICAL	125	
C1-209	EXAM	112	
C1-210	EXAM	112	
C1-211	DOCTORS' OFFICE	104	
C1-212	EXAM (COT ROOM)	100	
	TOTALS	653	1,238

FLOOR 1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
RADIOLOGY			
C1-214	X-RAY STORAGE	100	
C1-215	EMPLOYEES' LOUNGE	215	
C1-216	CONSULTATION	150	
C1-217	RADIOLOGIST	112	
C1-218	FILM DESK	112	
C1-219	FILM FILING	150	
C1-220	SECRETARIES	225	
C1-222	X-RAY ROOM #1	365	
C1-223	TOILET	25	
C1-224	PROCESSING & ASSEMBLY	215	
C1-225	TOILET	25	
C1-226	X-RAY ROOM #2	370	
C1-227	WORK ROOM	35	
C1-228	M. TOILET	30	
C1-229	TOMOGRAPHY	225	
C1-230	NUCLEAR MED. MAMMOGRAPHY XEROGRAPHY	320	
C1-231	CHEST X-RAY	200	
C1-232	WAITING	225	
C1-233			
C1-234	STORAGE	30	
B1-101	TECH. OFFICE	130	
B1-103	TOILET	30	
B1-107	PROCESSING	100	
B1-111	PRESSING & SUBWAIT	280	
B1-113	RECEPTION	155	
B1-115	COATS	55	
	TOTALS	3,879	6,848
PROCTOLOGY			
C1-233	EXAM	150	
B1-116	CLEAN UTILITY	72	
B1-117	EXAM & CONSULTATION	112	
B1-118	PROCTO SUB-WAIT	104	
B1-120	DRESS	20	
B1-121	TOILET	30	
B1-122	PROCTOLOGY	165	
B1-123	PROCTOLOGY	185	
B1-124	SOILED UTILITY	70	
B1-125	TOILET	25	
B1-126	TOILET	25	
	TOTALS	958	

FLOOR 1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
AMBULATORY SURGERY			
C1-134	F. LOCKERS	100	
C1-135	M. LOCKERS	100	
C1-236	JANITOR	30	
C1-237	TOILET	30	
C1-238	MEN'S LOCKER	250	
B1-127	TOILET	42	
B1-128	CLEAN UTILITY	180	
B1-129	ANESTHESIA WORK	75	
B1-130	SOILED UTILITY	106	
B1-131	SCRUB	30	
B1-132A	DICTATION	25	
B1-132B	SUPERVISOR	25	
B1-133	LOUNGE	93	
B1-134	MINOR O.R.	265	
B1-135	SOILED HOLDING	87	
B1-136	MINOR O.R.	265	
B1-137	STORAGE	225	
B1-138	RECOVERY	870	
B1-139	MINOR O.R.	265	
B1-140	ANESTHESIA	170	
B1-141	TOILET	30	
B1-142	LOCKERS & SUB-WAIT	180	
B1-142A	DRESS	18	
B1-142B	DRESS	18	
B1-142C	DRESS	18	
B1-143	DICTATION	42	
B1-144	TREATMENT	580	
B1-145	RECEPTION	220	
B1-146	WAITING (SHARED)	290	
	TOTALS	4,629	8,962
ANIMAL HOSPITAL			
C1W-101	LOCKER ROOM	200	
C1W-102	CADAVER ROOM	80	
C1W-103	AUTOPSY	106	
C1W-104	MEN	99	
C1W-105	KITCHEN	84	
C1W-106	LUNCH-CONFERENCE ROOM	380	
C1W-107	STORAGE	36	
C1W-108	STORAGE	47	
C1W-109	FOOD PREP. ROOM	200	
C1W-110	ANIMAL ROOM	195	
C1W-114	MONKEY ROOM	175	

FLOOR 1 WEST
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG
ANIMAL HOSPITAL			
C1W-115	DOG PROCUREMENT	550	
C1W-116	DOG PROCUREMENT	550	
C1W-117	DE BARKING	250	
C1W-118	VETS OFFICE	100	
C1W-119	SMALL ANIMAL PROCUREMENT	132	
C1W-120	CAGE STORAGE	132	
C1W-121	COLD ROOM	66	
C1W-122	FOOD & BED. STORAGE	365	
C1W-123	ANIMAL RECEIVING	310	
C1W-124	ICE MAKER	42	
C1W-125	FILE STORAGE	42	
C1W-126	ACCOUNT OFFICE	85	
C1W-127	SUP VR OFFICE	85	
C1W-128	SEC. OFFICE	175	
C1W-129	MANAGER	115	
C1W-130	WAITING	81	
C1W-131	ANIMAL TRUCK RECEIVING	960	
C1W-132	COLD ROOM	200	
C1W-133	REFUSE ROOM	230	
	TOTALS	6,072	10,565
DEPARTMENT OF SURGERY & LAB MEDICINE			
C1W-111	DOG ROOM	505	
C1W-112	DOG ROOM	460	
C1W-113	DOG ROOM	505	
	TOTALS	1,470	2,368

FLOOR 1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
	SURGERY & UROLOGY CLINICS		
B1-101	TECH OFF	130	
B1-102	EXAM	130	
B1-103	F. TOILET	30	
C1-228	M. TOILET	30	
B1-104	UROLOGY	340	
B1-105	UROLIGY SUPPORT	50	
B1-106	EXAM	122	
B1-108	EXAM	122	
B1-109	EXAM	118	
B1-110	CONSULTATION	118	
B1-112	EXAM	122	
B1-114	CONSULTATION	122	
B1-146	WAITING (Shared)	290	
B1-147	COATS	30	
B1-148	RECEPTION	270	
B1-149	DOCTORS	237	
B1-150	TRANSCRIBE	50	
B1-151	NURSE CLERICAL	117	
B1-152	PATIENT EDUCATION	116	
B1-153	TOILET	30	
B1-154	TOILET	30	
B1-155	TREATMENT	112	
B1-156	TREATMENT	112	
B1-157	CLEAN UTILITY	125	
B1-158	SOILED UTILITY	120	
B1-159	SEMINAR (18 Students)	180	
B1-160	SEMINAR (18 Students)	185	
B1-161	CART STORAGE	30	
B1-162	STORAGE	15	
B1-163	STORAGE	15	
B1-164	EXAM	130	
B1-165	EXAM	120	
B1-166	CONSULTATION	90	
B1-166	EXAM & DEMONSTRATION	170	
B1-167	EXAM	112	
B1-168	EXAM	112	
B1-169	EXAM	112	
B1-170	EXAM	112	
B1-171	EXAM	112	

FLOOR 1
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
SURGERY & UROLOGY (cont.)				
B1-172	EXAM	112		
B1-173	EXAM	112		
B1-174	EXAM	112		
B1-175	CONSULTATION	112		
B1-176	EXAM	112		
B1-177	NURSES	112		
	TOTAL	5,240	7,448	
	TOTAL FLOOR 1	36,135	64,807	71,072

FLOOR 1 DIEHL REMODELING
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
ANESTHESIOLOGY			
D1-G101	ANIMAL O.R.	458	
D1-G101-1	PHOTO LAB	109	
D1-F103	CHEMISTRY ROOM	231	
D1-F104	ANTE ROOM	102	
C1-F104-1	CENTRIFUGE ROOM	160	
D1-F104-2	ANIMAL O.R.	472	
D1-G105	OFFICE	106	
D1-F110	INSTRUMENT ROOM	471	
	TOTALS	2,109	
NEUROSURGERY			
D1-G107	OFFICE	172	
D1-F109	ANIMAL O.R.	238	
D1-F111	ANIMAL O.R.	240	
D1-F114	LAB	280	
D1-F114-1	OFFICE	180	
D1-F119	ANIMAL O.R.	253	
D1-F120-1	LAB	200	
D1-F123	ANIMAL O.R.	226	
D1-F127	ANIMAL O.R.	234	
D1-F133	LAB	246	
D1-F137	CONFERENCE	225	
	TOTALS	2,494	
NEUROLOGY			
D1-G111	LAB	151	
D1-G113	ANIMALS	164	
D1-G115	ANIMALS	168	
D1-G117	LAB	207	
	TOTALS	690	
DIAGNOSTIC RADIOLOGY			
D1-G121	ANIMALS (RA)	178	
D1-G123	LAB (RA)	345	
D1-G129	ANIMALS (RA)	129	
	TOTALS	652	

FLOOR 1 DIEHL REMODELING
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME		TOTAL SFN	ASSOCIATED SFG
DEPARTMENT OF SURGERY				
D1-G131	FREEZER (RA)		72	
D1-G133	COOLER (RA)		80	
D1-G138	LAB		327	
D1-G138	GLASS WASHING		96	
D1-G142	OFFICE		60	
D1-G142-1	LAB		225	
D1-G144	INCUBATOR		72	
D1-G144-1	INCUBATOR		64	
	TOTALS		996	
UROLOGY				
D1-G130-1	STORAGE		108	
D1-F134	ANIMAL O.R.		150	
D1-F136	TISSUE CULTURE LAB		298	
D1-G138-1	E.M. PREP.		208	
	TOTALS		764	
DIAGNOSTIC RADIOLOGY				
D1-H115	LAB	(RA)	174	
D1-H116	LAB-ANIMAL	(RA)	160	
D1-H118-1	OFFICE	(RA)	83	
D1-H118-2	OFFICE	(RA)	83	
D1-H118	LAB	(RA)	181	
D1-H119	LAB	(RA)	341	
D1-H124	LAB	(RA)	150	
D1-H126	LAB	(RA)	169	
D1-H127	LAB	(RA)	328	
D1-H129	SERVICE	(RA)	179	
D1-H130	LAB	(RA)	154	
	TOTALS		2,002	
NEUROLOGY				
D1-H111	LAB		314	
D1-J105	LAB		111	
D1-J105-1	DARK ROOM		101	
D1-J105-2	DARK ROOM		33	

FLOOR 1 DIEHL REMODELING
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG
NEUROLOGY			
D1-J105-3	OFFICE	159	
D1-J108	RESIDENTS	263	
D1-J111	COOLER (RA)	112	
D1-J111-1	FREEZER	34	
	TOTALS	1,227	
PEDIATRICS			
D1-G106	ANIMAL RM (RA)	521	
D1-K107	SECRETARIAL	145	
	TOTALS	666	
TOTAL	FLOOR 1 DIEHL	11,600	12,000

FLOOR 2
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
CLINICAL AUDITORIUM			
C2-101	FRONT PROJECTION	265	
C2-102	CLINICAL AUDITORIUM (350 Students)	3,185	
C2-103	REAR PROJECTION	522	
C2-104	WORK AREA	120	
C2-105	OFFICE	140	
	TOTALS	4,232	9,752
OUTPATIENT SUPPORT SERVICES			
C2-126	OFFICE	100	
C2-127	OFFICE	110	
C2-128	OFFICE	95	
C2-129	OFFICE	112	
C2-130	OFFICE	112	
C2-131	OFFICE	112	
C2-132	OFFICE	105	
C2-133	CLERICAL	275	
C2-140	WAITING (SHARED)	75	
	TOTALS	1,046	5,132
PHARMACY			
C2-134	SUPERVISOR	120	
C2-135	STORAGE	425	
C2-136	WORK	780	
C2-137	DISPENSING & RECEIVING	325	
C2-138	CARREL	24	
C2-139	CARREL	24	
C2-140	WAITING (SHARED)	300	
	TOTALS	1,998	6,722
MEDICINE OPD CLINIC			
C2-140	WAITING (SHARED)	375	
C2-141	COATS	20	
C2-142	CONSULTATION	115	
C2-143	EXAM	112	
C2-144	EXAM	112	
C2-145	STORAGE	75	

FLOOR 2
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
MEDICINE OPD CLINIC			
C2-146	EXAM	112	
C2-147	EXAM	108	
C2-148	CONSULTATION	108	
C2-149	EXAM	112	
C2-150	EXAM	130	
C2-151	SEMINAR (18 Students)	185	
C2-152	SEMINAR (18 Students)	185	
C2-153	EXAM	112	
C2-154	SOILED UTILITY	112	
C2-155	TREATMENT	112	
C2-156	TREATMENT	112	
C2-157	NURSE CLERICAL	112	
C2-158	DOCTORS	82	
C2-159	TRANSCRIBE	55	
C2-160	RECEPTION	260	
C2-161	DOCTORS	68	
C2-162	NURSE CONSULTATION	112	
C2-163	TOILET	30	
C2-164	TOILET	30	
C2-165	CLEAN UTILITY	112	
C2-166	EXAM	112	
C2-167	EXAM	130	
C2-168	EXAM	112	
C2-169	EXAM	112	
C2-170	EXAM	112	
C2-171	EXAM	112	
C2-172	CONSULTATION	112	
C2-173	EXAM	112	
C2-174	EXAM	112	
C2-175	EXAM	112	
C2-176	EXAM	112	
	TOTALS	4,308	9,803

FLOOR 2
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
	ADMITTING	900		
	BUSINESS	2,500	10,260	
TOTAL	FLOOR 2	14,984	41,669	75,333

FLOOR 2 DIEHL REMODELING
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC. SFG
LEARNING RESOURCES CENTER			
D2-101	INTERACTION	162	
D2-102	CARREL	54	
D2-103	CARREL	54	
D2-104	CARREL	54	
D2-105	CARREL	54	
D2-106	CARREL	54	
D2-107	CARREL	54	
D2-108	INTERACTION	434	
D2-109	CARREL	54	
D2-110	CARREL	54	
D2-111	CARREL	54	
D2-112	INTERACTION	396	
D2-114	CARREL AREA	3,275	
D2-115	CARREL	54	
D2-116	CARREL	54	
D2-117	CARREL	54	
D2-118	INTERACTION	500	
D2-119	CARREL	54	
D2-120	CARREL PROJ.	54	
D2-121	CARREL	54	
D2-122	STUDY TABLE AREA	955	
D2-123	CARREL AREA	2,047	
D2-124	CARREL	58	
D2-125	CARREL	120	
D2-126	CARREL	58	
D2-127	CARREL	40	
D2-128	CARREL	51	
D2-129	CARREL	51	
D2-130	CARREL	49	
D2-131	STORAGE	50	
D2-132	STUDY LOUNGE	550	
D2-133	L.R.C. LOBBY	995	
D2-134	SERVICE DESK	565	
D2-135	PRINTED MATERIAL DISPLAY	119	
D2-136	A-V LIBRARY	965	
D2-137	COORDINATORS	248	
D2-138	DIAL ACCESS	510	
D2-139	REPAIR SHOP	210	
D2-140	WORK ROOM	148	
D2-141	PREVIEW	144	
D2-142	PREVIEW	100	

FLOOR 2 DIEHL REMODELING
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC. SFG
LEARNING RESOURCES CENTER - continued			
D2-143	RECORD	110	
D2-144	SERVICE	24	
D2-145	A-V OFFICE	140	
D2-146	A-V CLER.	108	
D2-147	EQUIPMENT STORAGE	126	
D2-148	FILM STORAGE	116	
D2-149	L.R.C. DIR.	132	
D2-150	L.R.C. SEC.	110	
D2-151	MODEL STORAGE	150	
D2-152	LIBRARIAN	112	
D2-153	ASSISTANT LIBRARIAN	112	
D2-154	LOBBY	1,634	
D2-155	CARREL AREA	2,024	
	TOTALS	18,508	
BIOMEDICAL LIBRARY			
D2-156	STACKS		
D2-157	STACKS		
D2-158	STUDY AREA		
D2-159	PRIVATE CARRELS		
D2-160	STUDY AREA		
	TOTALS	6,742	
TOTAL	FLOOR 2 DIEHL	25,250	26,350

FLOOR 3
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
FAMILY PRACTICE CLINIC			
C3-101	RESIDENCE	112	
C3-102	CONSULTATION	100	
C3-103	OFFICE	90	
C3-104	EXAM	100	
C3-105	EXAM	112	
C3-106	EXAM	112	
C3-107	SOCIAL SERVICE	100	
C3-108	OFFICE	90	
C3-109	CONSULTATION	100	
C3-110	EXAM	112	
C3-111	EXAM	112	
C3-112	EXAM	100	
C3-113	OFFICE	90	
C3-114	PSYCHOLOGIST	100	
C3-115	PSY. TESTING	112	
C3-116	DISCUSSION	35	
C3-117	CLINICAL LABORATORY	485	
C3-118	FILM STORAGE	55	
C3-119	READING & DAYLIGHT PROC.	125	
C3-120	BUSINESS, FILES & INSUR.	450	
C3-121	SUPERVISOR	112	
C3-122	EXAM	112	
C3-123	EXAM	112	
C3-124	EXAM	112	
C3-125	EXAM	112	
C3-126	TREATMENT	112	
C3-127	TREATMENT	112	
C3-128	EXAM	112	
C3-129	EXAM	112	
C3-130	TOILET	30	
C3-131	TOILET	30	
C3-132	OFFICE	112	
C3-133	SOILED UTILITY	75	
C3-134	CLEAN UTILITY	150	
C3-135	DOCTORS	175	
C3-136	RECEPTION	375	
C3-137	WAITING	675	
C3-138	COATS	31	
C3-139	DRESS	20	
C3-140	DRESS	20	
C3-141	X-RAY	35	
C3-142	BLOOD DRAWING	35	

