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## INTRODUCTION

THE SCHEMATIC DESIGN PACKAGE CONSISTS OF TWO VOLUMES OF SCHEMATIC DESIGN NARRATIVES AND FULL-SIZE COPIES OF DRAWINGS WHICH HAVE BEEN DEVELOPED DURING THE SCHEMATIC DESIGN PHASE OF THE WORK.

THE SCHEMATIC DESIGN NARRATIVES CONSIST OF STATEMENTS, DESCRIPTIONS AND ILLUSTRATIONS OF THE PRELIMINARY DECISIONS WHICH HAVE BEEN REACHED IN THIS INITIAL PHASE OF PLANNING AND DESIGN OF THE PROJECT. THE DECISIONS REACHED RELATE TO SOLUTIONS WHICH ADDRESS THE HOSPITALS' FUNCTIONAL NEEDS AND SPECIAL NEEDS WHICH HAVE BEEN IDENTIFIED BY THE UNIVERSITY OF MINNESOTA.

THE DEVELOPMENT OF THESE PRELIMINARY CONCLUSIONS HAS BEEN MADE POSSIBLE BECAUSE OF THE CONTRIBUTION OF NUMEROUS INDIVIDUALS AND GROUPS REPRESENTING THE HOSPITALS AND THE UNIVERSITY. ELLERBE GRATEFULLY ACKNOWLEDGES THE PLANNING PARTICIPATION EXTENDED BY THESE INDIVIDUALS AND GROUPS, INCLUDING:

- UNIVERSITY OF MINNESOTA HOSPITALS PLANNING/  
STEERING COMMITTEE  
MR. JOHN H. WESTERMAN, CHAIRMAN
- UNIVERSITY OF MINNESOTA PROJECT H BUILDING  
ADVISORY COMMITTEE  
MR. CLINTON N. HEWITT/MR. THOMAS F. JONES,  
CO-CHAIRMEN
- AL EILERS, UNIVERSITY TECHNICAL COORDINATOR  
FOR UNIT H
- UNIVERSITY OF MINNESOTA BUILDING CODE OFFICIALS
- UNIVERSITY OF MINNESOTA DEPARTMENT OF  
ENVIRONMENTAL HEALTH AND SAFETY
- UNIVERSITY OF MINNESOTA HOSPITALS COUNCIL  
OF CLINICAL CHIEFS  
DR. JOHN S. NAJARIAN, CHAIRMAN

- UNIVERSITY OF MINNESOTA HOSPITALS OPERATING ROOM PLANNING TASK FOURCE  
DR. ROBY C. THOMPSON, CHAIRMAN
- UNIVERSITY OF MINNESOTA HOSPITALS PEDIATRICS PLANNING TASK FORCE  
DR. C.C. CLAWSON, CHAIRMAN
- UNIVERSITY OF MINNESOTA PAR/SICU PLANNING TASK FORCE  
DR. RICHARD L. VARCO/DR. ROBERT ANDERSON, CHAIRMEN
- UNIVERSITY OF MINNESOTA HOSPITALS PHYSICIANS, HEAD NURSES, CLINICAL DIRECTORS AND MEDICAL, NURSING & TECHNICAL STAFFS ASSOCIATED WITH NEW UNITS
- UNIVERSITY OF MINNESOTA HOSPITALS ENGINEERS AND MAINTENANCE STAFF
- UNIVERSITY OF MINNESOTA OFFICE OF PHYSICAL PLANNING  
MR. CLINTON N. HEWITT, ASSISTANT VICE PRESIDENT
- UNIVERSITY OF MINNESOTA OFFICE OF ENGINEERING AND CONSTRUCTION  
MR. PAUL E. KOPIETZ. DIRECTOR
- UNIVERSITY OF MINNESOTA HOSPITALS ADMINISTRATIVE STAFF
- UNIVERSITY OF MINNESOTA HOSPITALS ADMINISTRATION PLANNING OFFICE  
MR. THOMAS F. JONES, ASSOCIATE DIRECTOR  
MR. LELAND L. LARSON, PROJECT COORDINATOR  
MS. CYNTHIA A. FORSMAN, NURSE PLANNER

## PROJECT DESCRIPTION

THE PROJECT IS LOCATED IN THE HEALTH SCIENCES AREA ADJACENT TO UNIVERSITY HOSPITALS ON THE UNIVERSITY OF MINNESOTA MINNEAPOLIS CAMPUS. THE PROJECT INCLUDES THE FOLLOWING COMPONENTS:

- NEW CONSTRUCTION EXPANSION OF, AND RENOVATIONS TO, THE EXISTING FOURTH FLOOR SURGERY SUITE AND ASSOCIATED SUPPORT SPACES IN THE MAYO AND TODD WINGS OF THE EXISTING UNIVERSITY HOSPITAL FACILITIES.
- FOUR ADDITIONAL FLOORS AND MECHANICAL SPACES ABOVE THE EXISTING THREE-STORY UNIT K/E, WHICH IS LOCATED IMMEDIATELY SOUTH OF THE TODD WING OF UNIVERSITY HOSPITAL. THESE FLOORS HOUSE POST-ANESTHESIA RECOVERY AND SURGICAL INTENSIVE CARE FACILITIES ON THE FOURTH FLOOR, PEDIATRICS NEONATAL INTENSIVE CARE FACILITIES ON THE FIFTH FLOOR, PEDIATRICS NEUROLOGY, SPECIAL DIAGNOSTIC AND MEDICAL INTENSIVE CARE FACILITIES ON THE SIXTH FLOOR, PEDIATRICS INFANTS AND TODDLER NURSING UNITS ON THE SEVENTH FLOOR AND ELEVATOR PENTHOUSES AND MECHANICAL EQUIPMENT SPACE ABOVE.

IN ADDITION TO NEW BUILDING CONNECTIONS AND ASSOCIATED RENOVATED AREAS AT THE FOURTH AND FIFTH FLOORS BETWEEN UNIT K/E AND THE TODD WING, THE NEW CONSTRUCTION WILL CONNECT THE TWO EXISTING BUILDINGS AT THE THIRD FLOOR LEVEL TO PROVIDE REPLACEMENT OFFICES AND CORRIDOR CIRCULATION BETWEEN THE BUILDINGS.

ALSO PROVIDED AS A PART OF THE UNIT K/E ADDITION IS A NEW HOSPITAL ELEVATOR TOWER LOCATED AT THE NORTHWEST CORNER OF THE EXISTING UNIT K/E. ADDITIONALLY, A SECOND FLOOR BRIDGE CONNECTION BETWEEN UNIT K/E AND THE EXISTING VARIETY CLUB HEART HOSPITAL IS PROVIDED.

- RENOVATIONS AND/OR EXPANSIONS OF VARIOUS EXISTING DEPARTMENTS LOCATED ON THE FIRST AND SECOND FLOORS OF THE EXISTING HOSPITAL, TO INCLUDE CENTRAL STERILE SUPPLY, DIAGNOSTIC RADIOLOGY, NUCLEAR MEDICINE, CLINICAL LABORATORIES AND OFFICE SPACES. WITH CERTAIN EXCEPTIONS, THESE VARIOUS AREAS MAY BE CONSTRUCTED INDEPENDENTLY, WITHOUT IMPACT ON THE NEW ADDITION AND RENOVATION WORK PROPOSED FOR SURGERY AND PEDIATRICS AREAS. THE SPECIFICS OF THIS RENOVATION WORK WITHIN THE EXISTING HOSPITAL HAVE NOT BEEN ADDRESSED BY THE DESIGN TEAM DURING THE SCHEMATIC PHASE OF DESIGN. WITH THE PROVISION OF COMPLETE PROGRAM INFORMATION AND PLANNING SESSIONS WITH THE DEPARTMENTS INVOLVED, DETAILED PLANNING FOR THESE AREAS WILL BE ACCOMPLISHED DURING THE DESIGN DEVELOPMENT PHASE OF THE WORK. FOR PURPOSES OF PROJECT COST ESTIMATION RELATIVE TO THESE AREAS, THE AMOUNT OF \$3 MILLION WHICH HAS BEEN ESTABLISHED BY THE HOSPITAL IS INCLUDED IN THIS SCHEMATICS PHASE DOCUMENTATION. CONFIRMATION OF THIS BUDGET AMOUNT WILL BE MADE WHEN PROGRAMS AND LAYOUTS ARE ADEQUATELY DEFINED DURING THE INCOMING DESIGN PHASE OF THE WORK.
  
- SITEWORK, INCLUDING THAT WHICH IS PRIMARILY RELATED TO THE SURGERY EXPANSION EAST OF THE MAYO AND TODD WINGS AND ADJACENT TO THE EXISTING UNIT C AND DIEHL HALL. ALSO, NEW SITE CONSTRUCTION IN THE AREA OF THE EXISTING ENTRANCE COURT AND DRIVEWAY APPROACH TO THE MAYO WING OF THE HOSPITALS.

THE PROJECT IS LOCATED IMMEDIATELY ADJACENT TO EXISTING CRITICAL FUNCTIONS OF PATIENT CARE IN THE HOSPITAL AND TO RESEARCH AND HOSPITAL SUPPORT ACTIVITIES WHICH MUST BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. BECAUSE OF THIS, THE CONSTRUCTION EFFORTS MUST BE CAREFULLY COORDINATED TO INSURE THAT DISRUPTION OF ON-GOING HOSPITAL ACTIVITIES IS KEPT TO A MINIMUM.

#### PROGRAM RESPONSE

THE SPACE ALLOCATION PROGRAM USED AS A BASIS TO DEVELOP THE "H" PROJECT SCHEMATIC DOCUMENTS WAS PROVIDED BY THE STAFF OF UNIVERSITY OF MINNESOTA HOSPITALS. THE PROGRAM WAS MODIFIED DURING THE DEVELOPMENT OF THE SCHEMATIC DOCUMENTS THROUGH THE JOINT EFFORTS OF THE ARCHITECT AND THE HOSPITAL STAFF. BOTH THE ORIGINAL PROGRAM AND THE ACTUAL SPACE ALLOCATED IS INCLUDED IN THE SPACE ALLOCATION SUMMARY.

PROJECT H INCLUDES RENOVATIONS TO DIAGNOSTIC RADIOLOGY CLINICAL LABORATORIES AND CENTRAL STERILE PROCESSING. THE SCOPE OF THE WORK IN THESE AREAS HAS NOT BEEN FINALIZED AND THEREFORE IS NOT INCLUDED IN THIS SPACE ALLOCATION PROGRAM.

#### PROGRAM ADJUSTMENTS

WHERE A SIGNIFICANT DIFFERENCE EXISTS BETWEEN THE ORIGINAL PROGRAM AND THE ACTUAL PLANNED SPACE, A BRIEF STATEMENT REGARDING THE CHANGE IS GIVEN IN THE PROGRAM ADJUSTMENT SECTION FOLLOWING THE SPACE ALLOCATION PROGRAM. THE STATEMENTS ARE CROSS REFERENCED TO THE PROGRAM BY NUMBER WHICH APPEARS IMMEDIATELY AFTER THE ROOM NAME IN THE PROGRAM.

WHERE THERE EXISTS A DIFFERENCE BETWEEN THE NUMBER OF ROOMS OF A GIVEN TYPE IN THE ORIGINAL PROGRAM AND THE NUMBER ACTUALLY PLANNED, THE NUMBER ACTUALLY PLANNED IS IN PARENTHESIS AND A COMMENT IS OFFERED IN THE PROGRAM ADJUSTMENT SECTION.