FLOOR 3
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
FAMILY PRACTICE CLINIC				
C3-143	TOILET	30		
C3-144	TOILET	30		
C3-145	TREATMENT	112		
C3-146	TREATMENT	112		
C3-147	EXAM	112		
C3-148	EXAM	112		
C3-149	CONSULTATION	112		
C3-150	EXAM	112		
C3-151	SOILED UTILITY	75		
C3-152	CLEAN UTILITY	150		
C3-153	COATS	15		
C3-154	LAB SPECIMENS	15		
C3-155	TOILET	30		
C3-156	TOILET	30		
C3-157	PROCTOLOGY	150		
C3-158	SOILED UTILITY	71		
C3-159	EXAM	108		
C3-160	EXAM	112		
C3-161	EXAM & AUDIO VISUAL	112		
C3-162	EXAM	112		
C3-163	EXAM	112		
C3-164	EXAM	112		
C3-165	SEMINAR (25 Students)	225		
C3-166	SEMINAR (25 Students)	225		
C3-167	STAFF OBSERVATION (25 Students)	225		
C3-168	TEACHING (25 Students)	225		
C3-169	PATIENT SELF MONITORING	340		
C3-170	F LOCKERS	145		
C3-171	F LOUNGE	85		
C3-172	TOILET	30		
C3-173	TOILET	30		
C3-174	STORAGE (WHEELCHAIR)	30		
	TOTAL	9,134	19,940	
	TOTAL FLOOR 3	9,134	19,940	26,587

FLOOR 4
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
PEDIATRICS OPD CLINIC			
C4-101	EXAM	112	
C4-102	EXAM	100	
C4-103	CONSULTATION	90	
C4-104	EXAM	100	
C4-105	EXAM	112	
C4-106	EXAM	112	
C4-107	EXAM	100	
C4-108	CONSULTATION	90	
C4-125	EXAM	112	
C4-126	NURSES CLERICAL EDUCATION	112	
C4-127	PATIENT EDUCATION	112	
C4-128	TREATMENT	112	
C4-129	TREATMENT	112	
C4-130	SOILED UTILITY	112	
C4-131	SEMINAR (18 Students)	185	
C4-132	SEMINAR (18 Students)	185	
C4-133	STORAGE	18	
C4-134	STORAGE	18	
C4-135	WHEELCHAIR STORAGE	35	
C4-136	CLEAN UTILITY	112	
C4-137	SPECIMEN COLLECTION	18	
C4-138	TOILET	50	
C4-139	WEIGHT MEASURE	112	
C4-140	DOCTORS	150	
C4-141	TRANSCR.	55	
C4-142	RECEPTION	188	
C4-165	WAITING	335	
C4-166	CHILD'S WAITING	225	
C4-167	EXAM	112	
C4-168	EXAM	112	
C4-169	EXAM	112	
C4-170	EXAM	112	
C4-178	COATS	30	
	TOTAL	3,652	8,182

FLOOR 4 EAST
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
DERMATOLOGY OPD CLINIC			
C4-109	CONSULTATION	100	
C4-110	EXAM	112	
C4-111	EXAM	112	
C4-112	EXAM	100	
C4-113	CONSULTATION	90	
C4-114	EXAM	90	
C4-115	EXAM	112	
C4-116	LAB	35	
C4-117	SEMINAR (18 Students)	185	
C4-118	SEMINAR (18 Students)	185	
C4-119	SOILED UTILITY	112	
C4-120	TREATMENT	112	
C4-121	TREATMENT	112	
C4-122	NURSES CLERICAL EDUCATION	112	
C4-123	EXAM	112	
C4-124	EXAM	112	
C4-143	RECEPTION	188	
C4-149	DOCTORS	150	
C4-150	PATIENT EDUCATORS	112	
C4-151	TOILET	30	
C4-152	TOILET	30	
C4-153	CLEAN UTILITY	112	
C4-154	DICTATING	27	
C4-155	CLOSET	9	
C4-156	EXAM	105	
C4-157	EXAM	105	
C4-158	ULTRAVIOLET	112	
C4-159	ULTRA VIOLET TREATMENT WITH DRESSING	18	
C4-160	X-RAY CONTROL	38	
C4-161	X-RAY THERAPY	112	
C4-162	EXAM	112	
C4-163	EXAM	112	
C4-164	WAITING	335	
C4-179	COATS	30	
	TOTAL	3,530	8,183

FLOOR 4 EAST
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
GENERAL PURPOSE CLASSROOMS				
C4-176	VENDING	30		
C4-204	SEMINAR	225		
C4-205	SEMINAR	220		
	TOTAL	475	475	
	TOTAL FLOOR 4	7,657	16,840	26,049

FLOOR 5
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
NEUROLOGY OPD CLINIC			
C5-101	OFFICE	112	
C5-102	EXAM	100	
C5-103	CONSULTATION	90	
C5-104		100	
C5-105	EXAM	112	
C5-106	EXAM	112	
C5-107	EXAM	100	
C5-108	CONSULTATION	90	
C5-124	EXAM	112	
C5-125	EXAM	112	
C5-126	NURSES	112	
C5-127	TOILET	65	
C5-128	SOILED UTILITY	112	
C5-129	SEMINAR (15 Students)	150	
C5-130	SEMINAR (15 Students)	150	
C5-131	CLEAN	112	
C5-132	TREATMENT	112	
C5-133	TREATMENT	112	
C5-134	NURSES	112	
C5-135	DOCTORS	150	
C5-136	TRANSOR	55	
C5-137	RECEPTION	188	
C5-153	WAITING	335	
C5-154	EXAM	112	
C5-155	EXAM	112	
C5-156	EXAM	112	
C5-157	EXAM	112	
C5-158	HEARING TESTING	300	
C5-162	COATS	30	
	TOTALS	3,583	7,150
NEUROSURGERY OPD CLINIC			
C5-109		100	
C5-110		112	
C5-111		112	
C5-112		100	
C5-113		90	
C5-114		100	
C5-115		112	
C5-116		30	
C5-117	SEMINAR (18 Students)	185	

FLOOR 5
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
NEUROSURGERY OPD CLINIC				
C5-118	SEMINAR (18 Students)	185		
C5-119	SOILED UTILITY	112		
C5-120	TOILET	65		
C5-121	NURSES' CLERICAL	112		
C5-122	EXAM	112		
C5-123	EXAM	112		
C5-138	RECEPTION	185		
C5-139	DOCTORS	150		
C5-140	PATIENTS EDUCATION	112		
C5-141	TREATMENT	112		
C5-142	TREATMENT	112		
C5-143	CLEAN UTILITY	112		
C5-144	STORAGE	15		
C5-145	STORAGE	15		
C5-146	EXAM	112		
C5-147	EXAM	112		
C5-148	EXAM	112		
C5-149	EXAM	112		
C5-150	EXAM	112		
C5-151	EXAM	112		
C5-152	WAITING	335		
C5-163	COATS	30		
C5-159	WOMEN'S LOCKERS	115		
C5-160	LOCKERS	185		
C5-161	BATTERY CHARGING & STOR.	335		
C5-169	LOCKERS	65		
C5-170	STORAGE	81		
	TOTALS	4,270	7,000	
GENERAL PURPOSE CLASSROOMS				
C5-171	SEMINAR (40 Students)	390		
C5-172	VENDING	30		
	TOTALS	420	420	
TOTAL	FLOOR 5	8,273	14,570	27,768

FLOOR 6
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
PSYCHIATRY OPD CLINIC			
C6-101	CONSULTATION	112	
C6-102	CONSULTATION	100	
C6-103	CONSULTATION	90	
C6-104	CONSULTATION	100	
C6-105	CONSULTATION	112	
C6-106	CONSULTATION	112	
C6-107	CONSULTATION	100	
C6-108	CONSULTATION	90	
C6-123	CONSULTATION	112	
C6-124	CONSULTATION	112	
C6-125	EXAM	112	
C6-126	TOILET	30	
C6-127	TOILET	30	
C6-128	DYAD	112	
C6-129	SEMINAR (18 Students)	185	
C6-130	CONSULTATION	112	
C6-131	STORAGE	112	
C6-132	SEMINAR (18 Students)	185	
C6-133	T.V.	112	
C6-134	GROUP TREATMENT	225	
C6-135	EXAM	112	
C6-136	DOCTORS	150	
C6-137	RECEPTION	188	
C6-152	WAITING	335	
C6-153	CHILDS' TOILET	20	
C6-154	CHILD PLAY	110	
C6-155	STORAGE	20	
C6-165	COATS	30	
	TOTALS	3,220	5,200
PSYCHOLOGY OPD CLINIC			
C6-109	CONSULTATION	112	
C6-110	CONSULTATION	112	
C6-111	CONSULTATION	100	
C6-112	CONSULTATION	90	
C6-113	CONSULTATION	100	
C6-114	PSYCHOMOTRIST	112	
C6-115	STORAGE	112	
C6-116	CONSULTATION	112	
C6-117	SEMINAR (18 Students)	185	

FLOOR 6
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
PSYCHOLOGY OPD CLINIC			
C6-118	DYAD	112	
C6-119	TOILET	30	
C6-120	TOILET	30	
C6-121	CONSULTATION	112	
C6-122	CONSULTATION	112	
C6-138	TRANSOR	55	
C6-139	RECEPTION	188	
C6-140	DOCTORS	150	
C6-141	GROUP TREATMENT	225	
C6-142	T.V.	112	
C6-143	SEMINAR (18 Students)	185	
C6-144	CONSULTATION	112	
C6-145	CONSULTATION	112	
C6-148	CONSULTATION	112	
C6-149	PLAYROOM	112	
C6-150	CONSULTATION	112	
C6-151	WAITING	335	
C6-166	COATS	30	
	TOTALS	3,271	5,136
GENERAL PURPOSE CLASSROOMS			
C6-155	SEMINAR (25 Students)	225	
C6-156	SEMINAR (25 Students)	225	
	TOTALS	450	784

FLOOR 6
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
FAMILY PRACTICE DEPARTMENT				
C6-146	OFFICE	105		
C6-147	OFFICE	150		
C6-148	CONSULTATION	112		
C6-149	PLAYROOM	112		
C6-150	CONSULTATION	112		
C6-167	STORAGE	185		
C6-168	3 MAN OFFICE	215		
C6-169	OFFICE	105		
C6-170	OFFICE	105		
C6-171	3 MAN OFFICE	225		
C6-172	SEMINAR (30 Students)	295		
C6-173	SEMINAR (30 Students)	375		
C6-174	OFFICE	112		
C6-175	OFFICE	112		
C6-176	OFFICE	158		
C6-177	OFFICE HEAD	225		
C6-178	SECRETARY	112		
C6-179	ASSISTANT HEAD	112		
C6-180	CLERICAL	525		
C6-181	STORAGE	10		
C6-182	COATS	15		
C6-183	STORAGE	15		
C6-184	STORAGE	15		
C6-185	STORAGE	15		
C6-186	STORAGE	15		
	TOTALS	3,537	4,500	
TOTAL	FLOOR 6	10,478	15,620	25,141

FLOOR 8
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
AUDIOLOGY CLINIC			
C8-101	PSYCHO-ED	125	
C8-102	PSYCHOLIST OFFICE	123	
C8-103	LANGUAGE & LISTENING	248	
C8-104	ASSISTANT DIRECTOR	125	
C8-105	DIRECTORS' OFFICE	123	
C8-121	BUSINESS OFFICE (SHARED)	138	
C8-122	HEARING MEASUREMENT	75	
C8-123	HEARING MEASUREMENT	75	
C8-124	PURE TONE	75	
C8-125	PURE TONE	75	
C8-126	PURE TONE	75	
C8-127	PURE TONE	75	
C8-128	PURE TONE	75	
C8-129	LISTENING	75	
C8-130	CONTROL	100	
C8-131	AUDIOMETRY	125	
C8-132	CONTROL	100	
C8-133	AUDIOMETRY	125	
C8-134	CONTROL	100	
C8-135	AUDIOMETRY	125	
C8-136	CONTROL	100	
C8-137	AUDIOMETRY	125	
C8-137	DICTATING	112	
C8-138	RECEPTION (SHARED)	188	
C8-146	WAITING (SHARED)	335	
C8-147	CHILD PLAY	150	
C8-148	CONTROL	100	
C8-149	AUDIOMETRY	200	
C8-150	CONTROL	100	
C8-151	AUDIOMETRY	184	
C8-152	CONTROL	100	
C8-153	AUDIOMETRY	184	
C8-154	LISTENING	75	
C8-155	LISTENING	75	
C8-156	VENDING	30	
C8-157	STORAGE	112	
C8-158	CONTROL	100	
C8-159	AUDIOMETRY	200	
C8-160	COATS	30	
	TOTALS	4,657	7,220

FLOOR 8
MEDICAL SCHOOL

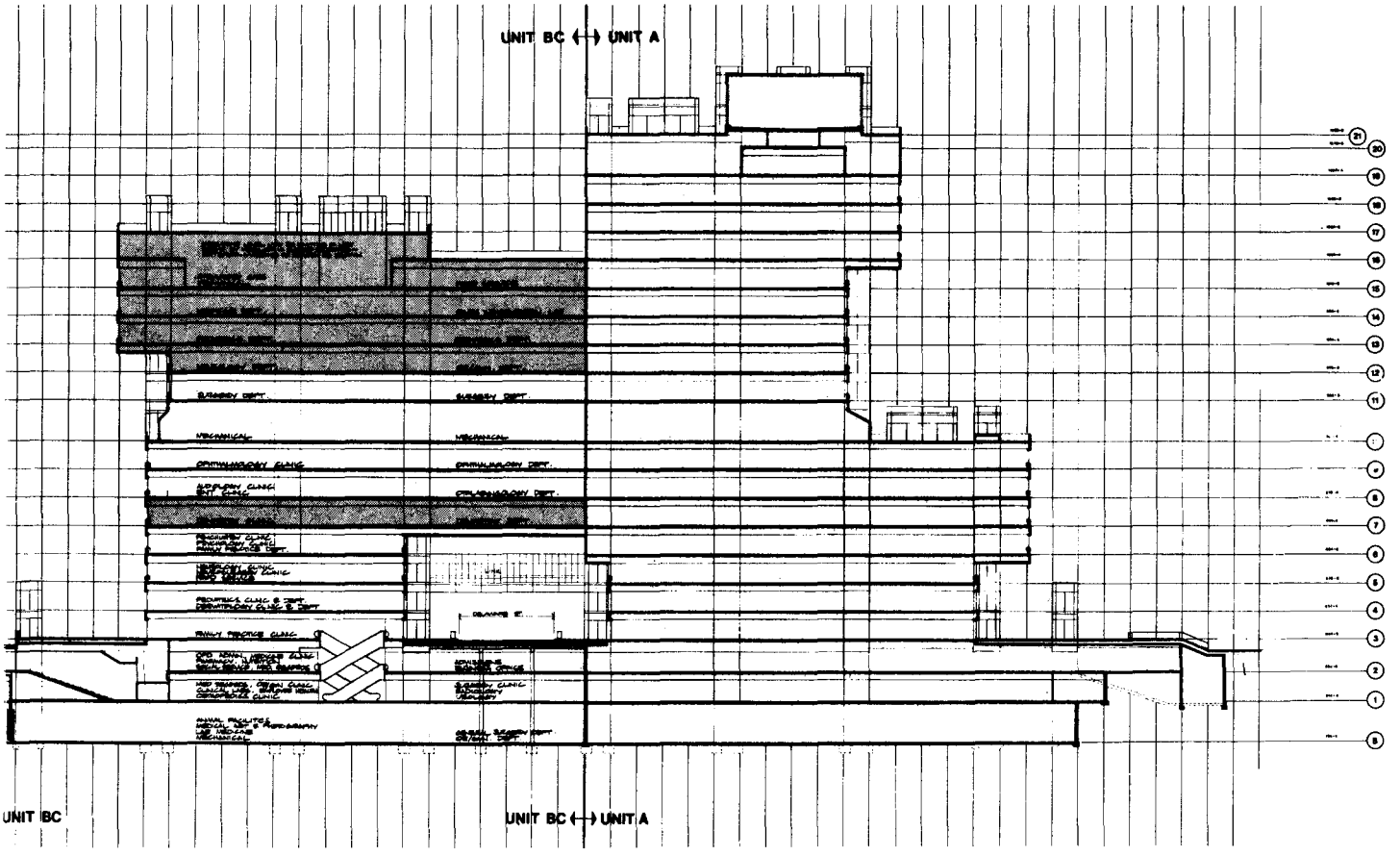
ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
ENT CLINIC				
C8-106	EXAM	123		
C8-107	EXAM	125		
C8-108	EXAM	125		
C8-109	EXAM	123		
C8-110	EXAM	123		
C8-111	EXAM	125		
C8-112	CLEAN UTILITY	112		
C8-113	EXAM	112		
C8-114	EXAM	112		
C8-115	EXAM	112		
C8-116	EXAM	112		
C8-117	NURSING	112		
C8-118	TOILET	30		
C8-119	TOILET	30		
C8-120	STORAGE	75		
C8-121	BUSINESS OFFICE (SHARED)	137	1/2	
C8-138	RECEPTION (SHARED)	188		
C8-139	DICTATING	112		
C8-140	SEMI-OPEN CLINIC	1,125		
C8-141	EXAM	112		
C8-142	SOILED UTILITY	112		
C8-143	MINOR O.R.	225		
C8-144	OTONEUROLOGY PROCEDURES	145		
C8-146	WAITING (SHARED)	335		
C8-161	COATS	30		
	TOTALS	4,073	6,030	
TOTAL	FLOOR 8	8,730	13,250	32,081

FLOOR 9
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOCIATED SFG
OPHTHALMOLOGY CLINIC			
C9-101	SPECIAL STUDIES	248	
C9-102	EXTERNAL DISEASE	123	
C9-103	NURSES' TEACHING	125	
C9-104	DILATION	78	
C9-105	CHILD TREATMENT	170	
C9-106	ADULT TREATMENT	170	
C9-107	DILATION	78	
C9-108	EXAM	125	
C9-109	EXAM	128	
C9-110	EXAM	123	
C9-111	EXAM	125	
C9-112	EXAM	150	
C9-113	EXAM	150	
C9-114	EXAM	150	
C9-115	EXAM	150	
C9-116	EXAM	150	
C9-117	EXAM	150	
C9-118	EXAM	150	
C9-119	EXAM	150	
C9-120	VISION LANE	150	
C9-121	RECEPTION	376	
C9-122	STENO	112	
C9-123	SOILED UTILITY	75	
C9-124	CLEAN UTILITY	75	
C9-125	RECOVERY	175	
C9-126	BUSINESS OFFICE	362	
C9-127	VISION LANE	150	
C9-128	EXAM	150	
C9-129	EXAM	150	
C9-130	EXAM	150	
C9-131	EXAM	150	
C9-132	ORTHOPTICS	225	
C9-133	TOILET	30	
C9-134	TOILET	30	
C9-135	ERG-EMG	150	
C9-136	ERG-EMG CONTROL	150	
C9-139	PLAY	150	
C9-140	WAITING	660	
C9-141	WAITING	660	
C9-142	DISPENSARY	71	
C9-143	WORK ROOM	41	
C9-144	CONTACT LENSES	112	
C9-145	RETINAL EXAM	300	

FLOOR 9
MEDICAL SCHOOL

ROOM NUMBER	ROOM NAME	TOTAL SFN	ASSOC SFG	TOTAL SFG
OPHTHALMOLOGY CLINIC				
C9-146	TOILET	30		
C9-147	TOILET	30		
C9-148	FIELD	112		
C9-149	FIELD	108		
C9-150	TONOGRAPHY	108		
C9-151	PHOTO	112		
C9-152	WAITING	75		
C9-184	COATS	30		
C9-185	COATS	30		
	TOTALS	7,982	14,062	
GENERAL PURPOSE CLASSROOM				
C9-137	VENDING	450		
C9-138	HOSPITAL CLASSROOM	596		
C9-176	LOUNGE	150		
C9-177	LOCKERS	195		
C9-178	SHARED SEMINAR	225		
C9-179	SHARED SEMINAR	220		
C9-180	STORAGE	15		
C9-181	STORAGE	15		
C9-182	STORAGE	15		
C9-183	STORAGE	15		
C9-183	SHARED SEMINAR	337		
	TOTALS	2,233	2,500	
TOTAL	FLOOR 9	10,215	16,562	33,191



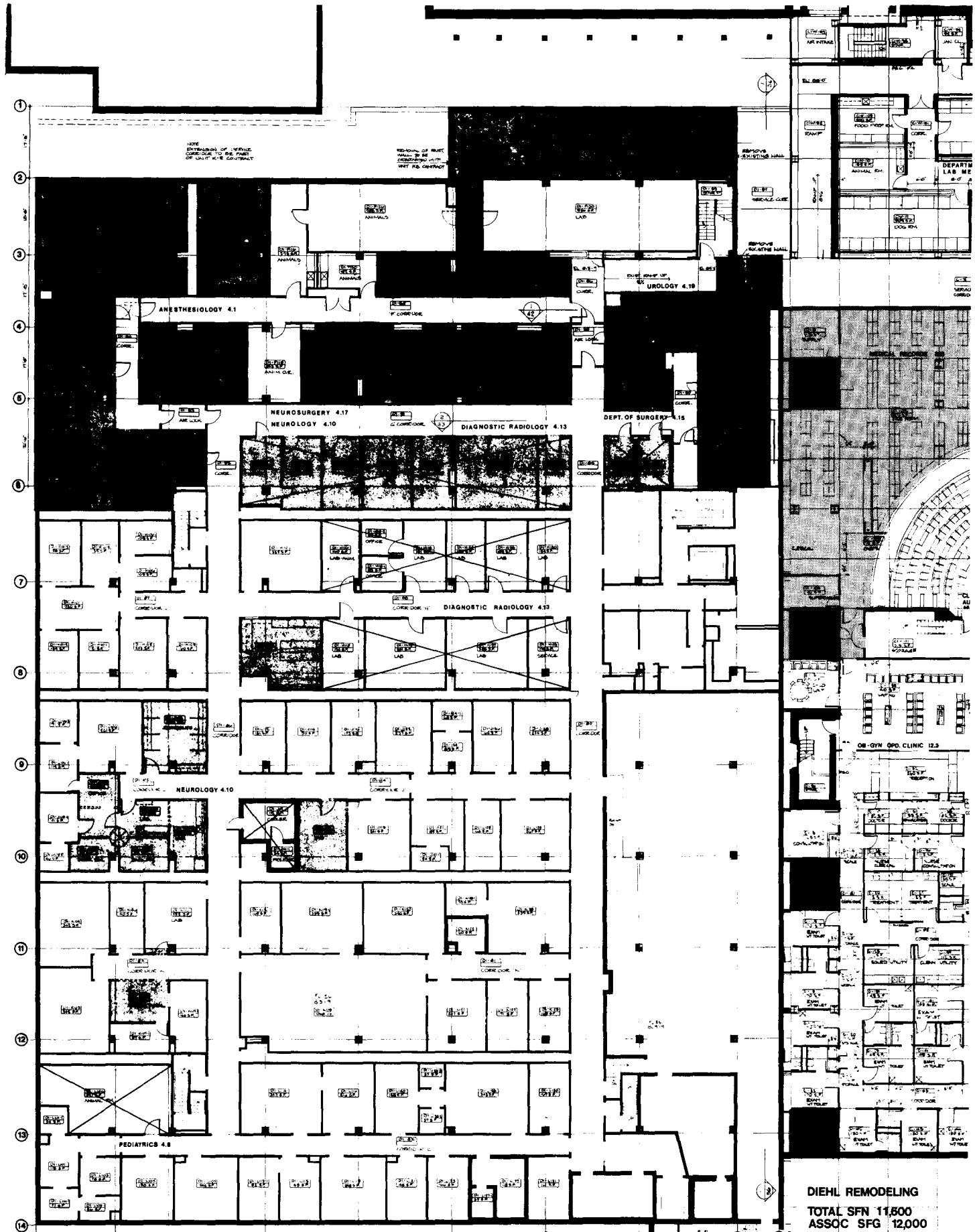
UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HANDEL, GREEN & ABRAMSON, INC. ST. PAUL, MINNESOTA
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

SHEET TITLE
BUILDING SECTION
UNIT A, UNIT B-C & PIBHL

UNIT
B-C



DIEHL REMODELING

TOTAL SFN 11,600
ASSOC SFG 12,000

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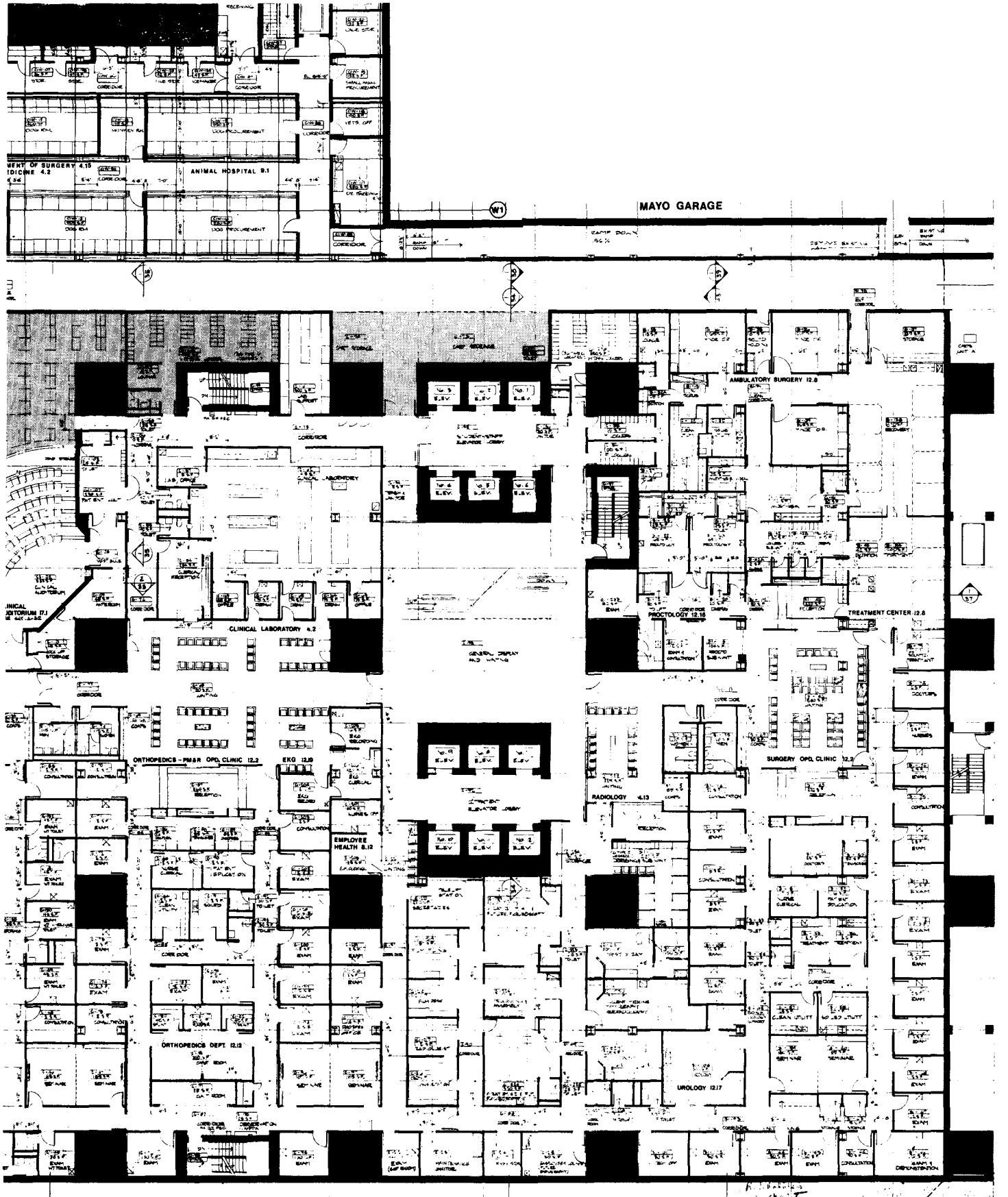
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

DIEHL HALL

FLOOR 1 WEST

UNIT B-C



TOTAL SFN 28,593 ASSOC SFG 51,874 TOTAL SFG 58,139

ORTHOPEDICS PM & R EMPLOYEE HEALTH AMBULATORY SURGERY
CLINICAL LAB OB-GYN OPD CLINIC RADIOLOGY PROCTOLOGY EKG

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MINNEAPOLIS MINNESOTA

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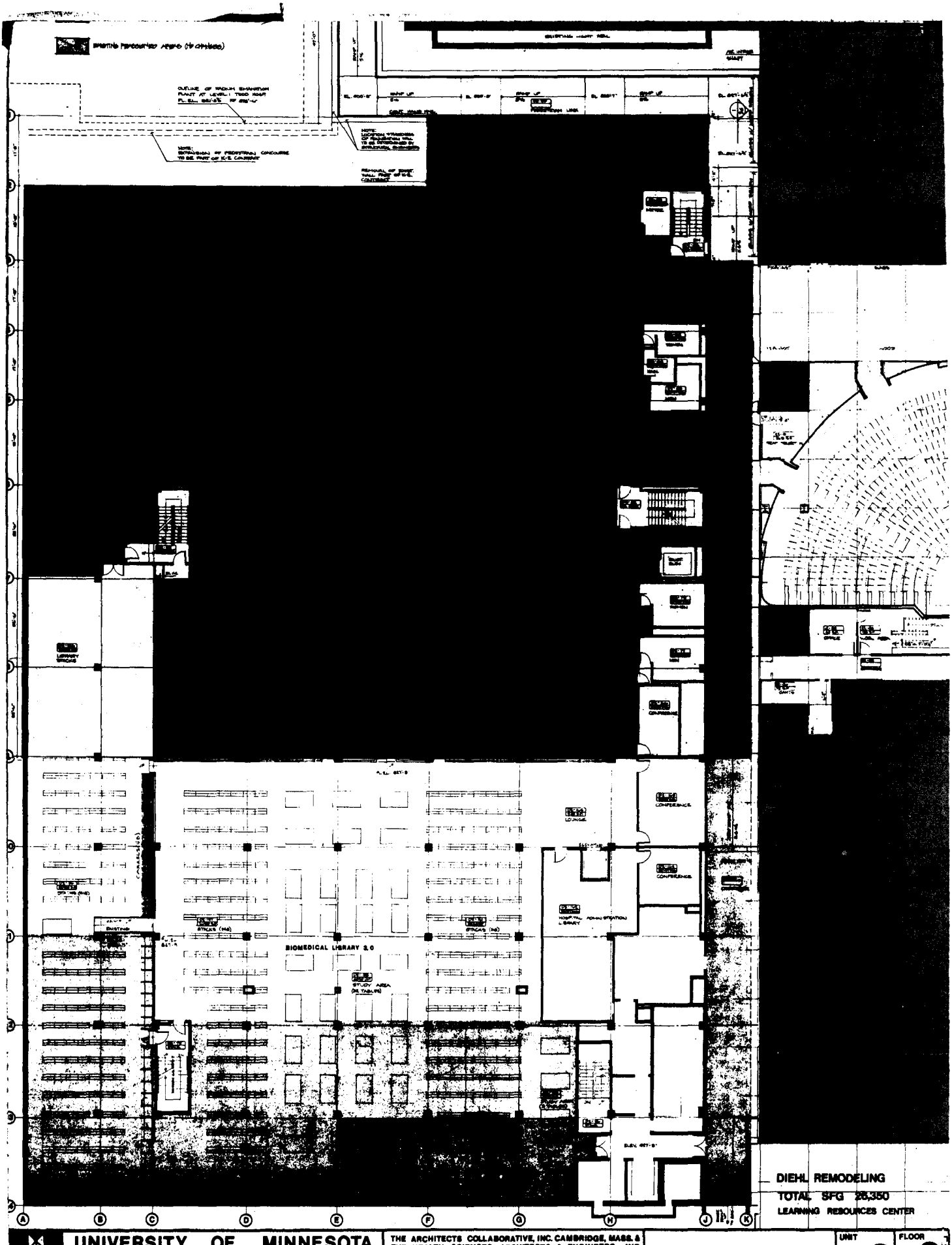
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT B-C FLOOR 1 EAST



DIEHL REMODELING

TOTAL SFG 26,350

LEARNING RESOURCES CENTER

UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION

MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
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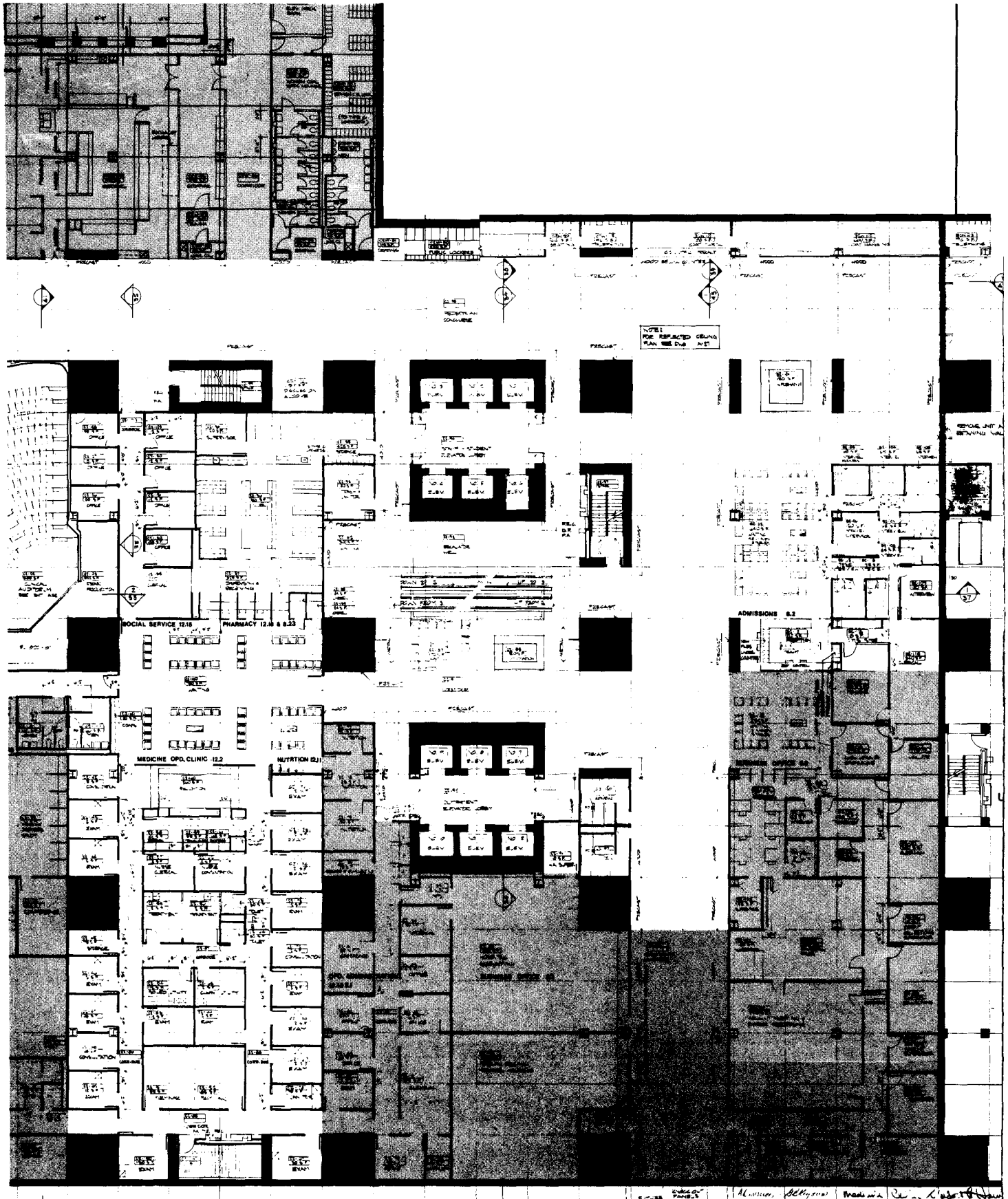
THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HAMMEL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA
SEYFER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT **B-C** DIEHL HALL