SUMMARY

UNIT H OPERATING ROOM PROGRAM  
 UNIT KE PAR - SURGICAL ICU PROGRAM

	NET AREAS PROGRAM	RENOV.	NEW
<u>Operating Room</u>			
Unit Total Net Area	30255-31055	21,158	15,588
Unit Total Net Area (New & Renov.)		36,746	
Total Gross Area		28,690	26,326
Total Gross Area (New & Renov.)		55,026	
<u>PAR/Surgical ICU</u>			
Unit Total Net Area	15,200	2,557	12,039
Unit Total Net Area (New & Renov.)		14,596	
Unit Gross Area		4,630	22,813
Unit Gross Area (New & Renov.)		27,443	

SUMMARY

KE PEDIATRIC PROGRAM

	BEDS	NET AREAS PROGRAM	NEW
<u>4th Floor</u>			
Surgical ICU (4 beds included in the surgical ICU program are assigned to pediatrics)	4		
<u>5th Floor</u>			
Neonatal ICU	24	7,180	7,335
General Support Space		6,200	4,270
FLOOR TOTALS NET		13,380	11,605
FLOOR GROSS			21,716

OPERATING ROOM	NET AREAS - PROGRAM	RENOV.	NEW
<u>UNIT SUPPORT</u>			
Litter Storage & Clean-Up	450	525	
Crash Cart #3	15		140
Anesthesia Work Room #4	300	360	200
Anesthesia Repair & Maintenance	150	200	
Front Line Storage #5	500	1,902	1,828
Misc. Equipment #6	150	630	
Diagnostic Radiology #7			
Port. X-Ray		155	
Dark Room	150	50	
Reading Room		180	
Processor	150	140	
Laboratory (Blood Bank, Blood Gas)	200		200
Pharmacy	100	100	
Surgical Pathology	3,025	3,187	
Exist. Sterile Supply & Equipment	635	635	
Cardiovascular Pump Room	300		300
Orthopedic Appliance Storage	150	150	
Litter Park (6 locations) #8		210	400
Dictation (+ Sec'y Pick-Ups) #9	150	170	100
Housekeeping			
Janitorial 2 x 75	150	128	140
Storage	75	200	
Instrument Processing & Sterilization #10	2,340	2,340	
Waiting			
Lounge	500	480	
Consultation 2 x 100	200	160	
Toilet 2 x 25	50	130	
Telephone 2 x 15, vending	30	130	
SUB TOTAL	9,620	9,187	3,308
(including sub sterile supply & CS)			
SUB TOTAL (RENOV. & NEW)		12,162	
<u>OPERATING ROOM TOTALS</u>			
Unit Total Net Area	30,255-31,055	21,158	15,588
Unit Total Net Area (Renov. & New)		36,746	
Total Gross Area		28,690	26,326
Total Gross Area (Renov. & New)		55,026	



26 BED PAR	NET AREAS -		RENOV.	NEW
	AREA	NO.		
<u>PATIENT ROOMS</u>				
Bed Space	100	24	2,400	2,112
Isolation Bedroom	150	2	300	360
Isolation Anteroom	75	2	150	130
SUB TOTALS			2,850	490
SUB TOTAL (RENOV. & NEW)			2,602	
<u>NURSES' STATION</u>				
Central Desk			150	140
Computer Terminal			10	10
Conveyor Station			30	13
Medical Supply			80	80
Respiratory Supply			5	5
Charting			50	50
Equipment (Crash Cart)	15	2	30	30
SUB TOTALS			355	328
<u>STAFF FACILITIES</u>				
Office, Head Nurse			100	120
Office, Anesthe.			150	125
Staff Toilet			25	25
SUB TOTALS			275	145
SUB TOTAL (RENOV. & NEW)			270	
<u>UNIT SUPPORT</u>				
Litter Park #11		40	40	200
Clean Utility/Supply			250	52
Clean Linen			20	135
Soiled Utility/Holding #12			150	-
Bed/Litter Cleaning (To OR)				-
Equipment Storage			250	216
Janitor Closet			50	24
SUB TOTALS			720	148
SUB TOTAL (RENOV. & NEW)			775	
Unit Totals Net Area			4,200	763
Unit Total Net Area (Renov. & New)			3,975	

26 BED SURGICAL ICU	NET AREAS -		RENOV.	NEW
	AREA	NO.		
<u>PATIENT ROOMS #13</u>				
Bedspace				3,816
Isolation Bed Room	200			813
Isolation Anteroom	75			282
Patient Toilet/Shower				48
SUB TOTAL				4,959
<u>NURSES' STATION</u>				
Central Desk				84
Computer Terminal				36
Conveyor Station				30
Medication				108
Dr.'s Chart & Dictation				120
Equipment (Crash Cart)	15	2		30
Doctors Conference				200
Purse Storage (at ea. N. Station)				-
Nurses Station & Chart (Satellite)				370
SUB TOTAL				978
<u>STAFF FACILITIES</u>				
Office, Social Service #14				-
Office, Dietician #15				-
Office, Head Nurse				144
Staff Toilet				25
SUB TOTAL				169
<u>UNIT SUPPORT</u>				
Clean Utility/Supply/Linen				504
Soiled Utility/Holding				162
Equipment Storage				384
Nourishment				50
Pat. Clothing Storage				-
Exam/Treatment #16				-
Janitor Closet			200	52
SUB TOTAL			200	1,152
SUB TOTAL (RENOV. & NEW)			1,352	
Unit Total Net Area		6,885	400	7,258
Unit Total Net Area (Renov. & New)			7,658	

PEDIATRIC SPACE ALLOCATION PROGRAM - BEDS KE

24 BED NEONATAL INTENSIVE CARE (5th FLOOR)	NO.	NET FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
<u>PATIENT AREA</u>				
Open Bed Space:				
Maximal Care	10	120	1,200	1,114
Intermediate Care	8	100	800	700
Isolation Rooms #23	6(5)	120	720	758
Isolation Anteroom #24	6(5)	70	420	252
Sink Area	6	20	120	50
SUB TOTAL			3,260	3,174
<u>NURSES STATION</u>				
Central Desk			120	145
Nurses Charting			180	180
Computer Terminal			40	40
Conveyor Station			30	30
Medication			120	96
Doctors Charting			300	300
Conference/Class Room			240	380
Crash Carts	2		30	30
Radio Communication			50	60
SUB TOTAL			1,110	1,261
<u>STAFF FACILITIES</u>				
Office, Director #25			120	120
Office, Head Nurse			100	100
Office, Ast. Head Nurse			100	100
Staff Toilets #26	2	25	50	150
SUB TOTAL			370	470
<u>UNIT SUPPORT</u>				
Clean Utility			300	325
Soiled Utility			200	220
Clean Linen			150	90
Clean Gown			40	40
Equipment Storage (c X-ray)			800	795
Nourishment			100	80
Exam/Treatment			180	180
Family Consult/Breast Feeding	3	80	240	210
Janitors Closet			30	40
Blood Gas Lab			150	190
Staff Lounge			150	120
Linen Chute #27			60	60
Trash Chute #27			80	80
SUB TOTAL			2,440	2,430
SUB TOTAL UNIT TOTAL NET AREA			7,180	7,335

GENERAL SUPPORT FACILITIES (5th FLOOR)	NO.	NET.FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
Life Support Conveyence #28			100	
Office, In-Service Nursing			100	100
Office, Social Service			100	100
Waiting Area			160	220
Toilets	2	25	50	50
Coats			10	10
Telephone			10	10
Canteen			20	30
SUB TOTAL			550	520
Pharmacy			300	340
On-Call Room	10	70	700	600
Toilet/Shower	5	50	300	250
Nurse's Lockers/Lounge #29			2,100	460
Toilet/Shower Female			350	200
Toilet/Shower Male #29			250	-
SUB TOTAL			4,000	1,850
<u>PEDIATRIC SUPPORT FACILITIES</u> (From 7th Floor)				
Office, Clin. Director			100	125
Office, Chief Resident			100	90
Office, Adm. Assistant			100	90
Office, In-Service Nurse			100	80
Office, Social Service			100	80
Staff Study			200	290
Library			500	615
Drs. Conf./Class Room	2	250	500	530
SUB TOTAL			1,650	1,900
SUB TOTAL TOTAL NET AREA			6,200	4,270
<u>5th FLOOR TOTALS</u>				
Total Net Area			13,380	11,605
Floor Gross				21,716

18 BED SPECIAL DIAGNOSTIC & NEUROLOGY (6th FLOOR)	NO.	NET.FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
<u>PATIENT AREA</u>				
2 Bed Room	6	250	1,500	1,620
1 Bed Room	6	150	900	997
Isolation Anteroom	2	70	140	84
Patient Toilet/Shower	12	50	600	400
SUB TOTAL			3,040	3,101
<u>NURSES STATION</u>				
Central Desk			200	150
Nurse Charting	2	100	200	214
Doctor Charting	2	90	180	208
Medication	2	80	160	235
Conference/Class Room	2	180	360	364
Conveyor Station			30	30
Crash Cart			20	20
Consultation	2	75	150	170
SUB TOTAL			1,300	1,391
<u>STAFF AREA</u>				
Office, Head Nurse			100	100
Office, Asst. Head Nurse #30			100	100
Office, Dietician			100	100
Office, Psychologist/Asst. Head Nurse			180	150
Staff Toilet	2	25	50	50
SUB TOTAL			530	500
<u>UNIT SUPPORT</u>				
Time Out #31			63	63
Clean Supply			250	240
Soiled Utility			150	175
Equipment & Storage			250	265
Nourishment/Kitchen			150	130
Diagnostic School Room			180	215
Janitor			40	50
Laboratory			250	86
Controlled Play Area #32			180	
Dayroom/Open Play	2	200	400	402
Treatment/Exam	2	150	300	280
Tub Room			100	56
SUB TOTAL			2,413	1,962
UNIT TOTAL NET AREA			7,183	6,954

8 BED PEDIATRIC MEDICAL HIGH ACUITY CARE (1-17 YEARS) (6th FLOOR)	NO.	NET.FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
<u>PATIENT AREA</u>				
2 Bed Room (Partionable) #33	1	300	300	190
1 Bed Room	6	160	960	940
Isolation Anteroom	4	70	280	200
Patient Toilet & Future Shower	7	50	200	350
SUB TOTAL			1,740	1,680
<u>NURSING STATION</u>				
Central Desk			120	120
Computer Area			40	20
Nurse Charting			120	120
Doctor Charting			120	130
Conveyor Station			30	20
Medication			80	65
Crash Cart			20	10
Conference			200	290
Consultation			60	80
SUB TOTAL			790	855
<u>STAFF AREA</u>				
Office Director #34			100	100
Office Head Nurse			100	130
Staff Toilet			25	25
On-Call	2	75	150	150
Toilet/Shower			50	50
SUB TOTAL			325	455
<u>UNIT SUPPORT</u>				
• Tub Room	2	50	100	50
Clean Supply			180	200
Soiled Holding			80	140
Equipment Storage #35			200	200
Nourishment (shared w/special diag.)			80	
Exam Treatment			140	200
Janitor (shared w/special diag.)			-	-
SUB TOTAL			580	790
UNIT TOTAL NET AREA			3,720	3,780

PEDIATRIC SUPPORT FACILITIES (6th FLOOR)	NO.	NET.FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
Office, Social Service			100	100
On-Call Room	4	75	300	300
Toilet/Shower	2	50	100	100
Meals #36			150	175
Family Support Areas				
Lounge - Sunroom			300	300
Coats			20	20
Toilets	2	100	200	96
Telephone			15	15
Quiet Room	2(1)	80	160	144
Canteen			35	35
TOTAL NET AREA			1,380	1,285
<u>6th FLOOR TOTALS</u>				
Total Net Area			12,283	12,041
Floor Gross				21,236

19 BED INFANT GENERAL PEDIATRICS (7th FLOOR)	NO.	NET FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
<u>PATIENT AREA</u>				
2 Bed Room #37	6 (7)	250	1,500	1,820
1 Bed Room #38	7 (5)	150	1,050	830
Isolation Anteroom #39	5 (3)	70	350	125
Patient Toilet #40	7 (14)	50	350	700
SUB TOTAL			3,250	3,475
<u>NURSING STATION</u>				
Central Desk			180	190
Nurses Charting			200	180
Doctors Charting			160	155
Medication			120	125
Conference/Classroom			240	260
Conveyor Station			30	30
Crash Cart			20	20
Consultation #41	2 (1)	50	100	35
SUB TOTAL			1,050	995
<u>STAFF AREA</u>				
Office, Head Nurse			100	120
Staff Toilet	2	25	50	36
SUB TOTAL			150	156
<u>UNIT SUPPORT</u>				
Tub Room			120	85
Clean Supply			240	195
Soiled Utility			150	108
Equipment Storage			250	250
Nourishment			75	100
Janitor			35	36
SUB TOTAL			860	774
UNIT TOTAL NET AREA			5,310	5,400