FLOOR **2** EAST



TOTAL SFN 14984 ASSOC SFG 41669 TOTAL SFG 75333

CLINICAL AUDITORIUM | SOCIAL SERVICE | OPD PHARMACY | MED OPD | ADMITTING | BUSINESS

UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION

MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
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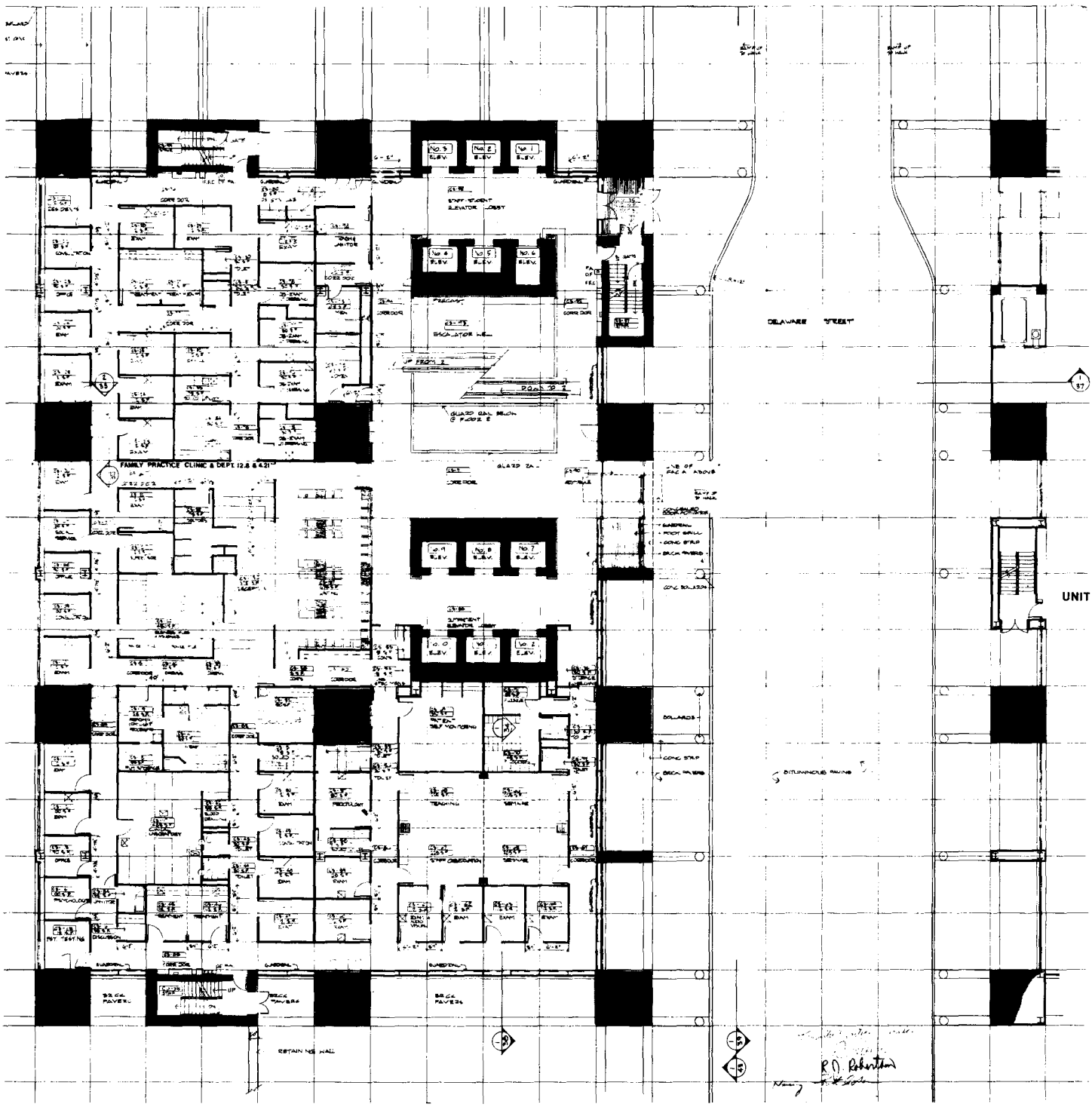
MINNEAPOLIS, MINNESOTA

THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HAMMEL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA
SEITTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT B-C FLOOR 2 EAST



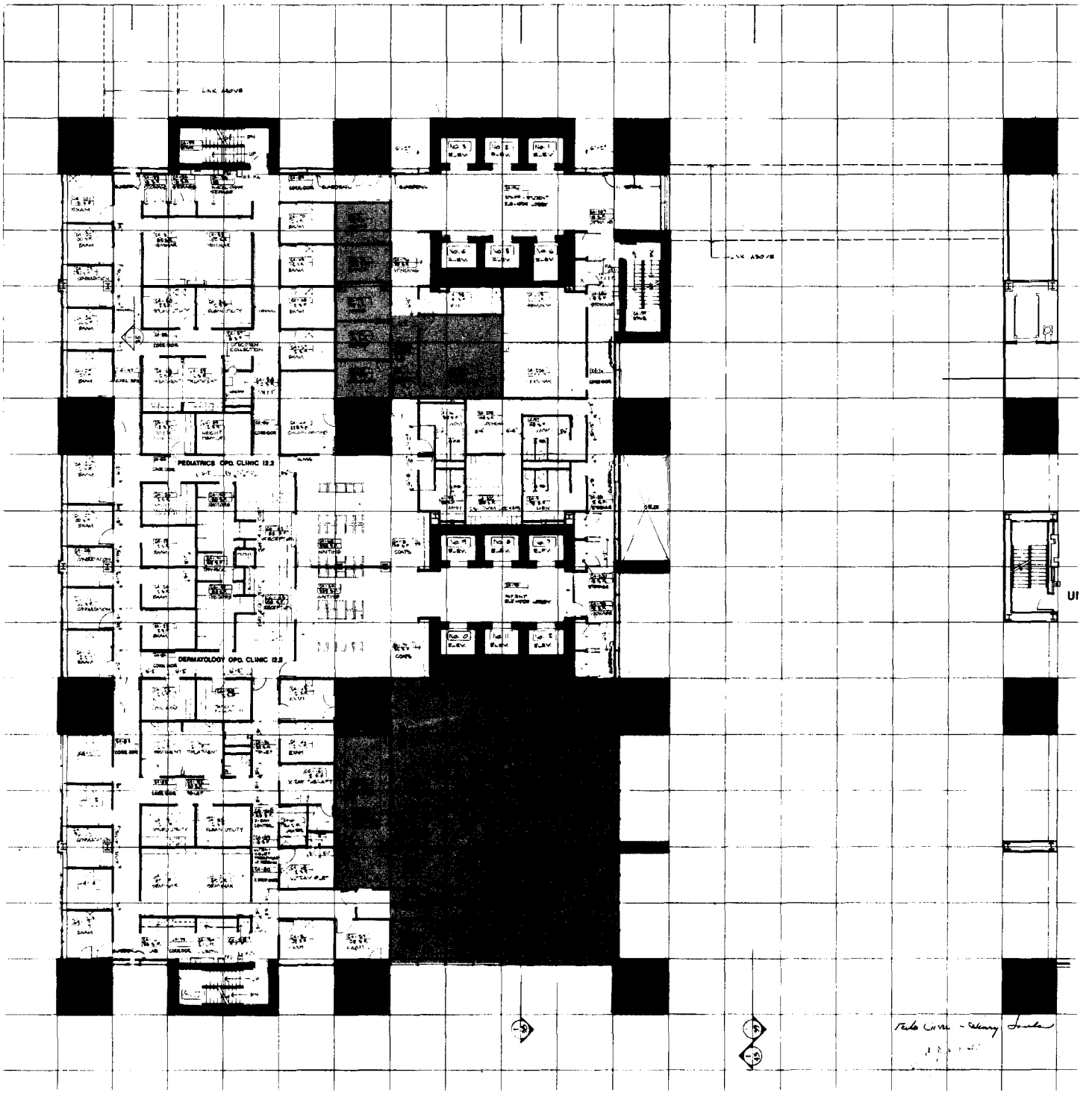
TOTAL SFN 9,134

TOTAL SFG 19,940

TOTAL SFG 26,587

FAMILY PRACTICE CLINIC & DEPT

UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION MINNEAPOLIS MINNESOTA	THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA HAMMEL, GREEN & ABRAHAMSON, INC. ST PAUL, MINNESOTA SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA		UNIT B-C	FLOOR 3 EAST



TOTAL SFN 7657 ASSOC SFG 16840 TOTAL SFG 26049

PEDIATRICS OPD CLINIC DERMATOLOGY OPD CLINIC GEN PURP CLASSROOMS

UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
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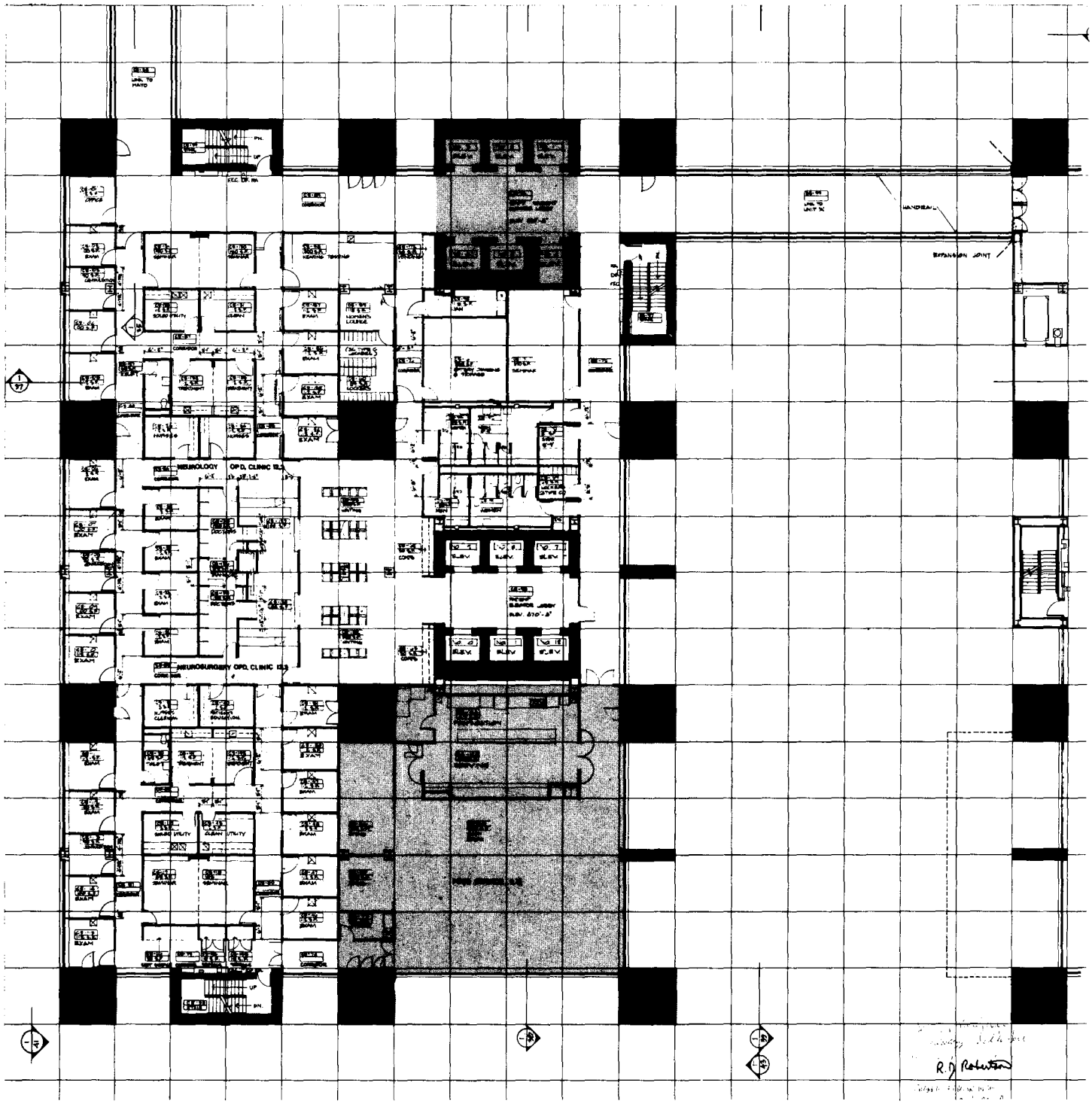
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT B-C FLOOR 4 EAST



TOTAL SFN 8,273 ASSOC SFG 14,570 TOTAL SFG 27,768

NEUROLOGY OPD CLINIC NEUROSURGERY OPD CLINIC GENERAL PURP CLASSROOMS

UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
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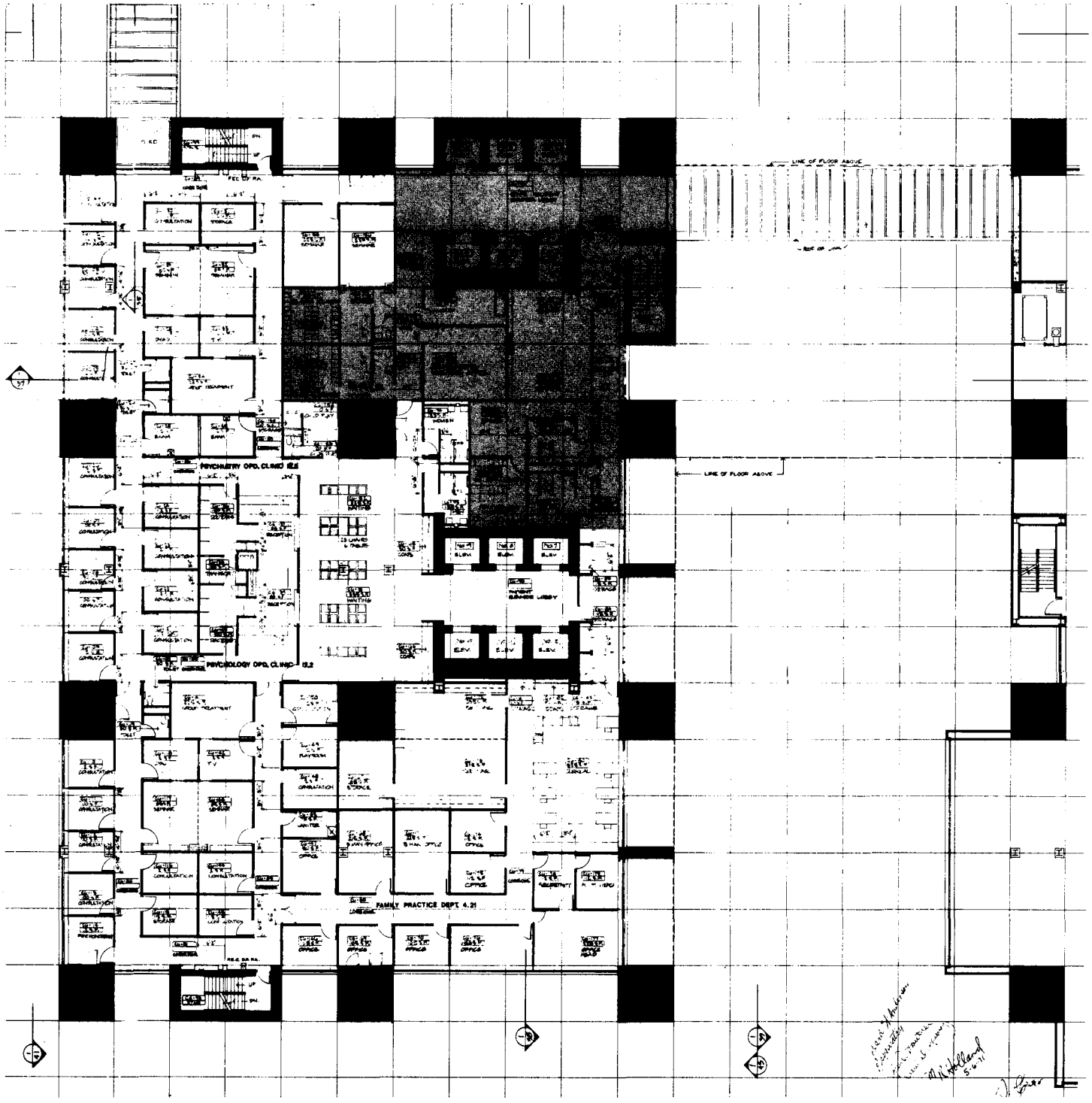
THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HARGEL, GREEN & ABRAHAMSON, INC ST. PAUL, MINNESOTA
SETTER, LEACH & LINDSTROM, INC MINNEAPOLIS, MINNESOTA