18 BED TODDLER GENERAL PEDIATRICS (7th FLOOR)	NO.	NET.FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
<u>PATIENT AREA</u>				
2 Bed Room #42	6(7)	250	1,500	1,848
1 Bed Room #43	6(4)	150	900	600
Isolation Anteroom	4	70	280	120
Patient Toilet/Shower #44	12(11)	50	600	400
SUB TOTAL			3,280	2,968
<u>NURSING STATION</u>				
Central Desk			180	190
Nurses Charting			200	150
Doctors Charting			160	145
Medication			120	122
Conference/Class Room			240	286
Conveyor Station			30	30
Crash Cart			20	20
Consultation	2	50	100	120
SUB TOTAL			1,050	1,063
<u>STAFF AREA</u>				
Office, Head Nurse			100	98
Staff Toilet	2	25	50	36
SUB TOTAL			150	134
<u>UNIT SUPPORT</u>				
Tub Room			120	104
Clean Supply			240	192
Soiled Utility			150	168
Equipment Storage			250	250
Nourishment			75	104
Janitor			35	36
SUB TOTAL			860	854
UNIT TOTAL NET AREA			5,340	5,019

SHARED SUPPORT FOR TWO GENERAL PEDIATRIC UNITS (7th FLOOR)	NO.	NET.FT. <sup>2</sup>	NET AREAS - PROGRAM	NEW
Meal Service			200	190
Play Therapy			200	144
Open Play/Feeding	2	400	800	796
Treatment/Exam	3	150	450	384
Office, In-Service Nurse	2	100	200	230
Office, Social Service			100	100
Office, Dietician			100	94
Waiting Area			240	198
Coats			10	
Toilets	2	25	50	90
Telephones			20	
Canteen			30	
Linen Chute #45			60	60
Trash Chute #45			80	80
TOTAL NET AREA			2,680	2,366
<u>7th FLOOR TOTALS</u>				
Total Net Area			13,330	12,785
Floor Gross				21,452

HOSPITAL ELEVATORS - BRIDGES &  
MECHANICAL EQUIPMENT AREAS

<u>SHARED SUPPORT/UNITS KE/H</u>	PROGRAM	NEW
<u>1st FLOOR KE</u> Elevator Shafts & Lobby #46 FLOOR GROSS	900	900
<u>2nd FLOOR KE</u> Bridge Connecting KE & Heart Hospital (74' x 12') #47 Elevator Shafts & Lobby #46 TOTAL NET AREA FLOOR GROSS	888 900 1,788	888 900 1,788 1,788
<u>3rd FLOOR KE</u> Bridge Connecting KE & Mayo (46' x 21') #48 Elevator Shafts & Lobby #46 TOTAL NET AREA FLOOR GROSS	966 900 1,866	966 900 1,866 1,866
<u>8th FLOOR KE</u> Mechanical Equipment Room #49 Exist. Mechanical Space (4050) #49 TOTAL NET AREA FLOOR GROSS	15,050 - 15,050	15,050 - 15,050 17,050
<u>9th FLOOR KE</u> Elevator Penthouses TOTAL NET AREA FLOOR GROSS	1,840 1,840	1,840 1,840 3,500
<u>UNIT "H" MECHANICAL PENTHOUSE</u> Mechanical Equipment Room #50 FLOOR GROSS	9,596	9,596 10,336
<u>SHARED SUPPORT/UNITS KE/H</u> Total Net Area Total Gross Area	31,040	31,040 35,440

## PROGRAM ADJUSTMENTS

THE FOLLOWING COMMENTS REFLECT SPACE ADJUSTMENTS FROM THE PROGRAM PROVIDED TO THE DESIGNERS BY THE UNIVERSITY.

1. A SATELLITE MEN'S/WOMEN'S TOILET/LOUNGE WAS ADDED TO ALLEVIATE THE LONG TRAVEL DISTANCE TO LIKE FACILITIES IN THE INTERCHANGE.
2. THE AREA PROGRAMMED FOR THE NEUROSURGICAL OPERATING ROOM INCLUDES IMMEDIATE SUPPORT SPACE WHICH IS INCLUDED IN THE PLAN.
3. ADDITIONAL AREA PROVIDED FOR CRASH CARTS ENABLES CARTS TO BE DISTRIBUTED THROUGHOUT THE SUITE.
4. A ANESTHESIA EQUIPMENT ROOM WAS PROVIDED FOR EACH BANK OF OPERATING ROOMS.
5. THE DESIGN CONCEPT FOR THE SUITE PLACES EACH OPERATING ROOM ADJACENT TO THE FRONT LINE STORAGE AREA, THEREBY CREATING ADDITIONAL STORAGE.
6. ALL MISCELLANEOUS EQUIPMENT ROOMS HAVE BEEN CONSOLIDATED TO WITHIN THE SUITE.
7. THE TOTAL SPACE FOR DIAGNOSTIC RADIOLOGY INCLUDES AREA ASSIGNED TO NEUROSURGERY OPERATING ROOM RELATED TO X-RAY.
8. AREAS FOR PARKING OF LITTERS HAVE BEEN DISTRIBUTED NEAR THE OPERATING ROOMS.
9. ADDITIONAL SPACE FOR DICTATION HAS BEEN PROVIDED, ENABLING DICTATION AT EITHER END OF SUITE.
10. A CENTRALIZED INSTRUMENT PROCESSING AND STERILIZING AREA HAS BEEN ADDED TO THE PROGRAM TO CONFORM TO MODERN STANDARDS OF OPERATION ROOM SUITE DESIGN.
11. LITTER PARK ADDED TO PROGRAM.
12. PHYSICAL SIZE OF P.A.R. REQUIRED TWO SOILED UTILITY ROOMS, ONE AT EACH END.

13. A PHILOSOPHICAL CHANGE IN HOUSING S.I.C.U. PATIENTS REQUIRED PROGRAMMATIC ADJUSTMENT.
14. DELETED FROM PROGRAM.
15. DELETED FROM PROGRAM.
16. DELETED FROM PROGRAM.
17. DECENTRALIZED NOURISHMENT UNITS REQUIRE LESS SPACE FOR MEAL SERVICE.
18. AN OFFICE FOR A STAFF PHYSICIAN HAS BEEN ADDED TO THE PROGRAM.
19. IN-SERVICE SPACES HAVE BEEN DELETED FROM THIS LOCATION. PRIORITY FOR ADDITIONAL SPACE REQUIRED FOR SICU HAS MANDATED IN-SERVICE AREA BE RESERVED FOR FUTURE CONSIDERATION.
20. REMAINING ON-CALL ROOM IS LOCATED ON THE FIFTH FLOOR.
21. A GALLEY LOUNGE HAS BEEN ADDED TO THE PROGRAM SUCH THAT SICU AND PAR PERSONNEL WOULD NOT NEED TO USE SURGERY LIKE FACILITIES.
22. PRIORITY FOR SPACE HAS REQUIRED A REDUCTION FOR CONSULTATION ROOMS.

#### NEONATAL

23. THE NUMBER OF ISOLATION ROOMS WAS REDUCED FROM
24. & 6 TO 5. TWO OF THE 5 ROOMS ARE 50% OVERSIZED TO ACCOMMODATE TWO INFANTS WHEN APPROPRIATE, ALLOWING GREATER FLEXIBILITY IN STAFFING.
25. AN OFFICE WAS ADDED FOR THE DIRECTOR.
26. STAFF TOILETS WERE INCREASED IN SIZE AND NUMBER TO MEET THE DEPARTMENT NEEDS.
27. LINEN AND TRASH CHUTES WERE ADDED TO THE PROGRAM.
28. LIFE SUPPORT CONVEYANCE. INFANTS WILL BE TRANSPORTED IN ISOLETTES WITH APPROPRIATE LIFE SUPPORT EQUIPMENT ON KEY CONTROLLED ELEVATORS. THIS DOES NOT REQUIRE AN ALLOCATION OF SPACE.

29. THE NURSES LOCKER-LOUNGE WAS REDUCED IN SIZE FROM 2100 SQ. FT. TO 460 SQ. FT., AND THE MALE TOILET AND SHOWER WAS DELETED FROM THE PROGRAM. THESE REDUCTIONS WERE NECESSARY TO ACCOMMODATE PROGRAM SPACES WITH HIGHER PRIORITY.

SPECIAL DIAGNOSTIC & NEUROLOGY

30. AN OFFICE WAS ADDED FOR THE ASSISTANT HEAD NURSE WHO WAS PROGRAMMED TO SHARE SPACE WITH THE PSYCHOLOGIST.
31. A "TIME-OUT" ROOM WAS ADDED TO THE PROGRAM.
32. THE CONTROLLED PLAY ROOM WAS DELETED. CONTROLLED PLAY ACTIVITIES WILL SHARE THE SPACE OF THE DAY ROOM OR THE CONFERENCE ROOM.

PEDIATRIC MEDICAL ICU

33. THE 2 BED ROOM IS 65% OF PROGRAM SIZE.
34. AN OFFICE WAS ADDED FOR THE DIRECTOR.
35. EQUIPMENT STORAGE SPACE WAS ADDED.
36. DIETARY MEAL ROOM WAS ADDED.

INFANT GENERAL PEDIATRICS

37. THE NUMBER OF 2 BED ROOMS WAS CHANGED FROM 6 TO 7.
38. THE NUMBER OF 1 BED ROOMS WAS CHANGED FROM 7 TO 5. LIMITED EXTERIOR WALL SPACE LIMITS THE NUMBER OF PATIENT ROOMS POSSIBLE WITHIN THE KE ENVELOPE. THEREFORE, THE RATIO OF 1 TO 2 BED ROOMS MUST CHANGE IN ORDER TO HOLD TO THE 19 BED UNIT SIZE.
39. THE NUMBER OF ISOLATION ROOMS WAS CHANGED FROM 5 TO 3.
40. CHANGE PATIENT TOILETS FROM 7 TO 14 (CORRECTION OF PROGRAM ERROR).
41. THE NUMBER OF CONSULTATION ROOMS WAS REDUCED FROM 2 TO 1.

TODDLERS

42. THE NUMBER OF 2 BED ROOMS WAS CHANGED FROM 6 TO 7.
43. THE NUMBER OF 1 BED ROOMS WAS CHANGED FROM 6 TO 4. LIMITED EXTERIOR WALL SPACE LIMITS THE NUMBER OF PATIENT ROOMS POSSIBLE WITHIN THE KE ENVELOPE, THEREFORE, THE RATIO OF 1 TO 2 BED ROOMS MUST CHANGE IN ORDER TO MAXIMIZE THE NUMBER OF PATIENT BEDS POSSIBLE. THE NUMBER OF TODDLER BEDS WAS REDUCED FROM 19 TO 18.
44. THE NUMBER OF PATIENT TOILETS WAS CHANGED FROM 12 TO 11.
45. ADD LINEN AND TRASH CHUTES.
46. ADD TWO HOSPITAL SIZED ELEVATORS TO THE PROGRAM.
47. ADD A BRIDGE CONNECTING KE AND THE HEART HOSPITAL AT 2ND FLOOR TO THE PROGRAM.
48. ADD A BRIDGE CONNECTING KE AND MAYO AT THE 3RD FLOOR TO THE PROGRAM.
49. ADD A MECHANICAL EQUIPMENT FLOOR AT THE 8TH FLOOR LEVEL. THIS NEW EQUIPMENT ROOM WILL PROVIDE SPACE FOR THE EQUIPMENT ON THE EXISTING KE ROOF PLUS EQUIPMENT TO SERVE THE CURRENT 4-STORY KE PEDIATRIC EXPANSION AND THE FUTURE KE RESEARCH EXPANSION.
50. ADD A MECHANICAL EQUIPMENT PENTHOUSE TO UNIT H AT THE 5TH FLOOR LEVEL.

## SITE RESPONSE

THE SITES FOR EXPANDED AND RENOVATED FACILITIES ARE THOSE AREAS WHICH ARE SUITABLE TO SATISFY ADJACENCIES AND SPACE REQUIREMENTS WHILE RECOGNIZING COST GUIDELINES. FOLLOWING IS A SUMMARY DESCRIPTION OF THE SITES FOR THE SURGERY SUITE EXPANSION AND RENOVATION AS WELL AS THE DESIGNATED SITE FOR REPLACEMENT AND EXPANSION OF THE POST ANESTHESIA RECOVERY (P.A.R.), THE SURGICAL INTENSIVE CARE UNIT (S.I.C.U.) AND THE PEDIATRIC STATIONS.

THE SURGERY EXPANSION AND RENOVATION WILL OCCUR AS REMODELING IN THE EXISTING SUITE OF MAYO HOSPITAL AND NEW CONSTRUCTION OVER PORTIONS OF ADJACENT STRUCTURES. SINCE ALL ADJACENT AREAS HAVE CONSTRUCTION BELOW, EXPANSION IS LIMITED TO THOSE ADJACENT STRUCTURES WHICH ARE CAPABLE OF CARRYING AT LEAST ONE ADDITIONAL FLOOR WITHOUT MODIFICATION. THOSE STRUCTURES INCLUDE:

- MAYO GARAGE AND EMERGENCY ROOM IN ONE FLOOR AND ROOF;
- UNIT B/C EXTENSION UNDER THE PLAZA - TWO FLOORS AND ROOF;
- DIEHL HALL EXTENSION BELOW GRADE - ONE FLOOR AND ROOF.

EACH OF THESE HAS A DIFFERENT STRUCTURAL GRID AND FLOOR ELEVATIONS AS WELL AS DIFFERENT ABOVE-GRADE ARCHITECTURAL CHARACTER. PROPORTIONS, MASSING, COLOR AND MATERIALS DIFFER, REFLECTING THE SPAN IN THE AGE OF THE STRUCTURES - RANGING FROM 4-STORY BRICK AND LIMESTONE TO EXPOSED AGGREGATE CONCRETE PANELS AND DARK GLASS RISING MORE THAN 20 STORIES.

THE PROPOSED NEW CONSTRUCTION OVER THE PLAZA, BEING AN EXTENSION OF UNIT B/C, HAS THE SAME MATERIALS VOCABULARY, BUT WITH A MASS MORE SIMILAR TO THE EXISTING MAYO/TODD HOSPITALS. THE ONE-STORY ELEMENT AT THE MAYO HOSPITAL ENTRY PLAZA BECOMES A TRANSITION BETWEEN THE NEW CONSTRUCTION AND THE OLD. A CANOPY PROVIDES A NEW IDENTITY AND A PROTECTED AREA FOR THE ENTRY. THE LANDSCAPED PLAZA AND BOLLARD-DEFINED WALKWAY WILL BE RETAINED. THE AREA MUST REMAIN OPEN UNTIL THE EXISTING THIRD FLOOR PATIENT ROOMS ARE RELOCATED OR REPLACED. THE ENTRY DRIVE AT THE TURN-AROUND WILL BE REALIGNED.



DESIGNED TO RECEIVE 7 ADDITIONAL FLOORS, UNIT K/E FLOORS 4 THROUGH 7 ARE THE SITE FOR THE REPLACEMENT AND EXPANSION OF P.A.R., S.I.C.U. AND THE PEDIATRICS STATIONS. THE EXISTING BUILDING CONFIGURATION, WITH EXISTING LARGE VERTICAL SERVICES SHAFTS, STAIRS AND ELEVATOR SHAFTS AT THE PERIMETER (TO BE CONTINUED THROUGH THE ADDITIONAL FLOORS), REDUCES THE EXTERIOR WALL SPACE AVAILABLE FOR PATIENT ROOMS, BUT LEAVES COLUMN-FREE INTERIOR SPACE AVAILABLE FOR DEVELOPMENT. FLOOR ELEVATIONS AND LOCATIONS OF ADJACENT BUILDINGS, AS WELL AS THE LACK OF ELEVATOR SHAFT SPACE WITHIN UNIT K/E FOR HOSPITAL-SIZE ELEVATORS, DICTATES SPECIAL CONDITIONS FOR VERTICAL CIRCULATION, CONNECTING LINKS AND BUILDING SEPARATION. EXISTING EXTERIOR MATERIALS AND DETAILS WILL BE EXTENDED TO INSURE COMPATIBLE EXPRESSION.

THE POTENTIAL OF A FUTURE HOSPITAL BED REPLACEMENT FACILITY CANNOT BE IGNORED IN ESTABLISHING THE DIRECTION OF EXPANSION FOR SURGERY AND IN LOCATION OF P.A.R., S.I.C.U. AND PEDIATRIC STATIONS.

## DESIGN RESPONSE

THE PROVISION OF ADEQUATE SPACE IN RESPONSE TO THE FUNCTIONAL PROGRAM PROVIDED AND WITHIN EXISTING SITE CONSTRAINTS WITH COHERENT AND FUNCTIONAL RELATIONSHIPS IS MOST CHALLENGING TO THE DESIGN TEAM.

THE NEW 19 ROOM SURGERY SUITE CONSISTS OF NINE RENOVATED OR'S IN THE EXISTING MAYO BUILDING WITH THE ADJACENT 10 NEW OR'S CONSTRUCTED OVER THE EXISTING UNIT B/C PLAZA. THE OR'S AND SUPPORTING FUNCTIONS LAY OUT VERY WELL WITHIN THE EXTENDED UNIT B/C COLUMN GRID. THE INTERIOR LAYOUT OF THE SUITE PROVIDES FUNCTIONAL SEPARATION OF CLEAN AND SOILED AREAS AND ALLOWS FOR PROPER MOVEMENT OF STAFF, PATIENTS AND MATERIALS. FOLLOWING IS A SUMMARY DESCRIPTION OF THE AREA.

- REQUIRED ACCESS AND EXITS ARE PROVIDED ENTIRELY WITH EXISTING STAIRS AND ELEVATORS IN MAYO/TODD HOSPITALS AND UNIT B/C.
- STAFF MAY ENTER THE SUITE FROM EITHER UNIT B/C OR MAYO AND MUST PASS THROUGH THE INTERCHANGE AREA.
- THE CENTER CORE AREA BETWEEN OR'S (EXISTING AND NEW) BECOMES A CLEAN SUPPLY ROOM WITH INTERNAL ACCESS TO EACH OR FROM THE CENTRAL SPACE.
- SUPPLIES WILL BE RECEIVED, BROKEN DOWN AND DISTRIBUTED FROM THE EXISTING C.S. SUPPLY ROOM AND LIFTS IN THE MAYO BUILDING.
- INSTRUMENTS WILL BE PROCESSED IN THE SUITE WITH NEW FACILITIES FOR DECONTAMINATION AND STERILIZATION.
- SURGICAL PATHOLOGY IS RELOCATED AND EXPANDED AT THE PERIMETER OF THE OR SUITE IN THE MAYO NORTH WING TO ALLOW INTERFACE WITH OTHER HOSPITAL FUNCTIONS WITHOUT VIOLATING THE CONCEPT FOR THE DESIGN OF SURGERY.

- ADJACENT TO MAYO ELEVATORS IS LOCATED THE HOLDING AREA WHERE PATIENT TRANSFERS TO SURGERY LITTERS ELIMINATE FURTHER PENETRATION OF HOSPITAL STAFF OR BEDS INTO THE SURGERY SUITE.
- PATIENTS AND SURGERY STAFF MOVE TO OR'S THROUGH THE NEW PERIMETER CORRIDORS WHICH ARE SEPARATED FROM THE CLEAN SUPPLY CORE.
- FOLLOWING PROCEDURES IN SURGERY, PATIENTS ARE MOVED TO P.A.R. ON THEIR SAME LITTERS. PATIENTS ARE STILL WITHIN THE SURGERY CORRIDOR SYSTEM DURING THE ENTIRE TRANSPORTATION PROCESS TO THE P.A.R. OR THE S.I.C.U.
- FROM P.A.R. PATIENTS ARE MOVED DIRECTLY TO THE ADJACENT S.I.C.U. IF NECESSARY, OR THROUGH THE EXISTING MAYO ELEVATOR SYSTEM TO THEIR NURSING UNITS. K/E ELEVATORS WILL MOVE PEDIATRIC PATIENTS.
- THE S.I.C.U. HAS FOUR GLASS ENCLOSED AREAS, VARYING IN SIZE FROM 4 TO 8 BEDS, WITH EACH BED HAVING SLIDING GLASS PARTIAL ENCLOSURES IN RESPONSE TO THE ACOUSTICAL AND VISUAL PRIVACY NEEDS OF THE PATIENT.

THE EXPANSION OF UNIT K/E FOR HOSPITAL USES REQUIRES A NUMBER OF MODIFICATIONS:

THE EXISTING UNIT K/E ELEVATORS AND SHAFTWAYS ARE NOT ADEQUATELY SIZED FOR HOSPITAL CARTS AND LITTERS. THEREFORE, THE ADDITION OF TWO HOSPITAL ELEVATORS OUTSIDE THE K/E BUILDING IS REQUIRED FOR PATIENT AND MATERIALS. THESE ELEVATORS WILL SERVE THE EXISTING UNIT K/E FLOORS 1 THROUGH 3 AND THE NEW FLOORS 4 THROUGH 7.

A CORRIDOR BRIDGE CONNECTION AT THE SECOND FLOOR LEVEL BETWEEN UNIT K/E AND THE VARIETY CLUB HEART HOSPITAL IS PROVIDED FOR:

- TRANSFERRING PATIENTS BETWEEN PAR, SICU AND PEDIATRICS ICU IN UNIT K/E AND THE EXISTING ACUTE NURSING UNITS IN VARIETY HOSPITAL.
- THE TRAVEL OF HOSPITAL STAFF AND PATIENTS' VISITORS BETWEEN THE TWO BUILDINGS.

OUTLINE SPECS

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ARCHITECTURAL/STRUCTURAL/CIVIL CONSTRUCTION SYSTEMS

DIVISION 1 - GENERAL REQUIREMENTS

1. SUMMARY OF WORK

- 1.1 PROPOSED CONSTRUCTION AT THE UNIVERSITY OF MINNESOTA MINNEAPOLIS CAMPUS SHALL BE DESIGNATED THE UNIT "H" EXPANSION AND RENOVATIONS PROJECT.
- 1.2 NEW CONSTRUCTION WILL INCLUDE A SURGICAL SUITE OF TEN (10) OPERATING ROOMS AND SUPPORT AT THE 4TH FLOOR, NORTH AND EAST OF THE HOSPITALS PRESENT OPERATING ROOMS. FIFTH FLOOR SHALL INCLUDE THE MECHANICAL AND ELECTRICAL EQUIPMENT SERVING NEW AND RENOVATED SPACES IN EXISTING SURGICAL RELATED SPACES ON THE 4TH FLOOR.
- 1.3 A FIVE (5) STORY ADDITION OF IN-PATIENT FACILITIES ABOVE THE EXISTING UNIT "K/E" BUILDING WITH THE UPPER FLOOR, 8TH BEING ASSIGNED FOR MECHANICAL AND ELECTRICAL EQUIPMENT, SUPPORTING THIS ADDITION. THE 4TH FLOOR IS DESIGNED FOR SURGICAL INTENSIVE CARE BEDS AND A POST-ANESTHESIA RECOVERY FACILITY. THE FOLLOWING THREE (3) FLOORS - 5TH, 6TH, AND 7TH ARE DESIGNED FOR CARE OF PEDIATRIC PATIENTS.
- 1.4 CONSTRUCT CONNECTING BRIDGES (LINKS) AT THE THIRD, FOURTH AND FIFTH FLOORS FROM UNIT "K/E" TO TODD HOSPITAL, SOUTH WALL.
- 1.5 CONSTRUCT CONNECTING BRIDGE (LINK) FROM UNIT "K/E" SECOND FLOOR TO VARIETY CLUB HEART HOSPITAL AT THE FOURTH FLOOR.