UNIT B-C FLOOR 5 EAST&WEST



TOTAL SFN 10 4 8 | ASSOC SFG 15 621 | TOTAL SFG 25 141

PSYCHIATRY OPD CLINIC | PSYCHOLOGY OPD CLINIC | GEN PURP CLASSROOMS | FAMILY PRACTICE DEPT

UNIVERSITY OF MINNESOTA
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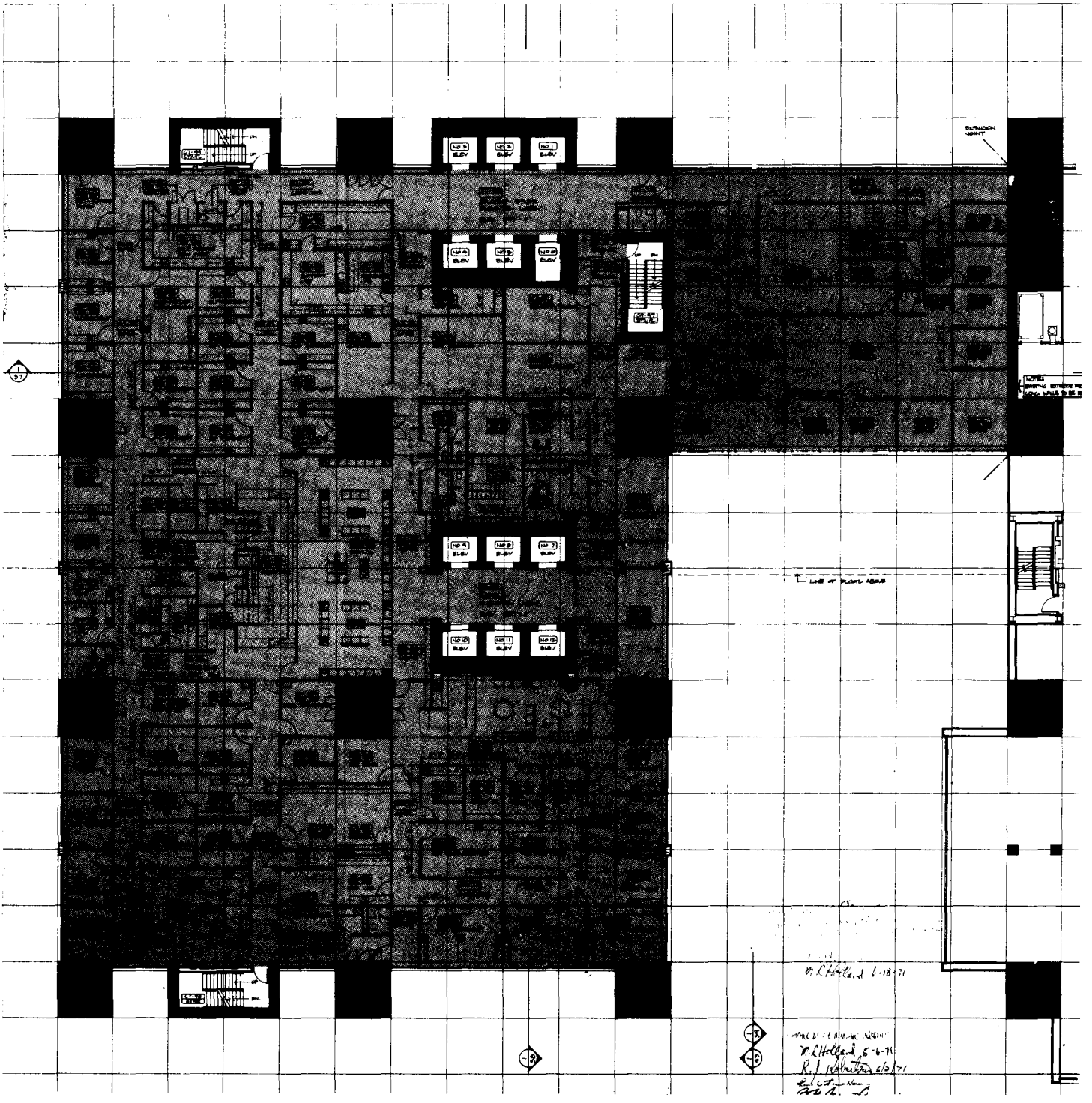
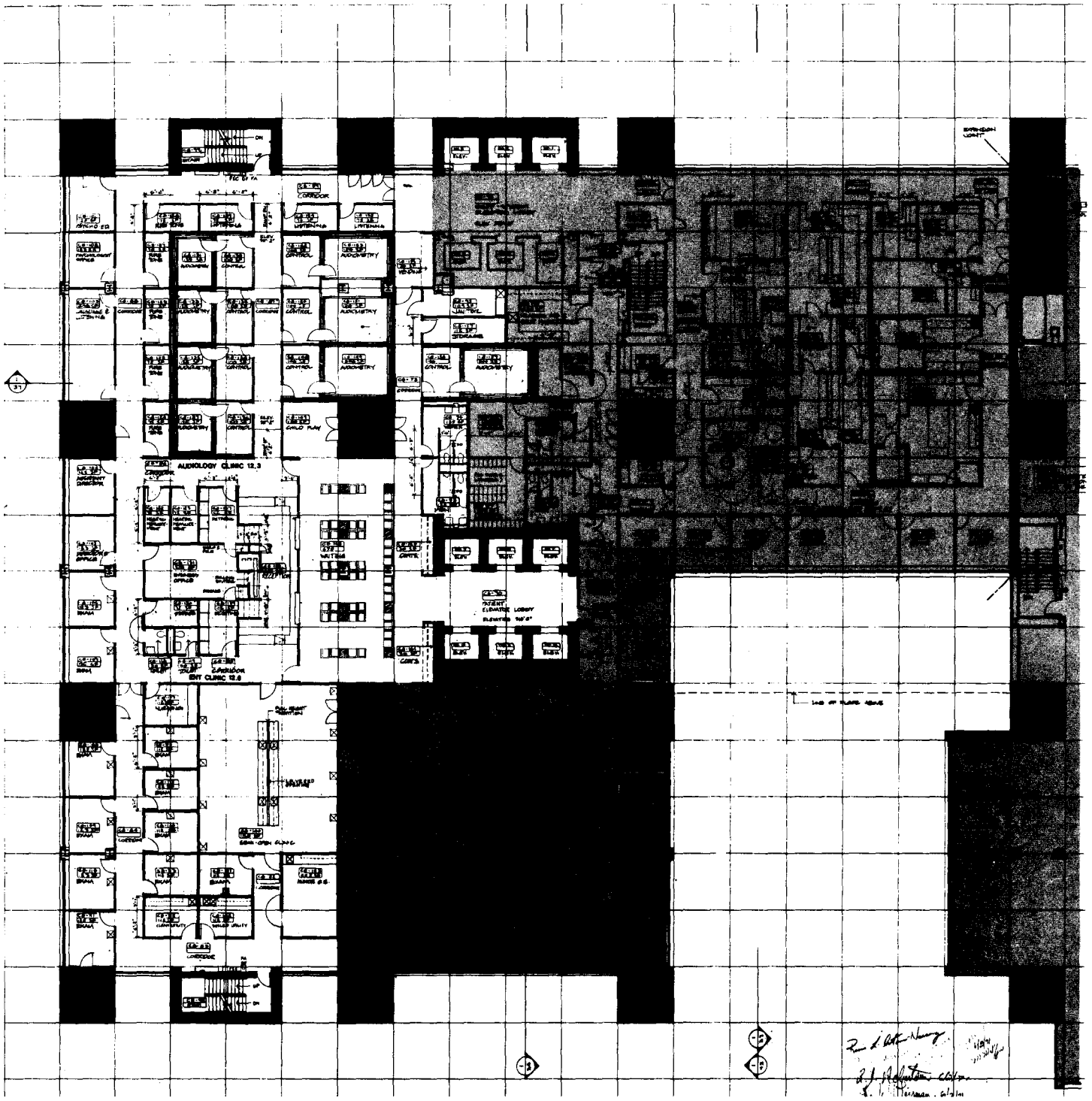
THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HAGMEIER, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT **B-C** | FLOOR **6** EAST



TOTAL SFG 30,761

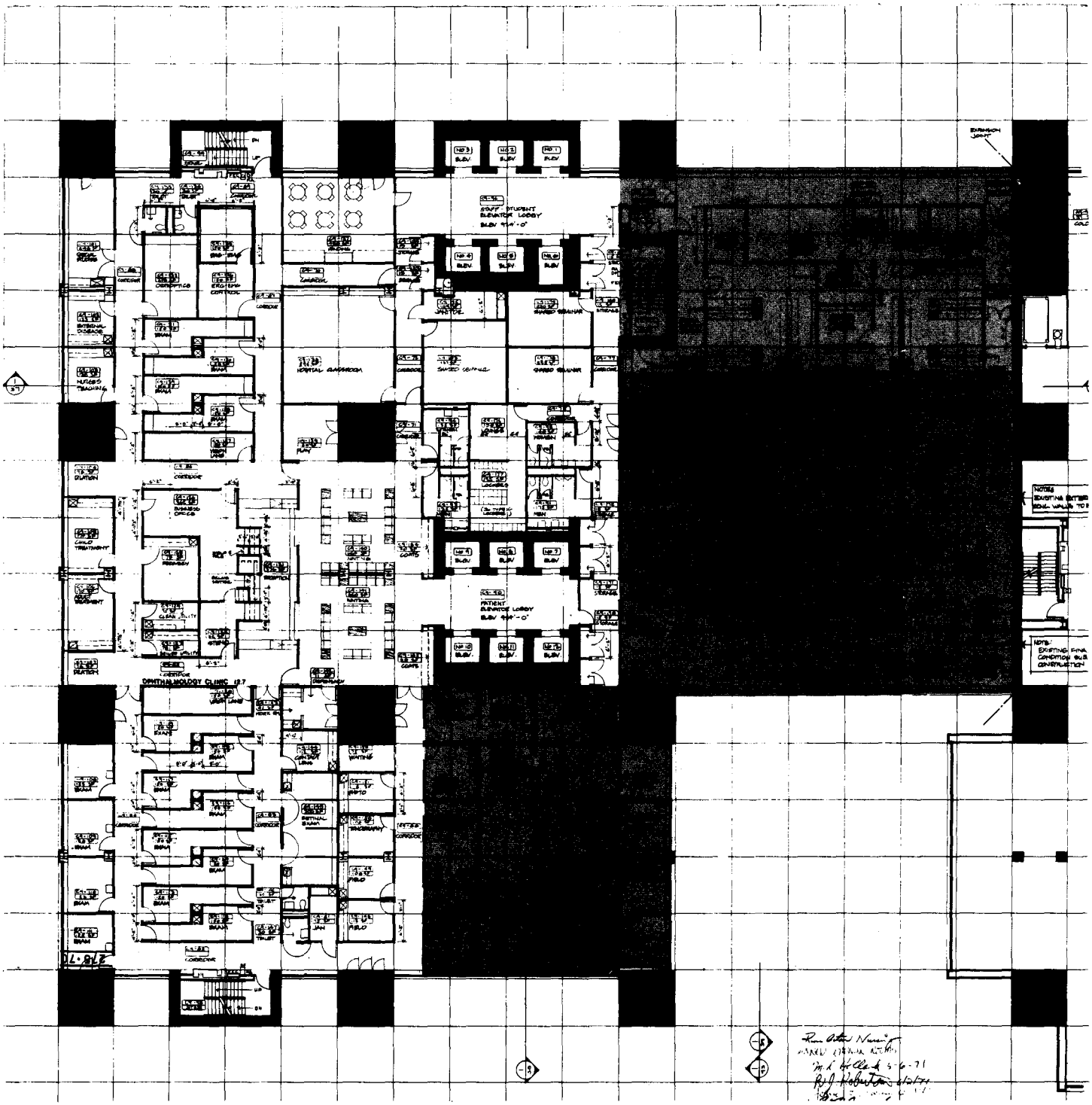
UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION	THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.	UNIT	FLOOR
MINNEAPOLIS MINNESOTA	THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA HAMMEL, GREEN & ABRAHAMSON, INC ST. PAUL, MINNESOTA SETTER, LEACH & LINDSTROM, INC MINNEAPOLIS, MINNESOTA	B-C	7 EAST



TOTAL SFN 8,730 ASSOC SFG 13,250 TOTAL SFG 32,081

AUDIOLOGY CLINIC ENT CLINIC

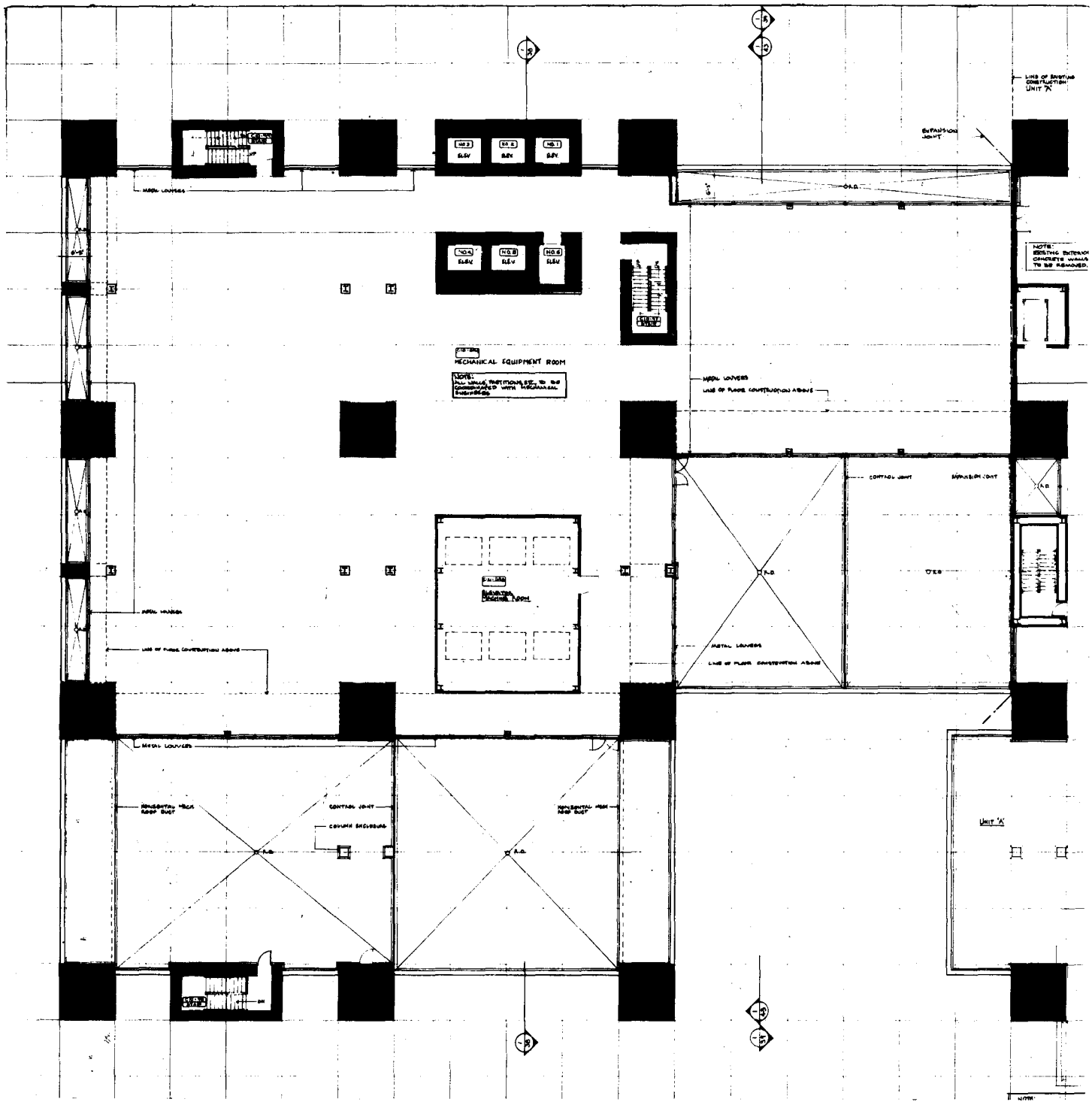
UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION MINNEAPOLIS MINNESOTA	THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA HARDEL, GADDY & ABRAHAMSON, INC. ST. PAUL, MINNESOTA BETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA		UNIT B-C	FLOOR 8 EAST