DIVISION 2 - SITE WORK

1.        DEMOLITION
- 1.1       RELOCATION OF EXISTING MAYO HOSPITAL MAIN ENTRANCE DRIVE, WALKS AND CURBS SHALL BE DONE BY THE OWNER.
- 1.2       PROTECT ALL EXISTING PLAZA COURT FINISH DURING CONSTRUCTION.
- 1.3       EXTREME CARE SHALL BE GIVEN TO ALL INTERIOR DEMOLITION AGAINST DAMAGE TO EXISTING STRUCTURE, FINISHES, EQUIPMENT, FIXTURES, SERVICES AND SYSTEMS THAT ARE TO REMAIN.
- 1.4       TEMPORARY DUST-TIGHT AND SOUND RETARDANT PARTITIONS SHALL PROTECT OCCUPIED AREAS ABUTTING THIS WORK.
- 1.5       ALL DEBRIS SHALL BE REMOVED FROM THE BUILDING AND SITE BY THE CONTRACTOR. IN OCCUPIED AREAS THE DEBRIS SHALL BE REMOVED DAILY.
2.        FIELD AND LABORATORY TESTS
- 2.1       SOIL TESTS SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS AND PAID FOR BY THE UNIVERSITY.
- 2.1.1     NORTH 20'-0" FROM THE NORTH FACE OF THE EAST WING AND BETWEEN EXISTING COLUMNS AT THE LOWER LEVEL OF THE MAYO PARKING RAMP.
- 2.1.2     AT THE NEW HOSPITAL ELEVATOR CONSTRUCTION FOR UNIT "K/E", 10'-0" WEST OF THE EXISTING EXHAUST AIR GRILLE AND LOCATED IN THE TURN AROUND.
3.        PAVING AND SURFACING
- 3.1       ALL PAVING AND SURFACING SHALL BE DONE BY THE OWNER.

4. LANDSCAPING

4.1 ALL LANDSCAPING SHALL BE DONE BY THE OWNER.

5. UTILITIES

5.1 I - HOSPITAL

- A. WATER: THE WATER SERVICE TO THE HOSPITAL CAN BE OBTAINED BY A NEW METERED TAP FROM THE CITY MAIN UNDER THE NEW BUILDING. THIS WOULD INCLUDE DOMESTIC AND FIRE SPRINKLERS AS NEEDED FOR THE HOSPITAL.
- B. SANITARY SEWER: THE SANITARY SEWER SERVICE WILL BE CONNECTED TO THE 8" SERVICE IN THE TUNNEL JUST AT THE SOUTH EDGE OF THE HOSPITAL BUILDING AND WILL BE PIPED THROUGH THE ADJACENT SPACES FOR CONNECTION.
- C. STORM SEWER: THE STORM SEWER SERVICE WILL BE PIPED THROUGH THE BUILDING TO THE STORM SEWER DROP PIPE ON THE SOUTHWEST CORNER OF BUILDING B-C, WHICH EMPTIES INTO THE DEEP SYSTEM.

II - K/E BUILDING

- A. WATER, SANITARY, AND STORM: CONNECT TO BUILDING SYSTEMS IN THE ADJACENT FLOORS AS INTERIOR WORK.
- B. RELOCATION OF TRASH TRUCK TURN AROUND WEST OF UNIT KE SHALL BE DONE BY THE OWNER.
- C. RELOCATION OF STEAM TUNNEL AND STEAM LINE WEST OF UNIT KE SHALL BE DONE BY THE OWNER.

III - SITE WORK

- A. STORM SEWER: RELOCATION OF CATCH BASINS AND MODIFICATION OF THE STORM SEWER SYSTEM SHALL BE DONE BY THE OWNER.

3.6 APPLICATION RATE OF CURING COMPOUNDS SHALL NOT EXCEED MANUFACTURERS RECOMMENDATIONS.

4. ARCHITECTURAL PRECAST CONCRETE

4.1 FURNISH AND INSTALL ALL ARCHITECTURAL PRECAST CONCRETE, ALL PRECAST PANEL CONNECTIONS, ALL SUPPORT ASSEMBLIES WHICH ARE WELDED, EMBEDDED OR ENGAGED WITH THE ARCHITECTURAL PRECAST CONCRETE AND STRUCTURAL COMPONENTS OF PRECAST PANEL CONNECTIONS WHICH ARE NOT PROVIDED UNDER STRUCTURAL METAL SECTION.

4.2 ALL EXPOSED PRECAST CONCRETE SHALL COLOR MATCH EXISTING PRECAST UNITS AT "KE" BUILDING.

4.3 PRECAST CONCRETE SHALL BE REINFORCED TO PROVIDE STRENGTH ADEQUATE TO WITHSTAND HANDLING, INSTALLATION, AND PERFORMANCE IN PLACE.

5. STRUCTURAL STEEL

5.1 FURNISH AND INSTALL ALL STRUCTURAL STEEL AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.

5.2 STRUCTURAL STEEL TO CONFORM TO ASTM A36 AND BE CAPABLE OF SUPPORTING MINIMUM LIVE LOADS ESTABLISHED IN THE FOLLOWING DESIGN CRITERIA:

EXIT FACILITIES	100 PSF
OFFICES, PATIENTS BED ROOMS	50 PSF*
STORAGE, MECH. ROOM AREAS	150 PSF
OPERATING ROOMS	80 PSF*
SNOW	40 PSF
WIND 0-50 FT.	20 PSF
50-100 FT.	25 PSF
OVER 100 FT.	30 PSF

\* DOES NOT INCLUDE 20 PSF PARTITION ALLOWANCE

METAL DECKING

ALL COMPOSITE CELLULAR AND NON-CELLULAR METAL FLOOR AND ROOF DECKING SHALL CONFORM TO ASTM A611-72 GRADE C (OR A446-76 FOR GALVANIZED) WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI.

STRUCTURAL SYSTEMS AND PROCEDURES

SLAB ON GRADE TO BE REINFORCED CONCRETE.

COLUMNS TO BE STRUCTURAL STEEL.

FLOOR CONSTRUCTION TO BE 3" LIGHT-WEIGHT CONCRETE FILL OVER 3" COMPOSITE METAL DECK SUPPORTED BY STRUCTURAL STEEL BEAMS AND/OR GIRDERS. THIS FOLLOWS THE BASIC DESIGN CONCEPT ESTABLISHED PREVIOUSLY FOR THE PRESENT KE BUILDING. SINCE WE ARE ADDING LOADINGS TO THE EXISTING STRUCTURES, THE SAME STRUCTURAL SCHEME IS CARRIED OVER TO THE "H" EXPANSION PRIMARILY TO MAINTAIN THE USE OF A LIGHT FRAMING SYSTEM.

THE COOLING TOWERS LOCATED AT EXISTING ROOF LEVEL "KE" BUILDING MUST REMAIN IN OPERATION DURING THE CONSTRUCTION OF ADDITIONAL FLOORS; THEREFORE, CONSTRUCTION MUST BE PHASED WITH THE EAST PORTION OF STRUCTURE CONSTRUCTED FIRST ALLOWING MECHANICAL SERVICES TO CONTINUE WITHOUT DISRUPTION. REMAINING CONSTRUCTION TO FOLLOW.

THE CENTRAL PORTION OF "H" (O.R. EXPANSION) EXPANSION WILL BE OVER THE EXISTING SHELLLED-IN SPACE BELOW PLAZA LEVEL AND WILL INCLUDE ONE FLOOR SURGERY EXPANSION WITH MECHANICAL PENTHOUSE OVER. THE SOUTHERN PART OF "H" EXPANSION OCCURS OVER THAT PORTION OF DIEHL HALL UNDER THE PLAZA LEVEL AND INCLUDES ONE SURGERY FLOOR ONLY. FOR COLUMN ALIGNMENT WITH THOSE IN THE ADJACENT AREA, TRANSFER BEAMS WILL BE UTILIZED SO LOADS ARE CARRIED TO EXISTING COLUMNS BELOW. FOR SURGERY EXPANSION NORTH OF EXISTING O.R. WING ONLY ONE FLOOR WILL BE ADDED. THIS FLOOR WILL BE SUPPORTED BY EXISTING CONSTRUCTION ALONG PRESENT O.R. AND BY NEW COLUMNS WHICH WILL BE SUPERIMPOSED OVER EXISTING GARAGE COLUMNS BELOW AND TO THE NORTH.

DIVISION 4 - MASONRY

1. UNIT MASONRY

- 1.1 CONCRETE BLOCKS (INCLUDING LIGHT-WEIGHT BLOCKS) SHALL BE SMOOTH FACED, HOLLOW, LOAD-BEARING, MODULAR MASONRY UNITS. FIRE-RESISTANT RATED UNITS SHALL MEET REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES, INC.



2. BRICK MASONRY

- 2.1 FACE BRICK SHALL, TO THE EXTENT POSSIBLE, MATCH EXISTING COLOR OF THE SURROUNDING BUILDINGS, ALL MORTAR JOINTS, TOOLED.

3. BRICK PAVERS AND PAVER TILE

- 3.1 MATCH EXISTING PAVERS IN EXISTING UNIT "K/E" AND UNIT "B/C". "ENDICOTT" CLAY PRODUCTS COMPANY'S MANGANESE - DEEP - MEDIUM IRONSPOT BLEND FLOOR BRICK, MODULAR 4" X 8" X 2 1/4" THICK.
- 3.2 PAVER TILE SHALL BE OF THE SAME MANUFACTURER AND BLEND AS THE BRICK PAVERS EXCEPT MODULAR 4" X 8" X 1" THICK.

DIVISION 5 - METALS

1. STAIRS AND RAILINGS

- 1.1 STEEL PAN TREADS AND LANDINGS WITH CONCRETE FILLED TREADS AND LANDINGS WITH NON-SLIP NOSINGS THAT ARE TO MATCH EXISTING. STAIR RAILINGS SHALL BE A CONTINUATION OF EXISTING WHICH ARE TUBE COLD ROLLED STEEL, PAINTED.

2. EXTERIOR LOUVERS

- 2.1 AIR INTAKE AND EXHAUST AIR LOUVERS, EXTRUDED ALUMINUM TUBE, COLOR ANODIZED TO MATCH CURTAINWALL. BIRDSCREEN IS 1/2" MESH, ALUMINUM, ZINC CHROMATE PRIMER AND FLAT BLACK PAINT.

3. MISCELLANEOUS METALS

- 3.1 LOOSE LINTELS SHALL BE FURNISHED AS REQUIRED FOR OPENINGS CUT THROUGH MASONRY WALLS FOR DUCTWORK AND DOOR OPENINGS AS REQUIRED. PROVIDE CONCRETE INSERTS, HANGERS AND SUPPORTS FOR MEDICAL EQUIPMENT WHERE REQUIRED.

4. LIGHTWEIGHT FRAMING

- 4.1 METAL STUDS AT EXTERIOR CONDITIONS SHALL BE OF 16 GAUGE MATERIAL SPACED 16" ON CENTER. FOR INTERIOR PARTITIONS USE 20 GAUGE SPACED 20" ON CENTER. RUNNER CHANNELS AT FLOOR SHALL HAVE A VERTICAL LEGS OF 3" IN HEIGHT AT ALL LOCATIONS.

DIVISION 6 - WOOD AND PLASTIC

1.       ROUGH CARPENTRY
- 1.1       PROVIDE NECESSARY BLOCKING AND OTHER REQUIRED CARPENTRY ITEMS IN CONSTRUCTION GRADE DOUGLAS FIR AND PONDEROSA PINE. ALL WOOD CURBS, CANTS, ETC., ON THE ROOF SHALL BE PRESSURE TREATED OR REDWOOD.
2.       FINISH CARPENTRY
- 2.1       SHELVING SHALL BE CLEAR PONDEROSA PINE WITH THE EXPOSED EDGES FACED WITH A 3/4" EDGE STRIP OF HARDWOOD.
- 2.2       HANG ALL WOOD AND HOLLOWMETAL DOORS AND INSTALL ALL HARDWARE.
3.       ARCHITECTURAL WOODWORK
- 3.1       ALL WOODWORK SHALL CONFORM TO THE CUSTOM GRADE REQUIREMENTS OF THE ARCHITECTURAL WOODWORK INSTITUTE "QUALITY STANDARDS". FINISH FACE VENEERS SHALL BE "PREMIUM" GRADE ROTARY CUT RED OAK.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

1.       MEMBRANE WATERPROOFING
- 1.1       RUBBERIZED ASPHALT, INTEGRALLY BONDED TO POLYETHYLENE SHEET, 70 MIL TOTAL THICKNESS, BITUTHENE.
2.       DAMP-PROOFING
- 2.1       PROVIDE DAMP-PROOFING ON OUTSIDE (EARTH SIDE) FACE OF ALL BELOW-GRADE BUILDING FOUNDATION WALLS, TUNNEL WALLS AND CEILINGS, COLUMNS, ETC., MASTIC COATING, TROWELLED ON PITCH BASE MATERIAL.

3. BUILDING INSULATION

- 3.1 INSULATION MATERIALS SHALL BE A) CELLULAR GLASS, B) MOLDED AND EXTRUDED POLYSTYRENE FOAM BOARD C) RIGID POLYURETHANE FOAM BOARD, D) GLASS FIBER INSULATION WITH VAPOR BARRIER AND E) GLASS FIBER BATTS OR BLANKETS.

SAFING INSULATION SHALL BE NON-COMBUSTIBLE PRECISION PREFORMED, SEMI-RIGID MINERAL FIBER FELT "THERMAFIBER" SAFING INSULATION OR APPROVED EQUAL.

SOUND ATTENUATION BLANKETS OR BATTS SHALL BE 1 1/2" THICK AND INSTALLED IN THE CAVITIES OF DRYWALL PARTITIONS, USE ACOUSTIC SEALANT AT PERIMETERS OF ALL PARTITIONS, ELECTRICAL OUTLET BOXES, MECHANICAL SERVICES, ETC.

4. EXTERIOR FACING PANELS

- 4.1 PROVIDE FORMED RIBBED METAL PANELS, UNINSULATED, NOMINAL 4 1/2" DEEP, HAVING A MODULE OF 12" WIDTH. PANELS SHALL BE FABRICATED OF STEEL, EXTERIOR FINISH BAKED ENAMEL AND SUPPORTED ON SUBGIRTS AND VERTICAL STRUCTURAL MEMBERS. COLOR AS SELECTED.

5. PREFORMED METAL SOFFITS AND CEILINGS

- 5.1 METAL PANEL TYPE "A" IS 3 5/16" WIDE X 5/8" DEEP, 4" ON CENTER WITH REVEAL CLOSURES BETWEEN EACH PANEL.
- 5.2 METAL PANEL TYPE "B" IS 3 5/16" WIDE X 5/8" DEEP, 4" ON CENTER. NO REVEAL CLOSURES, ACOUSTICAL INSULATION, 1" THICK OVER 100% OF PANEL SURFACE.
- 5.3 METAL SOFFITS:  
METAL PANELS 3 5/16" WIDE X 5/8" DEEP, 4" ON CENTER, WITH REVEAL CLOSURES BETWEEN EACH PANEL. THERMAL INSULATION, 3" THICK OVER 100% OF PANEL SURFACE.

5.3 MATERIAL:

ALUMINUM .020": CONCEALED SIDE-PRIME COATED, EXPOSED SIDE - TWO COATS BAKED ENAMEL, MATT FINISH, COLOR AS SELECTED. METAL PANELS SHALL BE FURNISHED MAXIMUM LENGTH WITH INTERIOR SLEEVE AT SPLICE.

6. SLOPED ROOF FILL

6.1 ROOF FILL SHALL HAVE A SLOPE TO ROOF DRAINS OF 1/8" MINIMUM TO 1/4" MAXIMUM OF TAPERED ROOF INSULATION OR ALL-WEATHER CRETE INSULATING FILL.

7. BUILT-UP ROOFING

7.1 ROOFING CONTRACTOR SHALL PROVIDE A TWO (2) YEAR WARRANTY FOR ROOFING, ROOF INSULATION AND BASE FLASHING. CONSTRUCT BUILT-UP MEMBRANES AS FOR 20 YEAR BONDED ROOF, BOND IS NOT REQUIRED, PROVIDE ABOVE WARRANTY.

DIVISION 8 - DOORS AND WINDOWS

1. HOLLOW METAL DOORS AND FRAMES

1.1 HOLLOW METAL DOORS SHALL BE SEAMLESS CONSTRUCTION, 1 3/4" THICKNESS, USE 14 GAUGE FOR EXTERIOR DOORS AND 18 GAUGE FOR INTERIOR DOORS. FRAMES SHALL BE ONE PIECE WELDED UNIT TYPE CONSTRUCTION, USE 14 GAUGE FOR EXTERIOR FRAMES, USE 16 GAUGE FOR BORROWED LIGHT FRAMES AND ALL OTHER INTERIOR DOOR FRAMES. ALL HARDWARE MORTISES, REINFORCEMENTS, ETC., SHALL BE MADE FROM TEMPLATES BEFORE DELIVERY. PAINT ALL SURFACES OF DOORS AND FRAMES WITH THE REQUIRED NUMBER COATS OF PRIMER AND PAINT.

2. INTERIOR WOOD DOORS

2.1 ARE SOLID-CORE DOORS, ROTARY CUT RED OAK, 1 3/4" THICKNESS, WITH HARDWOOD EDGES ON ALL FOUR (4) SIDES MATCHING THE FACE VENEER.

2.2 ALL ENTRANCE DOORS TO OPERATING ROOMS FROM PATIENT CORRIDOR IN NEW CONSTRUCTION AND RENOVATIONS SHALL BE SWING TYPE MANUAL IN LIEU OF AUTOMATIC SLIDING DOORS.

3. AUTOMATIC DOORS

- 3.1 EXTRUDED ANODIZED ALUMINUM SWING DOORS, IN PAIRS, THAT ARE ACTUATED BY RECESSED CARPETS OR BY WALL SWITCHES EACH SIDE AND SAFETY MATS. DOORS SHALL BE GLAZED WITH 1/4" THICK TEMPERED FLOAT OR POLISHED PLATE GLASS.

4. HARDWARE

- 4.1 BUTTS FOR ALUMINUM DOORS: US10B OXIDIZED BRONZE ON STAINLESS STEEL, BUTTS FOR INTERIOR WOOD AND HOLLOW METAL DOORS: DULL CHROME ON STEEL, US26D AND BUTTS FOR EXTERIOR HOLLOW METAL DOORS: STAINLESS STEEL, US32D.
- 4.2 LOCKS SHALL BE BEST LOCK CROP. 6-PIN CYLINDERS WITH INTERCHANGEABLE CORE. KEYING SYSTEMS WILL BE DETERMINED BY THE UNIVERSITY.

5. CURTAIN SYSTEMS

- 5.1 FURNISH AND INSTALL COMPLETE, INCLUDING ALL REQUIRED GLASS AND GLAZING, ALL ALUMINUM CURTAIN WALLS WITH REVERSIBLE SASH, 1/4" ALUMINUM PANELS, TUBULAR FIXED WINDOWS, ALUMINUM CLOSURES, BLIND STOPS, NEOPRENE COMPRESSION SEAL AND INSULATION. ALL UNITS SHALL BE OF THERMAL BARRIER CONSTRUCTION. ALUMINUM SHALL MATCH EXISTING COLOR, BRONZE.
- 5.2 PROVIDE FOR A CONNECTING BRIDGE (LINK) FROM UNIT "K/E", SECOND FLOOR TO "VARIETY CLUB HEART HOSPITAL", FOURTH FLOOR WITH MATERIALS SIMILAR TO ABOVE. ALSO CONSTRUCT BRIDGES (LINKS) AT THE THIRD, FOURTH AND FIFTH FLOORS CONNECTING UNIT "K/E" TO TODD HOSPITAL SOUTH FACE.

6. GLASS AND GLAZING

- 6.1 TINTED INSULATED GLASS UNITS, CONSISTING OF EXTERIOR SHEET OF 1/4" BRONZE COLORED (SOLARBRONZE) POLISHED HEAT-ABSORBING PLATE GLASS AND ONE INTERIOR SHEET OF 1/4" POLISHED PLATE GLASS, 1" THICK.

- 6.2 TRIPLE GLAZING SHALL BE REQUIRED FOR 25 PERCENT OF THE WINDOWS.
- 6.3 ALL INTERIOR GLAZING SHALL BE 1/4" THICK FLOAT OR POLISHED PLATE GLASS, TEMPERED PLATE GLASS 1/4" THICK TEMPERED FLOAT OR POLISHED PLATE, WIRE GLASS 1/4" THICK POLISHED PLATE GLASS, TRANSPARENT (ONE-WAY) MIRROR GLASS 1/4" POLISHED PLATE.

DIVISION 9 - FINISHES

1. FLOOR FINISHES

- 1.1 BRICK PAVERS IN NEW ELEVATOR LOBBY AT FIRST FLOOR UNIT "K/E". MATCH EXISTING.
- 1.2 CERAMIC TILE IN TOILET ROOMS. PATIENT/STAFF/PUBLIC. SIZE (2" X 2" X 1/4" THICK).
- 1.3 CARPET IN ADMINISTRATIVE OFFICES/WAITING ROOMS/ CONFERENCE ROOMS/GALLEY/LOUNGES/RESIDENT BEDROOMS/ETC.
- 1.4 QUARRY TILE IN CENTRAL STERILE PROCESSING ROOMS.
- 1.5 CONDUCTIVE FLOORING IN SURGICAL SUITE. OPERATING ROOMS/CORRIDORS/SCRUB SUBSTERILE/WORK ROOMS/ ANESTHESIA WORK ROOMS/CLEAN AND STERILE SUPPLY.
- 1.6 SMOOTH TROWELLED CONCRETE SHALL HAVE FINISH OF TWO (2) COATS OF CLEAR SEALER. HOUSEKEEPING/ EQUIPMENT/JANITOR'S ROOM/PENTHOUSES (EQUIPMENT AND ELEVATOR).
- 1.7 RESILIENT FLOOR. VINYL ASBESTOS TILE: 12" X 12" X 1/8" THICK OF COLORS SELECTED IN ALL OTHER FINISHED AREAS.
- 2. BASE
- 2.1 4" HIGH COVED CERAMIC TILE BASE WHEREVER THE FLOOR FINISH IS CERAMIC TILE (2" WIDE X 1/4" THICK).

2.2 4" HIGH QUARRY TILE WHEREVER THE FLOOR FINISH IS QUARRY TILE.

2.3 4" HIGH COVERED CONDUCTIVE BASE WHEREVER THE FLOOR FINISH IS CONDUCTIVE.

2.4 4" HIGH RESILIENT BASE WHEREVER THE FLOOR FINISH IS BRICK PAVERS/CARPET/CONCRETE/RESILIENT VAT.

3. INTERIOR PARTITIONS

3.1 USE 4" 6" AND 8" THICK CONCRETE BLOCK PARTITIONS IN THE FOLLOWING ROOMS: HOUSEKEEPING/EQUIPMENT/JANITOR/LOCKER/PENTHOUSE/ELEVATOR & MECHANICAL SHAFTS, ETC.

NOTE: SOME AREAS REQUIRE FIRE-RESISTANCE RATED UNITS AND THESE UNITS SHALL MEET REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES, INC.

3.2 USE 2 1/2", 4" AND 6" METAL STUDS AND GYPSUM WALL BOARD PARTITIONS IN ALL LOCATIONS WHERE CONCRETE BLOCK DOES NOT OCCUR.

NOTE: AT EXISTING PARTITIONS BEING REUSED, FURR OUT WALLS WITH 7/8" HAT SECTIONS AND GYPSUM BOARD.

A) GYPSUM WALLBOARD SHALL BE 5/8" THICK, 48" WIDE WITH TAPERED EDGES.

B) FIRE-RETARDANT GYPSUM WALLBOARD SHALL BE 5/8" THICK, 48" WIDE WITH TAPERED EDGES TYPE "X".