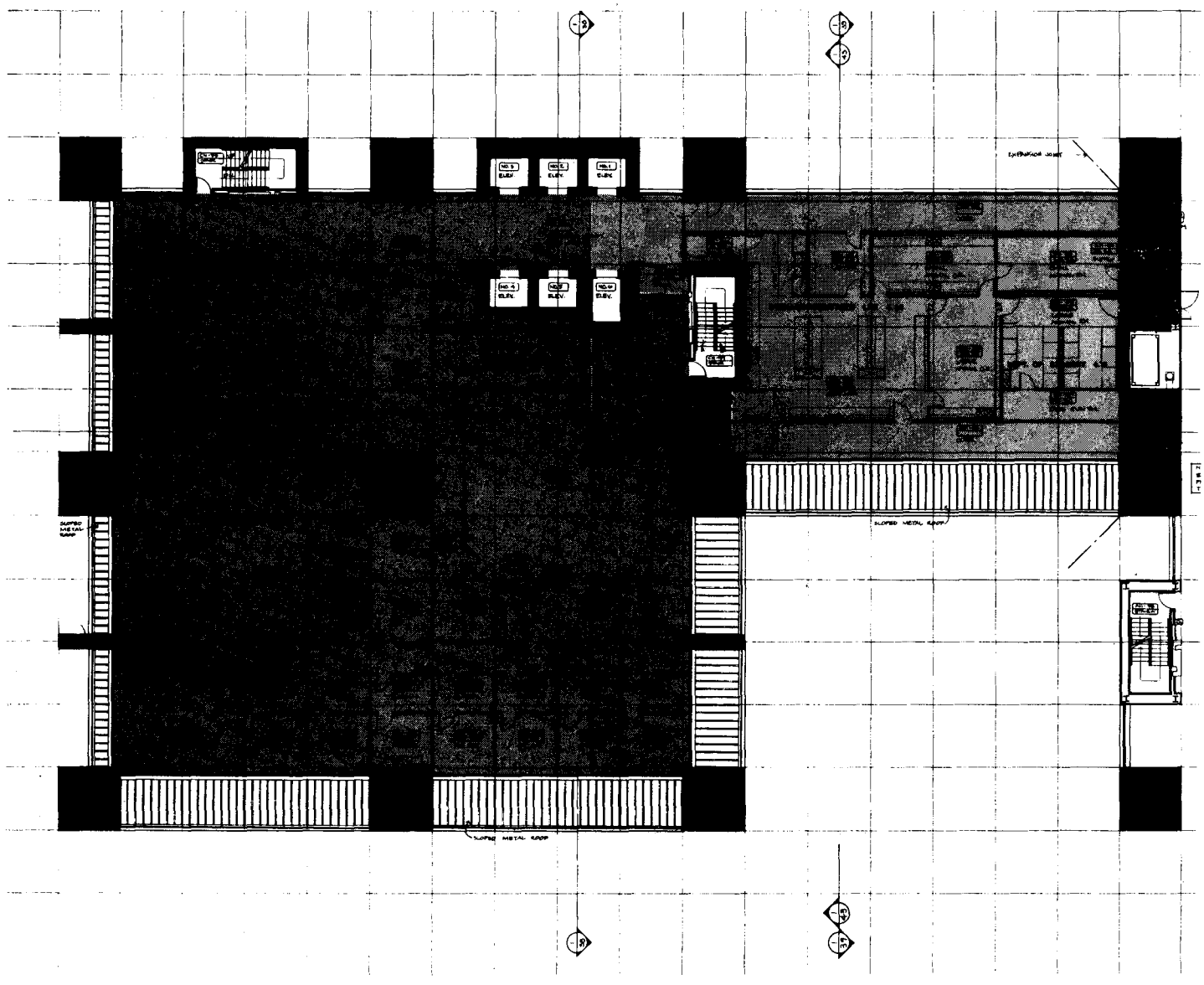
TOTAL SFN 10215 ASSOC SFG 16562 TOTAL SFG 33191

OPTHALMOLOGY CLINIC GEN PURP CLASSROOMS

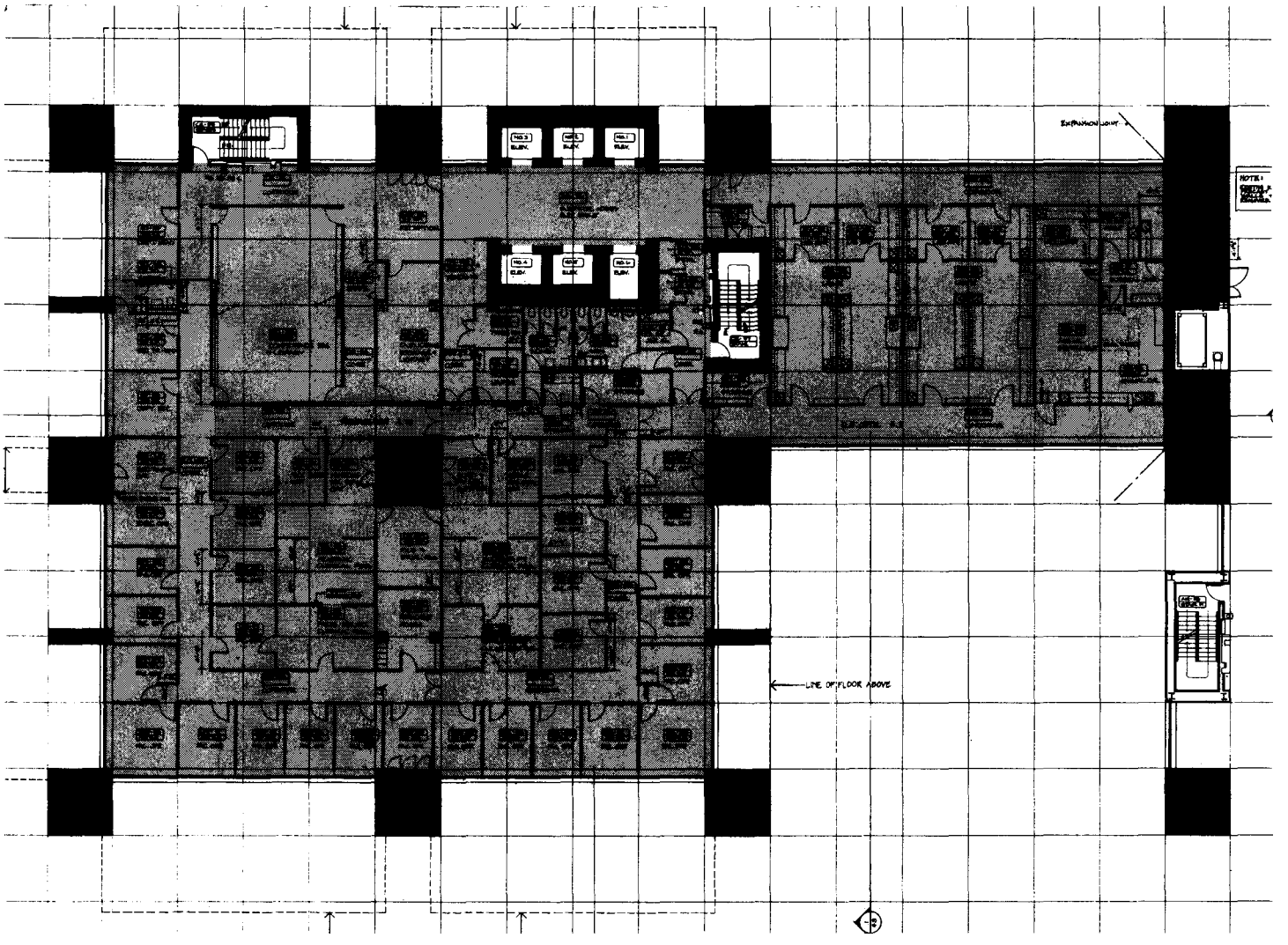
UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION MINNEAPOLIS MINNESOTA	THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA HASKELL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA BETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA		UNIT B-C	FLOOR 9 EAST



UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION	THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.	UNIT	FLOOR
MINNEAPOLIS MINNESOTA	THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA HAMMEL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA	B-C	10



UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION MINNEAPOLIS MINNESOTA	THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA HAMMEL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA		UNIT B-C	FLOOR 11 EAST



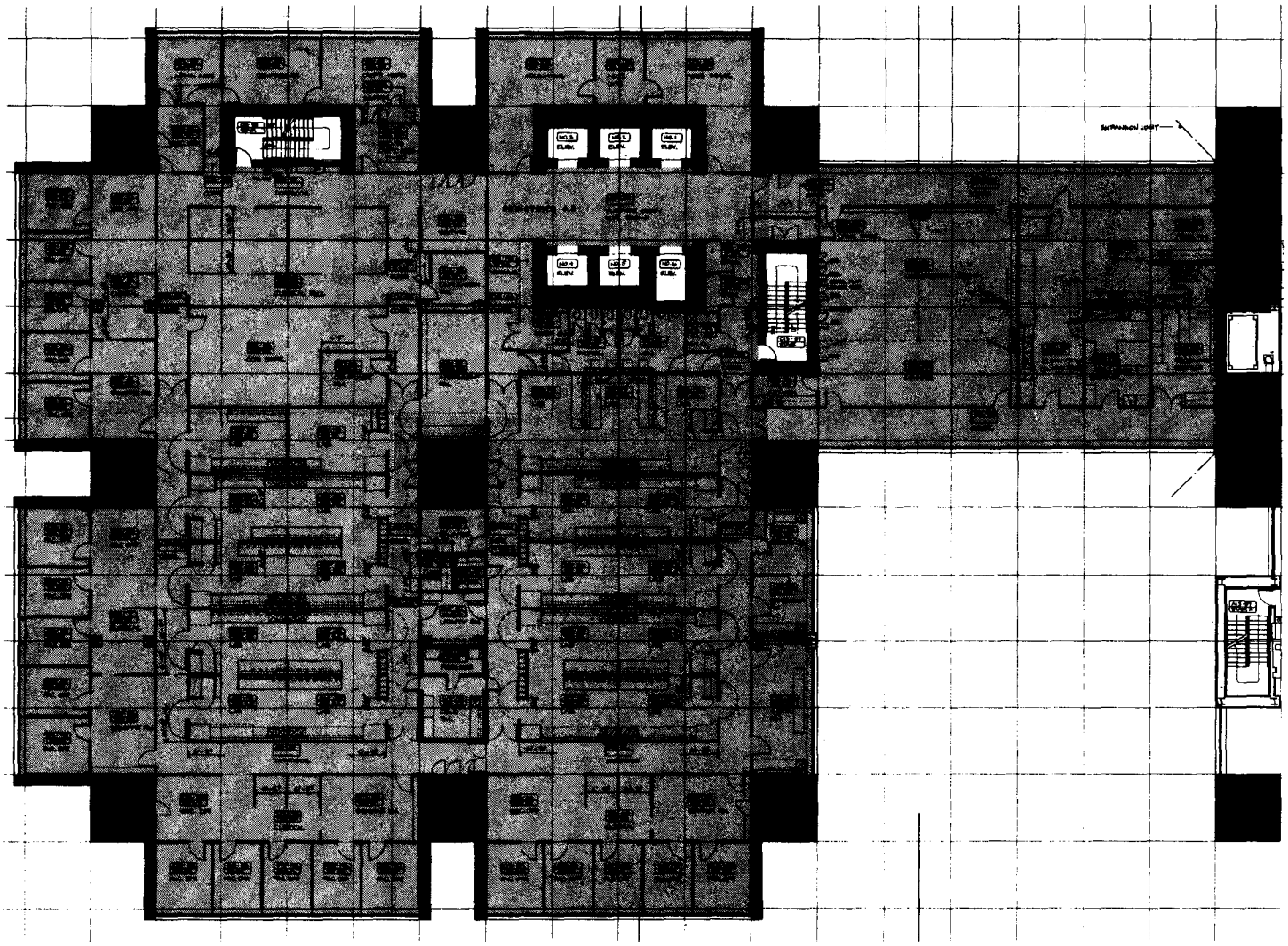
UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

THE GERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HALDEMAN, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT B-C

FLOOR 12 EAST

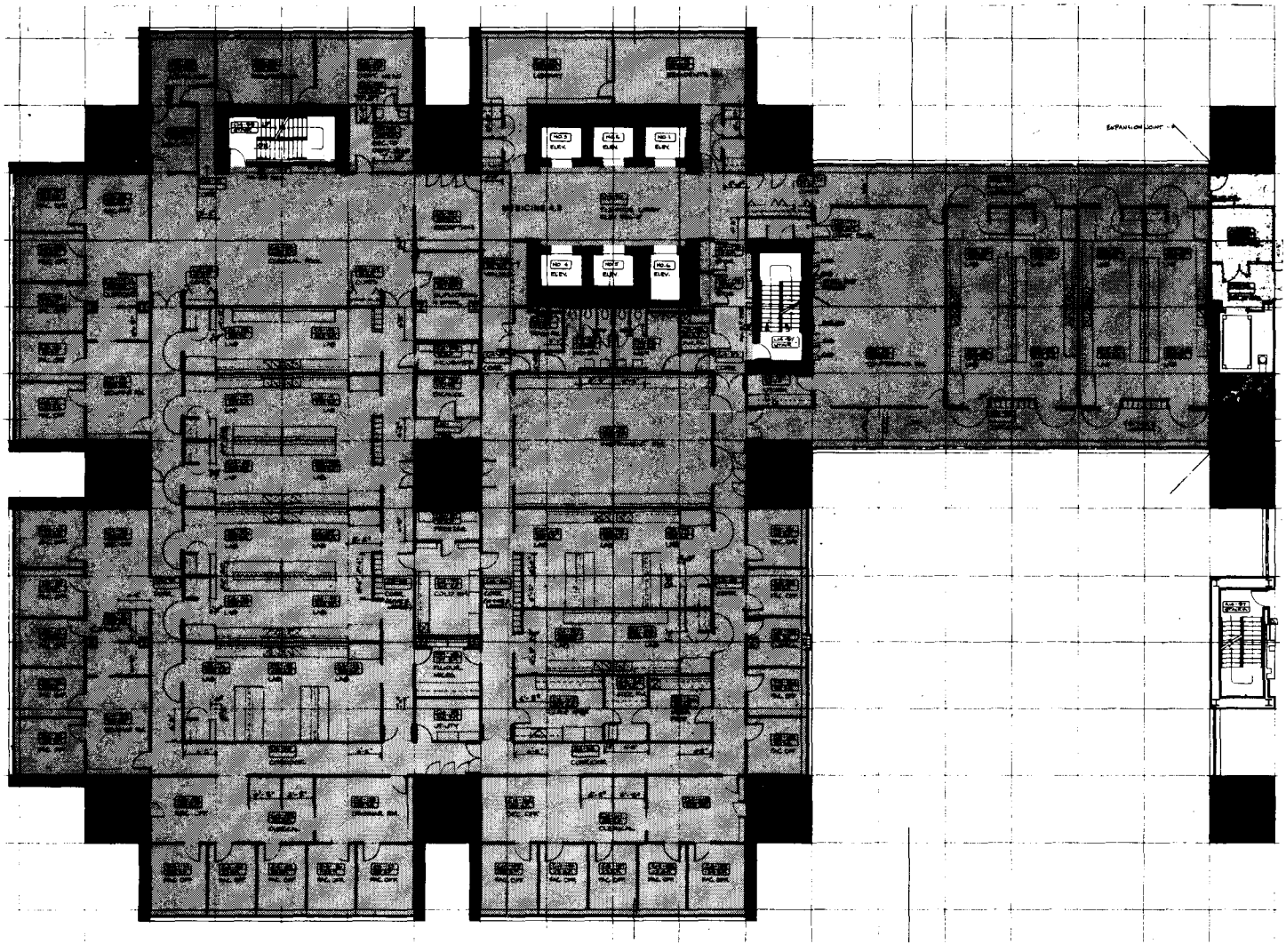


UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
MARSHALL ERDEN & ASSOCIATES, INC. ST. PAUL, MINNESOTA
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT B-C | FLOOR 13 EAST