C) GYPSUM BACKER BOARD SHALL BE 5/8", 48" WIDE WITH SQUARE EDGES.

D) IN WET AREAS USE TYPE "MR" GYPSUM WALLBOARD, 5/8" THICK WITH SQUARE EDGES.

3.3 USE ARCHITECTURAL PRECAST CONCRETE UNITS AT SELECTED AREAS THAT ARE TO BE HIGHLIGHTED.

4. SPRAYED FIREPROOFING

- 4.1 PRIMARY STEEL MEMBERS (TRUSSES, GIRDERS AND BEAMS FRAMING TO COLUMNS) 3 HOURS MINIMUM THICKNESS 1 1/2". METAL DECKING IF SLAB IS LESS THAN 3 1/4", 2 HOURS MINIMUM 7/8" THICK.

5. WALL FINISHES

- 5.1 TWO COAT EPOXY COATING ON LIGHTWEIGHT CONCRETE BLOCK IN THE FOLLOWING AREAS: HOUSEKEEPING/JANITOR'S/LOCKER ROOMS/SURGICAL SUITE CORRIDORS AND ALCOVES/GROSS CUTTING/CENTRAL STERILE PROCESSING/ANESTHESIA WORK ROOM/ETC.

- 5.2 EXISTING FACE BRICK. ACID WASH BRICK FIRST BEFORE THE ABOVE APPLICATION IS APPLIED.

- 5.3 PAINTED TWO COAT SYSTEM. 1 COAT PRIMER AND FINISH COAT, EGGSHELL, STIPPLED ON ALL GYPSUM WALLBOARD.

- 5.4 4" X 6" CERAMIC WALL TILE FINISH IN THE SURGICAL SUITE. OPERATING ROOMS/WORK ROOMS.

- 5.5 2" X 2" X 1/4" CERAMIC WALL TILE FINISH IN BATHROOMS AND SHOWERS.

- 5.6 VINYL FABRIC ON DOUBLE LAYER GYPSUM BOARD IN PATIENT CORRIDORS/INTENSIVE CARE BEDROOMS/ POST ANESTHESIA RECOVERY/WAITING/LOUNGES/ GALLEY/ETC.

6. CEILINGS

- 6.1 INTEGRATED CEILING SYSTEM. FURNISH AND INSTALL A COMPLETE INTEGRATED CEILING SYSTEM, STRUCTURALLY, MECHANICALLY AND ELECTRICALLY ADEQUATE TO FULFILL THE REQUIREMENTS OF THE WORK AND SHALL MATCH THE EXISTING SYSTEM IN UNIT "K/E". USED IN UNIT "K/E" CORRIDORS/INTENSIVE CARE UNITS/P.A.R./ETC.

- 6.2 SUSPENDED ACOUSTIC TILE CEILINGS SHALL BE 2'-0" X 2'-0" X 5/8" OR 2'-0" X 4'-0" X 5/8" IN SIZE AND USED IN OFFICES/CONFERENCE AND LOUNGES/LOCKER ROOMS/ETC.



- 6.3 SUSPENDED GYPSUM WALLBOARD CEILINGS IN ALL OTHER AREAS WHERE ACOUSTIC CEILING DOES NOT OCCUR. IN WET AREAS USE TYPE "MR" GYPSUM WALLBOARD, 5/8" THICK PAINTED.
- 6.4 PREFORMED METAL SOFFITS AND CEILINGS SEE SECTION NO. 7.5 FOR INFORMATION.

DIVISION 10 - SPECIALTIES

1. CHALKBOARD:

- 1.1 SHALL BE PORCELAIN ENAMEL STEEL, SURFACE MOUNTED, STANDARD UNITS WITH ALUMINUM TRIM HAVING CONCEALED FASTENINGS. CORE MATERIAL TO BE PARTICLE BOARD WITH ALUMINUM SHEET LAMINATED TO THE BACK. ALL ALUMINUM TRIM SHALL BE SATIN FINISH TO RECEIVE PAINT.

2. TACKBOARD:

- 2.1 SHALL BE BEST QUALITY NATURAL CORK WOOD, FINELY GROUND AND COMPRESSED INTO 1/4" THICK SHEETS WITH BURLAP BACK AND A FULLY WASHABLE, SOIL RESISTANT, PLASTIC COATED FINISH FACE. COLORS AS SELECTED. ALL ALUMINUM TRIM SHALL BE SATIN FINISH TO RECEIVE PAINT.

3. TOILET COMPARTMENTS:

- 3.1 SHALL BE CEILING SUPPORTED, FLUSH PARTITIONS WITH PILASTERS AND IN-SWINGING DOORS AT 24" WIDE AND OUT-SWINGING DOORS AT 34" WIDE, BAKED ENAMEL FINISH, EGGSHELL GLOSS. EXPOSED HARDWARE CHROMIUM-PLATED BRASS. PROVIDE MATCHING URINAL PARTITIONS.

4. TOILET ACCESSORIES:

- 4.1 PROVIDE 24" X 36" 1/4" POLISH PLATE GLASS MIRRORS IN A STAINLESS STEEL THEFT-PROOF FRAME AT EACH LAVATORY, DOUBLE ROLL TOILET TISSUE HOLDER FOR EACH WATER CLOSET, HEAVY-DUTY STAINLESS STEEL GRAB BARS AT TOILET FIXTURES IN HANDICAP STALL, SURFACE MOUNTED PAPER TOWEL DISPENSER, WASTE RECEPTACLE. SOAP DISPENSER AT EACH LAVATORY TYPICAL FOR STAFF AND PUBLIC TOILETS. SANITARY NAPKIN DISPENSER AND SANITARY NAPKIN DISPOSAL SHALL BE PROVIDED IN WOMEN'S TOILETS. PATIENT TOILETS SHALL BE SIMILAR TO ABOVE EXCEPT

TOWEL BAR IN LIEU OF PAPER TOWEL DISPENSER.  
SHOWER CURTAIN ROD AND HANGER ROD AT TUB AND  
SHOWER LOCATIONS WITH TOWEL RINGS AND TOWEL BARS.

5. FIREFIGHTING DEVICES:

- 5.1 HAND EXTINGUISHERS SHALL BE U.L. APPROVED FACTORY FINISHED AND FULLY CHARGED SUPPORTED BY WALL BRACKETS, RECESSED FIRE EXTINGUISHER CABINET, SINGLE EXTINGUISHER AND RECESSED FIRE HOSE CABINET, HOSE, VALVE AND CONNECTIONS, COLOR RED OUTSIDE OF CABINETS, MATTE BLACK FINISH INSIDE.

6. LOCKERS:

- 6.1 STEEL LOCKERS SHALL BE BONDERIZED AND GIVEN ONE COAT OF BAKED ENAMEL FINISH, SLOPED TOPS, 6" CLOSED BASE IN THE FOLLOWING SIZES. 15" WIDE, 21" DEEP AND 72" HIGH. TWO PERSON, 12" WIDE, 18" DEEP AND 12" HIGH. BOX LOCKERS 5 HIGH, 12" WIDE, 21" DEEP AND 72" HIGH. SINGLE TIER. ALL LOCKERS SHALL HAVE BUILT-IN LOCKS AND HARDWARE FOR PADLOCKS IS ALSO A REQUIREMENT.

7. TRASH CHUTE:

- 7.1 EXTENSION OF EXISTING 27" X 27" SQUARE RUBBISH CHUTE WITH 15" X 15", SELF-CLOSING BOTTOM HINGED, HAND OPERATED HOPPER DOORS, 1 1/2 HOUR U.L. "B" LABEL TO BE INSTALLED IN UNIT "K/E".

8. LINEN CHUTE:

- 8.1 PROVIDE A NEW 24" DIAMETER LINEN CHUTE WITH HOPPER DOORS, SELF-CLOSING, BOTTOM HINGED AT THE 4TH, 5TH, 6TH AND 7TH FLOORS, WITH A DISCHARGE OPENING IN THE SOILED COLLECTION ROOM ON THE 1ST LEVEL OF UNIT "K/E".

DIVISION 11 - EQUIPMENT

1. FOOD SERVICE EQUIPMENT

- 1.1 PROVIDE STAINLESS STEEL NOURISHMENT STATIONS ON EACH PATIENT FLOOR, EACH UNIT WILL BE EQUIPPED WITH A RECONSTITUTING OVEN, STORAGE CABINETS, SINK, REFRIGERATOR, TOASTER, ICE CREAM CABINET AND ICE DISPENSER "MARKET FORGE" OR EQUAL.

2. METAL CASEWORK

2.1 CASEWORK SHALL BE MANUFACTURED OF THE BEST GRADE OF COLD ROLLED STEEL IN MINIMUM 18 GAUGE MATERIAL WITH BAKED ENAMEL 3 COAT FINISH AND FINISHED TO AN EGGSHELL SHEEN COLOR AS SELECTED. NARCOTIC CABINETS, SWITCHED TO WARNING LIGHT LOCKED WITH KEY.

3. PLASTIC LAMINATE CASEWORK

3.1 SHALL BE 1/16" THICK HIGH PRESSURE PLASTIC LAMINATE IN COLOR (SOLID OR PATTERNED) AS SELECTED, WITH A SUEDE FINISH, CORE MATERIAL SHALL BE PARTICLE BOARD. COUNTER TOPS, SPLASH BACKS, ETC., SHALL BE PARTICLE BOARD WITH PLASTIC LAMINATE OR VINYL FINISH.

4. MISCELLANEOUS SPECIALTIES AND EQUIPMENT

- 4.1 CEILING MOUNTED I.V. TRACK (SURGICAL SUITE)
- 4.2 CEILING MOUNTED GAS TRACK
- 4.3 SURGICAL LIGHTS, SINGLE AND DOUBLE HEAD
- 4.4 SURGICAL LIGHT TRACK
- 4.5 X-RAY FILM ILLUMINATORS
- 4.6 SOLUTION/BLANKET WARMING CABINET
- 4.7 STERILIZERS
- 4.8 ICE DISPENSERS
- 4.9 ICE CUBER
- 4.10 STAINLESS STEEL WALL AND CORNER GUARDS
- 4.11 MEDICATION UNITS
- 4.12 SURGICAL SCRUB SINKS (AMSCO OR EQUAL)
- 4.13 COAT RACK (WALL HUNG)
- 4.14 ACCESS PANELS
- 4.15 TELEPHONE CABINETS
- 4.16 RADIATION PROTECTION
- 4.17 EXAM LIGHT
- 4.18 CUSTOM CHART RACK/X-RAY HOLDER (STAINLESS STEEL)
- 4.19 UNDERCOUNTER REFRIGERATOR
- 4.20 UNDERCOUNTER FREEZER
- 4.21 TURNTABLE SPECIMEN PASS BOX
- 4.22 WALL MOUNTED SPHYGMOMANOMETER
- 4.23 CUBICLE CURTAIN TRACK

DIVISION 12 - FURNISHING

1. FURNISHINGS

1.1 DRAPERIES, CURTAINS, FURNITURE, ETC., SHALL BE FURNISHED BY THE UNIVERSITY.

DIVISION 13 - SPECIAL CONSTRUCTION

1. SOUND ISOLATION

1.1 CONCRETE FLOOR SLAB CONSTRUCTION AT THE 5TH LEVEL MECHANICAL EQUIPMENT PENTHOUSE OVER THE NEW SURGICAL OPERATING ROOMS SHALL BE ISOLATED FROM THE BUILDING STRUCTURE BY MEANS OF SOUND ISOLATION PANELS. MATERIALS AND SYSTEMS ARE THE PRODUCTS OF CONSOLIDATED KINETICS OR APPROVED EQUAL.

2. SLIDING INTENSIVE CARE ASSEMBLIES

2.1 PROVIDE EXTRUDED ANODIZED ALUMINUM, FIXED AND SLIDING ASSEMBLIES WITH GLASS IN UPPER HALF OF EACH PANEL, GLAZED WITH 1/4" THICK TEMPERED GLASS.