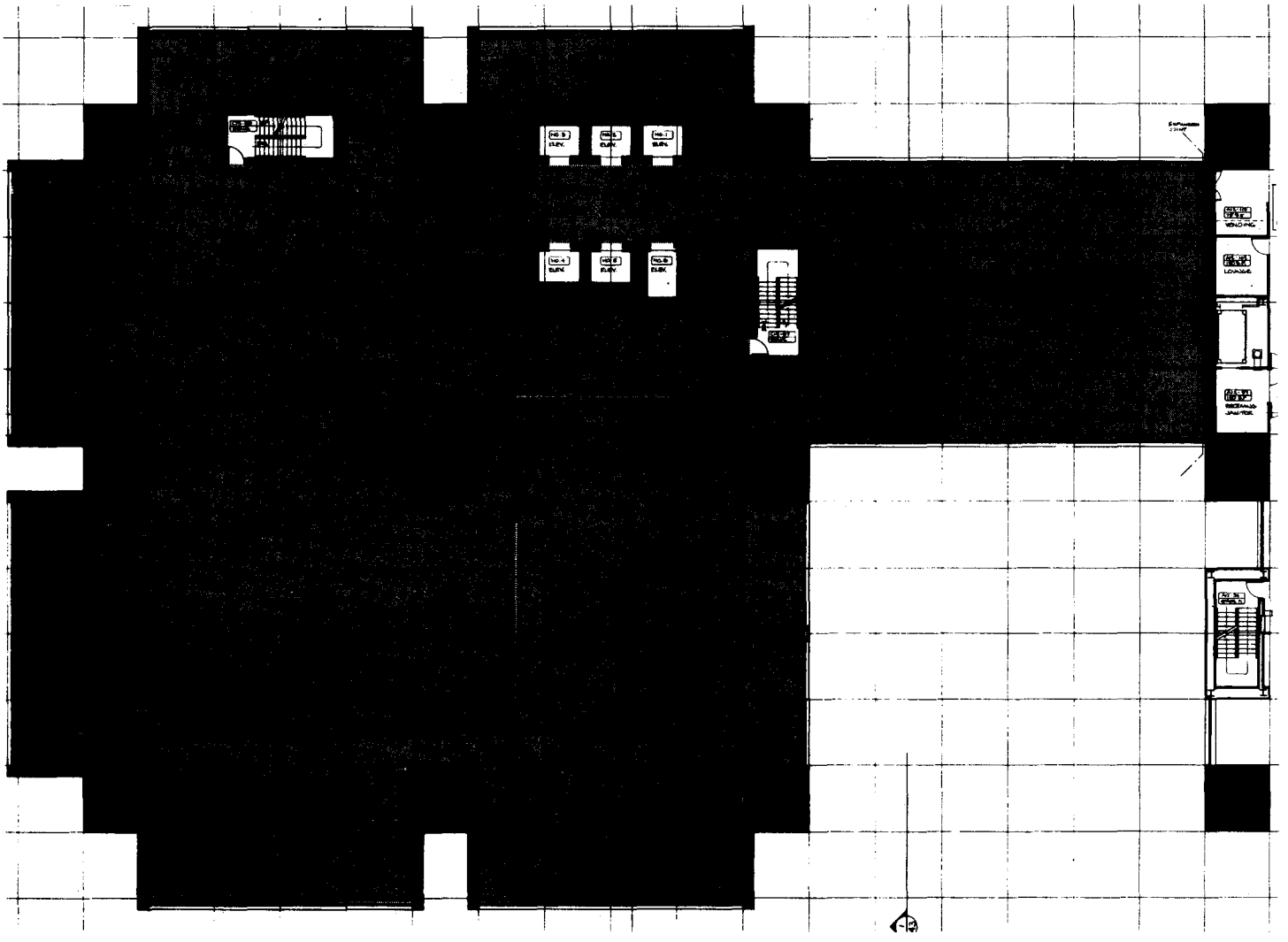


UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

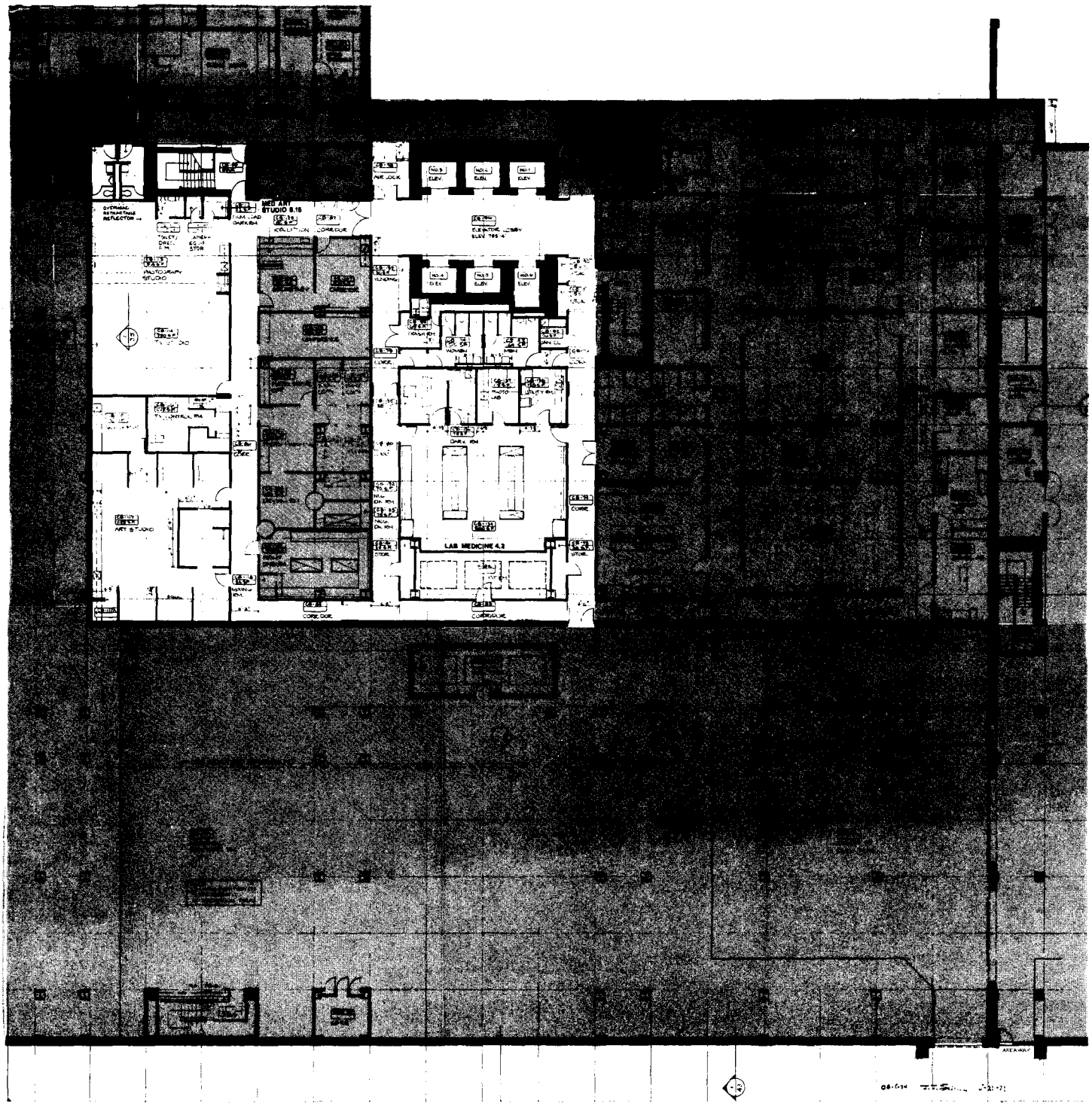
THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HAMMEL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA
BETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT B-C
FLOOR 14 EAST



UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION	THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.	UNIT	FLOOR
MINNEAPOLIS MINNESOTA	THE CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA HASSELL, GREEN & ERLANGSON, INC. ST. PAUL, MINNESOTA SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA	B-C	15 EAST



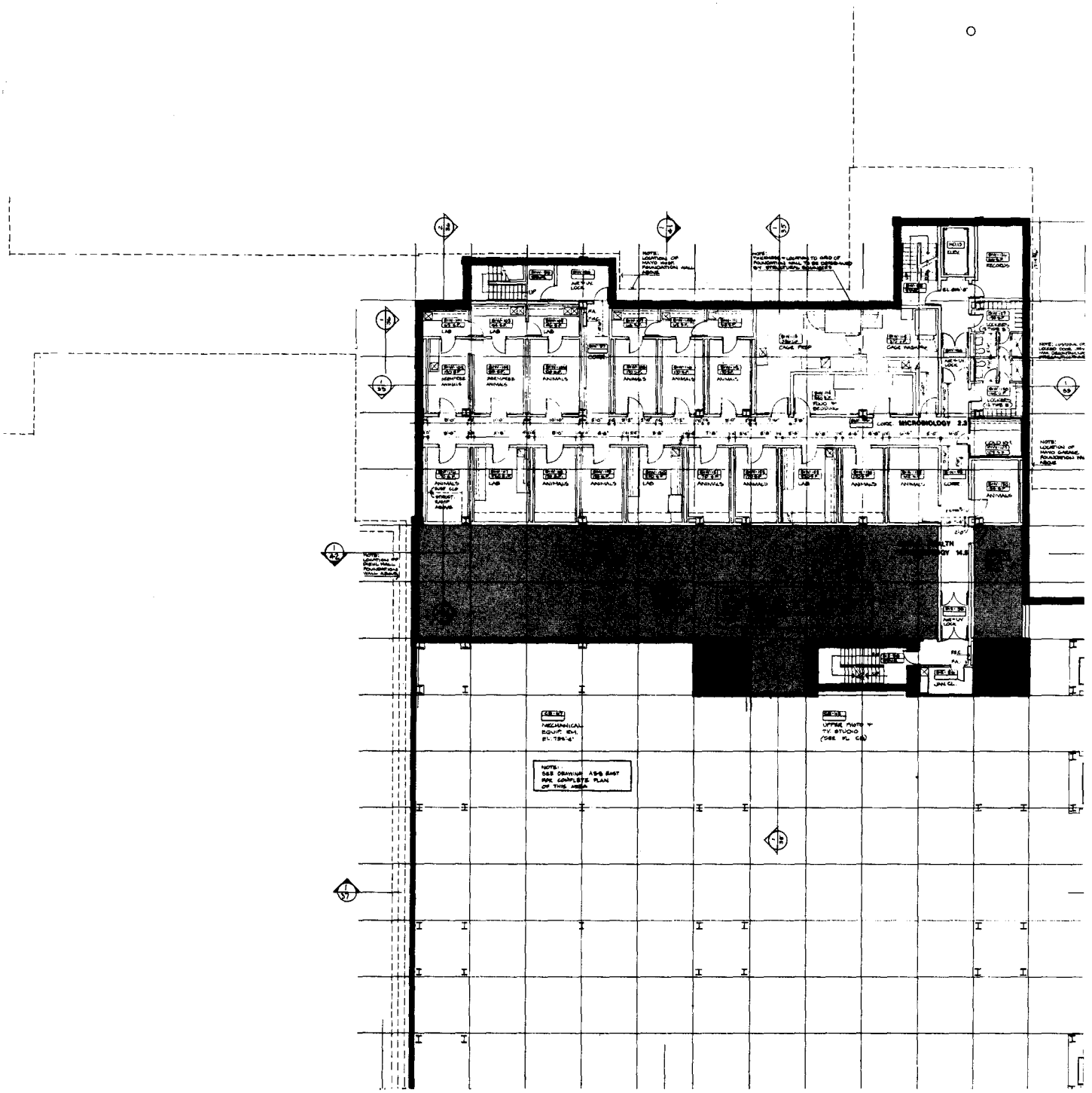
TOTAL SFN 3,655 ASSOC SFG 6,100 TOTAL SFG 55,071

MEDICAL ART & PHOTOGRAPHY LAB MEDICINE

UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.
JOHN CERNY ASSOCIATES, INC. MINNEAPOLIS, MINNESOTA
HAMMEL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA
SETTER, LEACH & LINDSTROM, INC. MINNEAPOLIS, MINNESOTA

UNIT B·C FLOOR B WEST/EAST



TOTAL SFN 4,593 ASSOC SFG 7,872 TOTAL SFG 11,077

MICROBIOLOGY

UNIVERSITY OF MINNESOTA
HEALTH SCIENCES EXPANSION
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &
THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

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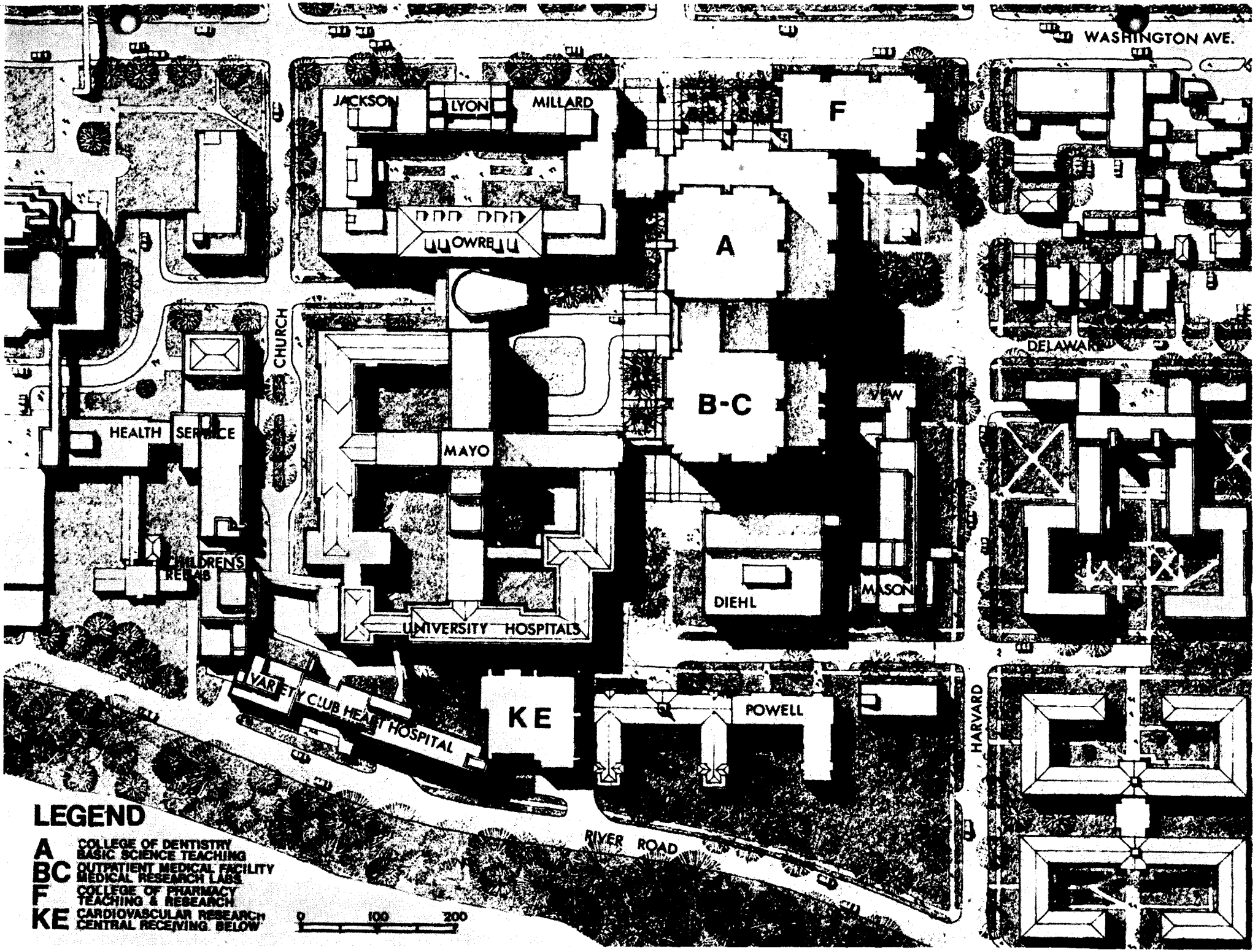
HAMMEL, GREEN & ABRAHAMSON, INC. ST. PAUL, MINNESOTA
BETTER, LEACH & LINDSTROM, INC MINNEAPOLIS, MINNESOTA

UNIT B-C FLOOR B1 WEST


WASHINGTON AVE.
JACKSON
LYON
MILLARD
F
A
OWRE
CHURCH
B-C
DELAWARE
HEALTH SERVICE
MAYO
CHILDRENS REHAB
DIEHL
MASON
UNIVERSITY HOSPITALS
VARSITY CLUB HEART HOSPITAL
KE
POWELL
HARVARD
RIVER ROAD
LEGEND
A COLLEGE OF DENTISTRY BASIC SCIENCE TEACHING
BC OUTPATIENT MEDICAL FACILITY MEDICAL RESEARCH LABS
F COLLEGE OF PHARMACY TEACHING & RESEARCH
KE CARDIOVASCULAR RESEARCH CENTRAL RECEIVING BELOW
0
100
200

UNIT "B/C"
SHELL CONSTRUCTION
ASSUMPTIONS AND DEFINITIONS

A. Contractors Direct and Indirect Expenses
   1. Gen. and spec. conditions - Estimate for this system is based upon a representative monthly cost computed at 18 month construction duration.

   2. Overhead and Profit - Estimate represents a 6% construction mark-up.

B. Site Development - Includes all building earthwork for sub-level spaces, etc.

C. Substructure - Includes all foundation systems and temperature support walls as estimated for total building.

D. Superstructure - Includes all structural items as estimated for total building.

E. Stairs - Includes all stair systems as estimated for total building.

F. Elevators and Escalators - Include two bank of three elevators with openings at eight levels (B, 1, 2, 3, 4, 5, 6, 8, 9 and 11) escalators between level 1 and 3 have also been included.

G. Exterior Surfaces - Includes all exterior surfaces as estimated for total building.

H. Interior Surfaces - Includes partition enclosures at all stair, elevator and mechanical shaft areas.

I. Specialties - Includes stair railings, access panels, steel gratings, misc. metals and misc. carpentry.

J. Heat, Vent and Air Conditioning - Includes costs for major vertical distribution in mechanical shafts and cost for temperature heat in unfinished areas. No mechanical equipment has been included at this time.

K. Plumbing and Fire Protection - Includes complete fire protection system, includes major plumbing risers (inshafts).

L. Electrical - Includes distribution of electrical power where necessarily built into general construction (slabs, shafts, etc.).

PROJECT COST ESTIMATE

In order to ascertain the amount of federally eligible monies for a project which involves both finished program space and unfinished shell space, and at the same time being aware of Federal guidelines regarding participation in unfinished shell space, we have made an attempt to outline in simple form the method by which we derived eligible project costs:

Remodeling costs are considered separately from new construction costs.

New construction has been broken down into two major categories: The first is the cost associated with the construction of the shell of the building. This encompasses enclosing the total gross space for the entire unit BC, from floors B through 15. Assumptions as to what is included in this construction package have been made and are presented with the detailed cost data.

The second category is the costs associated with completing the finished program space as outlined in the application.

Associated with the construction cost of each of these two categories are various non-construction costs, termed non-building costs (see detailed listing). These costs make up the remainder of the total project costs and must be considered item by item for eligibility.

Since cost figures shown for finished construction account for only wall, clg, floor, secondary mechanical and electric, distribution, etc. (see assumptions presented with cost data), a method to determine what percentage of the frame (shell) cost from category one are considered eligible costs was necessary. This percentage was established by comparing the associated square foot gross (217,300) of finished space with the total square foot gross (574,135) of the entire Unit BC. The resultant percentage, thirty eight, was then applied to each of the eligible items under category one, shell costs.

Eligible costs are then totalled for the two categories equalling a total of eligible project costs. The amount of Federal assistance requested is 70% of the total eligible costs.

Project Cost =

$$\frac{\$18,425,924}{255,580 \text{ S.F.G.}} = \$72.00/\text{S.F.G.}$$

$$\frac{\$18,425,924}{150,704 \text{ S.F.N.}} = \$122.00/\text{Net. Sq. Ft. Instructional Space}$$

Federal participation based on 70% of the eligible cost = $12,898,147.

There is no commitment to increase student enrollment attendant to this grant request. However, previous commitments to increased student enrollment including those made on the basis of construction of Unit A and the previously approved, but unfunded Unit B/C, the Physicians

Augmentation Program and the mandatory enrollment increase required by the Federal Capitation Program total 76 new entering medical students enrolled by September 1972. A total of approximately 18.4 million in Federal Funds (5.5 million, previously awarded for Unit A, and 12.9 million, Unit B/C, this request) will provide facilities for these 76 students.

Based upon no enrollment increase, the per student cost would be unable to be determined. However, based upon the previously committed enrollment increase of 76 entering medical students and an expected combined Federal participation for Units A and B/C, the per student cost of the project to the government, $18.4 million/76, would equal approximately $240,000. Based upon an enrollment increase of 57 new students, the initial commitment attendant upon completion of Units A and B/C, the per student cost,$18.4 million/57, would total approximately $320,000.

THE FACILITY, HISTORY, AND BACKGROUND

The University of Minnesota began the planning process that led to the development of a long term program for the Health Sciences eight years ago.

A study supported by the Hill Family Foundation included the recommendations that the University should expand its entering Medical class to 200 students as rapidly as possible with a commensurate increase in the number of Dental students, increase the number of transfer students from the two-year medical schools in North and South Dakota, and strengthen the teaching skills and attitudes relevant to the responsibility of personal and family physicians.

The Regents of the University acting upon the Hill recommendations and preliminary reports of the University Long Range Planning Committee that was appointed by the President in September 1964 proposed physical facilities development program for the College of Medical Sciences and the School of Dentistry. This proposal included facilities essential to the maintenance of quality programs in the Health Sciences. In addition, it would make possible introduction of new programs and increases in enrollment recommended by the Hill Family Foundation study - entering classes in Medicine would be increased from 160 to 200, in Dentistry from 110 to 150, and there would be proportionate enrollment increases in related health professional programs.

Students, staff, and the faculty made significant contributions during the planning effort.

More than 100 faculty members participated in the planning effort. Most of their time has been devoted to programmatic study which includes expression of goals and objectives and definition of instructional, research, and service activities that are appropriate to the University's efforts to meet the needs of the state and nation.

The general criteria which established the basic planning framework are as follows:

1) Because of the great investment from public and private sources in existing facilities, the plan must conserve and enhance the desirable characteristics of the present Health Sciences Center.

2) The plan must be adequate in scale to serve all contemplated programs of the Health Sciences Center - programs that include substantial enrollment increases in all areas.

3) The plan must facilitate and, in fact, encourage interaction among persons in all Health Sciences programs.

4) The plan must provide maximum flexibility for adaptation to anticipated but unspecified changes in programs in the wake of social and scientific progress.

5) The plan must be compatible with other aspects of University development and enhance the involvement of the Health Sciences with the rest of the University and the community.

6) The plan must provide opportunity for development beyond any programs now contemplated.

Unit B/C of the Health Sciences Expansion was conceived of, both physically and functionally, as a continuation of Unit A, which is presently under construction. Unit A is devoted primarily to providing facilities for the Dental School, interdisciplinary Health Sciences Basic Sciences teaching, and a small amount of Medical School Departmental space. Unit B/C will be a similar facility, but will be devoted primarily to the use of Medical School.

The current B/C program consists of two parts. One part will be completely finished space. The other part will be shell, or unfinished space at present. The finished space will include auditorium and general classrooms, a learning resources center, outpatient clinics and seminar rooms, faculty offices and teaching faculty research and support space.

Unit B/C is designed to integrate the education of medical students with patient care through more effective use of outpatient clinics as well as providing the usual teaching and office facilities. A total of 228 examining rooms is planned for the new outpatient area. Also included in the clinic modules are seminar rooms to allow increased interaction for faculty, student, and patient. It has been recognized that the patient, as well as the students and faculty, must be easily and comfortably accommodated within the clinic complex to provide the type of interaction needed for both effective teaching and effective health care for the patient.

The Family Practice Clinic will occupy an entire floor of Unit B/C. This clinic is designed to provide a model for student participation in comprehensive health care, and will provide space for not only medical faculty, students, and patients, but for other persons involved in health care process, such as clinical psychologists, social work personnel, etc. The clinc is designed as a complete entity to simulate a physician's office practice in a community and will allow the investigation of more innovative methods of patient care delivery and student instruction than is allowed by more traditional teaching methods.

General purpose teaching space is also included in Unit B/C. The Health Sciences Expansion as a whole is designed to consolidate the health care/ teaching functions, which at present are fragmented and scattered to an extent that prevents full utilization of resources available. The inclusion of general classroom space within the Health Sciences complex will result in better utilization of physical, educational, and human resources for health care education.

The Educational Resources Center will encourage the development of self-learning skills through more effective use of various audio-visual and other self-teaching modalities. This center will operate cooperatively with the Bio-Medical Library and will allow students to call upon a variety of resources to further their own educational progress. The center will include facilities for the use of audio and videotapes, slides, film strips, cassettes. Terminals for computer-aided instruction will be provided, as well as storage an study space and access to service area and personnel. Also included are "interaction" areas for the use of students and faculty to utilize materials and promote discussion on a group basis.

Also planned for Unit B/C are some faculty research and support spaces, including animal facilities for use both in teaching faculty research and for aiding instruction of medical and other Health Sciences students.

The unfinished portion of Unit B/C will be reserved to fulfill the projected space needs of the Medical and Dental Schools at a later date. Naturally, the greatest emphasis at present is upon the programs which will be housed

in the finished portion of B/C, but future needs, particularly for research and faculty space, must not be overlooked; indeed the consideration of these needs is mandatory to maintain the high level of quality of both health care and health care instruction envisioned in the planning of the Health Sciences Expansion program.

The Health Sciences Expansion Project is bounded almost entirely by existing University dormitories, libraries, hospitals, and classroom buildings. The notable exception is an area to the North & East of the site along Washington Avenue. This contains some commercial and housing functions, part of t area has been considered a logical direction for long-range future expansion. The University has initiated discussions with the community regarding future land acquisition in the area so that property owners are appraised to the time-table well in advance of any University acquisition. In 1967 the Regents of the University established official boundaries for the campus.

With the exception of the area mentioned, future expansion of the Health Sciences will involve the demolition of existing buildings owned by the University.

The site area for Unit B/C is now the staging and storage area for the construction of the first stage in the Health Sciences Expansion, Unit A.

THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

The area proposed to receive Unit B/C is already urban and developed and will have no direct effect on existing wildlife, fish or marine life.

The proposed site for Unit B/C is already owned by the University; the land was acquired at the time of land acquisition for Unit A. Unit B/C will occupy an area formerly occupied by an old 40 unit apartment building (which was razed before the commencing of construction on Unit A) and presently occupied by the apartment's garage building, which is being used as site offices for University personnel and contractor's personnel. The garage building has neither water or sewer in operation. The construction of Unit B/C will not displace any additional area residents.

Unit B/C will house approximately 423 faculty, 1400 undergrad and grad students, and 1350 employees,and will provide direct services to many more.

The construction of B/C will have considerable impact on resource use. A new 16" watermain will be installed, which will be shared by A, B/C, and F. The total capacity of the new main will be 1820 gpm, and Unit B/C's share will be approximately 780 gpm.

A new 24" sanitary and storm sewer line will be installed, to be shared by the Health Sciences Complex as a whole. The new line will have approximately 4 times the capacity of the existing 12" line.

Gas use will be about the same or possibly slightly lower. The old residential units used gas for cooking and heating, while Unit B/C will use gas only for laboratory purposes and to run emergency generators.

New electrical feeders are presently being installed to handle increased electrical demand. It is estimated that Units A, B/C, K/E, and F combined will increase the total campus load by 10 to 15%. Unit B/C's share will be about $\frac{518,869}{1,330,123}$ of the total increased load.

The new building will be heated by steam from the University's central heating plant. The heating plant is being expanded and renovated to accommodate additional demand by Health Sciences as a whole. Unit B/C will cause an additional demand of 14,500 #/hours, which is 46,910 of the total increased demand. 135,000

There will be increased demand upon other public services, such as streets, public transport, parking facilities, highways, etc. A parking ramp for the use of the Health Sciences Complex is planned, which would contain approximately 2,000 parking spaces. A type of shuttle-bus service from the parking ramp to Health Sciences is proposed. Also proposed is an underground service street which will concentrate supplies receiving at Unit K/E and which would eliminate most delivery-truck traffic.

Highway I-94, at present, has an incompleted interchange which feeds into and out of the University area. Completion of the interchange would enhance vehicular circulation from the city as a whole to the Health Sciences Complex.

The Health Sciences Complex, including Unit B/C, is presently served by Metropolitan Transit Commission bus line 16-A on Washington Avenue; this bus line runs directly to downtown Minneapolis to the west and downtown St. Paul on the east.

It is expected that an increase in bus usage will result from the development of the complex.

ANY PROBABLE OR POTENTIAL ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Units F and B/C are part of a master plan adopted in 1968 for the Health Sciences. A decision was made at that time to locate the project contiguous with the existing Health Sciences Plant to make optimal use of sound, well maintained structures and provide for an orderly phasing into new construction and the phasing out of old. The result is a dense development. However, this density is off set by the adjacent open space of the river gorge.

In order to obviate the congestion in the area the University has prepared a comprehensive long-range plan for parking and circulation on the Twin Cities Campus. The Health Sciences facilities program includes provision of a 2,000 car parking ramp which will be constructed simultaneously with the construction of Unit A. This ramp has first priority in the implementation of the overall parking plan. The University is also cooperating with the Metropolitan Transit Commission and other agencies to develop improved public transportation for the area. Among the possibilities being considered is a series of satelite parking lots connected to the University by a rapid transit system.

ALTERNATIVE TO THE PROPOSED PROJECT

Units B/C and F are tied to a 4-year old Master Planning decision on Site location. The site for B/C and F evolved from an in-depth analysis that determined that the most ideal site, among those considered for the development of the Health Sciences Expansion Program (related specifically to cost, efficient management and the desirability for interaction with other University programs and the major public and private investment in existing facilities, as well as environmental commitments),to be the area of the existing Health Sciences Complex. There are no significant adverse affects regarding the environment on these sites and, in fact, the present location will help to rectify many of the internal problems of a Health Sciences center on a growing campus that has limited availability of land thus requiring critical decisions on land use programming.

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The appropriate selection of site and developmental phases for a project of this magnitude (Health Sciences program) imposed an obligation on the University to initiate and organize careful pre-planning efforts to insure that the development of the site selected fitted into the context of present and future community patterns.

A careful analysis of site development required to accommodate the Health Sciences Expansion Program determined that higher land utilization and building densities were necessary to effectively satisfy programmatic needs and to insure a minimal jeopardization of the integrity and function of existing land uses on the campus and Community environs. The decision to increase building activity within the area for expanded programs will prove to have been a wise decision, both functionally and environmentally in future years.

The developmental plan for this unit is a direct expression of the program and philosophy of the Health Sciences and the design influences (landscape, architecture, traffic, etc.) of the surrounding campus and community. Its development will provide a significant contribution to the physical environment and the academic (instructional and research) and service activities of the unit will prove immeasurabley beneficial to succeeding generations.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The projects will not curtail the range of beneficial use. In fact, the interior environment created will function to improve the Health and well being of the world and particularly that of the upper midwest region:

Due to the fact that boulevard trees will remain - no trees of consequence will be cut. (one - 5" caliper) However, the development will include site improvements such as the additional planting of trees and planting areas which will enhance the environment.

ANALYSIS OF CONSTRUCTION EFFECTS

The construction schedule for Unit B/C is as follows:

	Begin	End
ECX -	None	At this time
ECS -	None	At this time
Contracts -	June 74	
Completion-	Fall of 76	

The portion of the construction which would be likely to have the most adverse effects would be the excavation phase. This is the time when excavating and the driving of piles, etc. will take place, and is the most likely to create noise, dust, mud, etc. All of the constructions of course, will create some of the above problems.

Steps will be taken to prevent hazards to the people in the area. Fences will be erected, warning and directional signs posted, etc.

The watershed will be changed as a result of the construction of Unit B/C, from a run-off factor of .5 to .9.

Erosion does not seem likely to be a problem. Areas around the excavation will be retained by cribbin's sheet piling.

There will be a certain amount of emissions into the air during construction, such as exhaust from equipment, dust from excavation and equipment working, etc. It does not seem likely that there will be any water pollution caused by construction.

Trees will be preserved wherever at all possible, and will be protected during construction. The landscape of the area will be redone, but planting and sodding will be carried on both by the contractor (within bounds of project) and the University (in public-use areas, such as along boulevards.

ESTHETICS OF THE PROPOSED FACILITY

The complex of new and remodeled existing buildings comprising the Health Sciences Facilities is the Architect's response to the University's goal of physical and curricular integration of the Health Sciences units with each other and the rest of the Minneapolis campus of the University.

The problem as defined by this goal was to develop a high density building system on a tight urban site with strong relationships to major existing facilities. This system needed to respond to the initial phase of expansion as well as to the continuing need for growth and change inherent in health sciences units.

The Architects initial effort was to develop a master plan which provided for short and long term expansion and responded to the integrated relationships called for in the program. This master plan serves as a framework for growth by establishing the major paths of circulation knitting together new and existing buildings.

The units designated by the master plan to be housed in new construction were analyzed for common systems criteria. These criteria generated one building system which, with appropriate variations, could respond to the requirements of teaching and research labs, dental clinics, hospital out-patient clinics, offices, classrooms, and auditorium. And in addition, could provide a high degree of flexibility and expandability.

As a three-dimension physical statement the building is a framework which is filled as space is required. The strongest visual elements of the frame in this case are the core element, stairs, elevators, and service cores, which are 12'4" square and are spaced 49' 4" apart in two directions.

Depending upon the space requirements of the various floors the exterior envelope is located at (1) the back face of the cores, (2) flush with the front or, (3) cantilevered 12' 4" in front of the exterior core face. The result is a highly articulated and interesting one.

The vertically introduced by the core elements is balanced by the horizontal lines created by continuous window bands. These bands are particularly evident where the envelope of the building cantilevers out from the face of the cores. As seen in the enclosed model photographs the number of levels comprising a cantilevered projection corresponds to the overall height and mass of the particular unit.

The massiveness of Unit A is as isolated entity will be softened by the addition of the remaining units, BC and F. Unit F is a lower mass which related rather closely to the scale of the adjacent existing facilities.

Unit B/C is an extension of the scale of Unit A but somewhat diminished in height. The resulting composition from low to medium to highest massing we feel is a harmonious one.

Due to the fact that the new development is of a much different scale and concept that the eixsting plant it was decided rather early to depart from the traditional brick masonry construction of adjacent buildings. Exposed aggregate pre-cast concrete panels were chosen for the envelope, the color of which relates to limestone cornices and banding on existing buildings. Plazas surround the new construction and are paved with brick resembling that of the adjacent buildings.

The primary public circulation level for the complex is the Floor 2 Concourse, one level below grade. This level is reached in numerous points along its length by various exterior and interior stairway and escalator spaces, which also admit light to this level. All major assembly, admission and lounge facilities are located off this concourse. Exterior materials are used i.e. exposed aggregate concrete cladding on cores and brick pavers on floors to create an extension of exterior treatment to the interior "pedestrian street". Also, the treatment will help the visitor to understand the framework concept of the building.

An existing church located on the site, which in the 1920's won an architectural design award, is retained and will be incorporated into the total landscaping plan. Thus, old will be integrated with the new which will be advantageous to both.

Due to the tremendous demand for space in the complex almost all open spaces have occupied space below them. Great care was taken, however, to provide trees on these plaza areas by integrating tree planting pockets into the plaza structure. The softening and humanizing effect of the plantings in conjunction with seating areas was judged by the Client and Architects to be well worth the expense involved.

ENVIRONMENTAL APPROVALS AND CONSULTATIONS

At the University of Minnesota the Health Service is the official agency responsible for surveillance of the physical environment. The Division of Environmental Health and Safety is composed of a team of specialists in industrial health, sanitation, safety, microbiology, public health engineering, and health physics. All of these specialists work in protecting the University community from the hazards of the physical environment.

Toxic materials, explosives chemicals, and flamable liquid wastes are collected once a week and taken to the University's Research Center at Rosemount, Minnesot for treatment and disposal.

Radioactive liquid and solid wastes are collected in the laboratory in yellow waste containers which are labeled to indicate whether the waste is combustible or non-combustible. The Division of Health Physicists supervises the collection and disposal or storage of this waste. The temporary storage facility for radioactive waste is located at the University Rosemount Research Center. This facility is a brick building 36 feet long, by 19 feet wide, by 15 feet high, protected by a cyclone fence and posted in accordance with Title 10, part 20, section 20.203 of the Federal Regulations. Stored waste is picked up periodically by a commerical waste disposal firm which transports it to an Atomic Energy Commission (AEC) approved burial ground for final disposal.

Regular and infected combustible waste is collected and taken to the University incineration facility which is located approximately 1/2 mile from the Health Science Complex. The incinerator has two reciprocating grate strokers, with a loading capacity for each unit of 50 tons per day. The high temperature combustion gases are conducted to the 225 foot high incinerator stack.

All small animals carcasses including those containing residual radio-isotopes are put in plastic bags and transported from the research laboratory to the cold room, to the incinerator, and each morning are placed on the animal hearth of the incinerator after a consuming fire has been established. After the furnace has cooled, the ash residue is dumped from the animal hearth onto the grate for removal to the waiting truck. These non-combustible solid wastes are disposed of in a licensed landfill.

University Plant Services are now able to continuously monitor the stack to evaluate the efficiency of combustion and dilution of radioactive combustible products.

Sewage of the University of Minnesota is discharged into the sewers of the City of Minneapolis, then to the sewage treatment plant of the Minneapolis St. Paul Sanitary District where secondary treatment is provided.

In addition to reviewing plans and specifications with the University agencies, the following agencies reviewed the project at the termination of the Design Development Phase of the work:

State Fire Marshalls Office
Minneapolis Fire Department
Minnesota Society for Crippled Children and Adults
Regional Office of Facilities, Engineering and Construction; Chicago, Illinois

All plans met with approval.

License - None required

Permits - We require wrecking contractors to have a wrecking permit. Wrecking permits are required by the City of Minneapolis and are a part of their files.

The City of Minneapolis requires that the University of Minnesota take out permits for cutting off sewer and water services to buildings when buildings in the site area for both Unit "F" and Unit "B-C" are raised.

State, Local and Regional Planning Authorities - The alley between Washington Avenue Southeast and Delaware Street Southeast west of Harvard Street Southeast must be vacated for construction of Unit "F". The University of of Minnesota will then request vacation agreements from the City of Minneapolis.