DIVISION 14 - CONVEYING SYSTEMS

1. ELEVATORS

1.1 SHALL BE ELECTRIC ELEVATORS WITH AUTOMATIC LEVELING, GEARLESS TRACTION, VARIABLE VOLTAGE.

1.2 PASSENGER ELEVATORS (2)

CAPACITY	3,000 LBS.
SPEED	350 FPM
OPENINGS	FRONT OPENING - ALL STOPS - 4'-0" X 7'-0"
PLATFORM SIZE	6'-8" X 6'-2" X 7'-6"

1.3 HOSPITAL ELEVATORS (2)

CAPACITY	5,500 LBS.
SPEED	350 FPM
OPENINGS	FRONT OPENING - ALL STOPS - 4'-6" X 7'-0"
PLATFORM SIZE	6'-0" X 10'-4" X 7'-6"

2. PNEUMATIC TUBE

2.1 INSTALL A NEW 6" DIAMETER PNEUMATIC TUBE FROM THE EXISTING BLOOD BANK TO THE SURGICAL SUITE CONTROL DESK.

MECHANICAL CONSTRUCTION SYSTEMS

DIVISION 15 - MECHANICAL

1. GENERAL

1.1 ALL PLUMBING, HEATING, AIR CONDITIONING AND VENTILATING SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH THE "STANDARD REQUIREMENTS FOR UNIVERSITY OF MINNESOTA CONSTRUCTION".

2. PLUMBING

2.1 PLUMBING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MUNICIPAL CODES AND REQUIREMENTS OF GOVERNING AGENCIES.

2.2 THE PLUMBING SYSTEMS SHALL CONSIST OF, BUT NOT BE LIMITED TO, THE FOLLOWING:

- A) SANITARY DRAINAGE SYSTEMS. WALL HUNG TOILET FIXTURES TYPICAL.
- B) STORM DRAINAGE SYSTEMS.
- C) DOMESTIC WATER PIPING SYSTEMS (HOT, COLD AND RECIRCULATING), INCLUDING STEAM HEATED WATER HEATER.
- D) NATURAL GAS PIPING SYSTEM IN LABS.
- E) ACID RESISTANT DRAINAGE SYSTEM IN THE LABORATORIES CONNECTED TO SANITARY SYSTEM.
- F) OXYGEN SYSTEM TO OPERATING ROOMS AND PATIENT AREAS.
- G) CENTRAL CLINICAL VACUUM SYSTEM TO OPERATING ROOMS AND PATIENT AREAS.
- H) EXISTING DEMINERALIZED WATER SYSTEM WILL BE EXTENDED TO BLOOD GAS LAB AND PHARMACY AREA.
- I) CLINICAL COMPRESSED AIR (BREATHING AIR) WILL BE PROVIDED TO P.A.R. AND INTENSIVE CARE AREAS.
- J) AN ANESTHESIA SCAVENGING SYSTEM WILL BE PROVIDED IN ALL OPERATING ROOMS. THIS WILL BE A SEPARATE VACUUM TYPE SYSTEM.

- 2.3 FIRE PROTECTION SYSTEMS WILL BE PROVIDED. SPRINKLERS WILL BE PROVIDED EXCEPT IN CERTAIN EXEMPT AREAS AS INDICATED BY CODE.
- 2.4 PLUMBING PIPING MATERIALS TO BE AS FOLLOWS:
- A) WATER LINES UNDERGROUND - GOVERNMENT TYPE K COPPER.
  - B) WATER LINES ABOVE GROUND IN BUILDING - GOVERNMENT TYPE L COPPER.
  - C) UNDERGROUND SOIL PIPE WASTE AND STORM SYSTEMS - SERVICE WEIGHT BELL AND SPIGOT CAST IRON PIPE.
  - D) WASTE PIPING IN BUILDING AND URINAL VENTS - SERVICE WEIGHT BELL AND SPIGOT CAST IRON PIPE OR NO HUB.
  - E) VENT PIPING IN BUILDING (EXCEPT URINAL VENTS) - GALVANIZED STEEL SCHEDULE 40 PIPE.
  - F) RAIN WATER LEADERS TO BE GALVANIZED STEEL WITH SCREWED OR VICTAULIC FITTINGS.
  - G) GAS PIPING IN BUILDING - SCHEDULE 40 BLACK STEEL PIPE. ALL OUTSIDE UNDERGROUND GAS PIPE TO BE WRAPPED IN "SCOTCH WRAP".
  - H) ACID RESISTANT PIPING TO BE PYREX OR KIMAX GLASS PIPE.
  - I) DEMINERALIZED WATER TO BE SCHEDULE 80 PVC TO MATCH EXISTING.
  - J) OXYGEN PIPING TO BE TYPE K HARD DRAWN COPPER INSTALLED IN ACCORDANCE WITH NFPA FOR MEDICAL GASES.
  - K) CLINICAL VACUUM AND ANESTHESIA SCAVENGING SYSTEM PIPING TO BE GOVERNMENT TYPE L COPPER.
  - L) COMPRESSED AIR PIPING TO BE GOVERNMENT TYPE L COPPER.
  - M) FIRE PROTECTION PIPING - SEAMLESS STANDARD WEIGHT STEEL PIPE.

2.5 PLUMBING INSULATION TO BE DESIGNATED THICKNESSES AS INDICATED IN UNIVERSITY OF MINNESOTA CONSTRUCTION STANDARDS.

3. HEATING

3.1 STEAM WILL BE OBTAINED FROM THE UNIVERSITY OF MINNESOTA (MINNEAPOLIS CAMPUS) CENTRAL STEAM SYSTEM. STEAM PRESSURE REDUCING STATIONS WILL BE INSTALLED TO REDUCE STEAM PRESSURE TO THAT REQUIRED FOR EQUIPMENT. THE CONDENSATE WILL BE RETURNED BACK TO THE CENTRAL SYSTEM.

3.2 STEAM DISTRIBUTION PIPING SYSTEMS WILL BE PROVIDED TO SERVE SUPPLY AIR HANDLING UNITS HEATING COILS, HUMIDIFIERS, CONVERTORS, HOT WATER HEATERS AND ALL OTHER HEATING AND EQUIPMENT REQUIRING STEAM.

3.3 HOT WATER RADIATION (RADIANT PANELS) AND HEATING SYSTEMS WILL BE PROVIDED IN AREAS AS NEEDED.

3.4 EXISTING STEAM RADIATION WILL BE MAINTAINED AS APPROPRIATE.

3.5 HEATING PIPING MATERIALS WILL BE AS FOLLOWS:

- A) HIGH PRESSURE STEAM PIPING ABOVE 50 PSIG TO BE STANDARD WEIGHT BLACK STEEL PIPE, A-106 SEAMLESS 4" AND UNDER, A-53 SEAMLESS ABOVE 4". (ALL WELDED.)
- B) LOW PRESSURE STEAM UP TO 50 PSIG TO BE STANDARD WEIGHT BLACK STEEL PIPE, A-53 BUTT WELDED 2" AND UNDER, SEAMLESS 2 1/2" AND ABOVE (ALL WELDED).
- C) ALL CONDENSATE RETURN PIPING TO BE EXTRA HEAVY STEEL PIPE (ALL WELDED).
- D) HOT WATER RADIATION AND HEATING PIPING TO BE STANDARD WEIGHT BLACK STEEL PIPE, A-53 BUTT WELDED 4" AND UNDER, SEAMLESS ABOVE 4".
- E) RADIATION ELEMENTS TO BE 1 1/4" STANDARD WEIGHT STEEL PIPE OR PRESSURE TUBING AND STEEL FINS, 32 FINS PER FOOT. RADIANT PANELS WILL BE AIRTEX OR EQUAL.

- 3.6 UNIT HEATERS WILL BE USED TO HEAT VESTIBULES AND ENTRY WAYS.
- 3.7 HEATING PIPING WILL BE INSULATED WITH INSULATION THICKNESSES AS INDICATED IN UNIVERSITY OF MINNESOTA CONSTRUCTION STANDARDS.
4. AIR CONDITIONING AND VENTILATION
- 4.1 THE AIR CONDITIONING AND VENTILATION DUCTWORK WILL BE MADE USING THE FOLLOWING MATERIALS:
- A) SUPPLY DUCTWORK - GALVANIZED SHEET STEEL.
  - B) RETURN AND TOILET AND GENERAL EXHAUST DUCTWORK - GALVANIZED SHEET STEEL.
  - C) FUME HOOD AND HOOD EXHAUST DUCTWORK - STAINLESS STEEL.
- 4.2 DUCTWORK CONSTRUCTION TO BE IN ACCORDANCE WITH THE MINNESOTA BUILDING CODE AND SMACNA STANDARDS.
- 4.3 SUPPLY AIR UNITS WILL BE OF THE BUILT-UP TYPE, MEDIUM PRESSURE, COMPLETE WITH FILTERS, STEAM HEATING COILS, COOLING COILS, HUMIDIFIERS AND FANS. HIGH EFFICIENCY CARTRIDGE TYPE FILTERS WILL BE PROVIDED IN UNITS SERVING PATIENT AND SENSITIVE AREAS. OPERATING ROOMS WILL HAVE HEPA FINAL FILTERS IN THE DUCTS SERVING EACH ROOM.
- 4.4 PACKAGE TYPE SUPPLY UNITS WILL BE USED TO VENTILATE EQUIPMENT ROOMS AND SMALL ISOLATED AREAS.
- 4.5 FRESH AIR INTAKE DUCTWORK WILL BE INSULATED WITH 2" OF INSULATION.
- 4.6 SUPPLY AIR DUCTWORK WILL BE INSULATED EXTERNALLY WITH 1" THICK FIBERGLASS BOARD IN EXPOSED AREAS AND 1 1/2" THICK FIBERGLASS BLANKET IN CONCEALED AREAS.
- 4.7 CHILLED WATER PIPING WILL BE EXTENDED FROM EXISTING SYSTEMS TO NEW AIR HANDLING UNITS TO PROVIDE COOLING REQUIRED.
- 4.8 AN ADDITIONAL CHILLER AND COOLING TOWER WILL BE ADDED IN THE K/E BUILDING.



- 4.9 CHILLED WATER PIPING AND CONDENSER WATER PIPING WILL BE SCHEDULE 40 SEAMLESS BLACK STEEL PIPE FOR SIZE 10" AND UNDER TO 2". 2" AND UNDER PIPING TO BE A-53 ELECTRIC RESISTANCE WELD.
- 4.10 CHILLED WATER PIPING TO BE INSULATED WITH FIBER-GLASS INSULATION 1" THICK THROUGH 8" SIZE PIPE AND 1 1/2" THICK ABOVE 8" SIZE PIPE.
- 4.11 AUTOMATIC TEMPERATURE CONTROL SYSTEMS WILL BE PROVIDED FOR ALL AIR HANDLING, AIR CONDITIONING AND REFRIGERATION SYSTEMS. THESE WILL BE OF THE PNEUMATIC TYPE.
- 4.12 THE CONTROL SYSTEMS ARE TO BE FULLY COMPATIBLE FOR FUTURE INTEGRATION WITH A HONEYWELL DELTA 2000 CONTROL CENTER. TAPS FOR FLOW SWITCHES, TEMPERATURE WELLS AND PRESSURE SENSORS WILL BE PROVIDED AS WELL AS AUXILIARY CONTACTS ON MOTOR STARTERS.

5. CRITERIA

5.1 DESIGN CONDITIONS.

5.1.1 OUTDOOR DESIGN DATA:

WINTER: -19<sup>0</sup>F.  
 SUMMER: 89<sup>0</sup>F. D.B.  
 75<sup>0</sup>F. W.B.

5.1.2 INDOOR DESIGN DATA:

	<u>TEMPERATURE</u>	<u>HUMIDITY</u>
GENERAL SPACES	72 <sup>0</sup> F	30% RH
OPERATING ROOMS	68 <sup>0</sup> F-76 <sup>0</sup> F	50% RH
RECOVERY ROOMS	75 <sup>0</sup> F	50% RH
INTENSIVE CARE	72 <sup>0</sup> F-78 <sup>0</sup> F	30% RH
NURSERIES & SPECIAL CARE	75 <sup>0</sup> F	30% RH
PATIENT AREAS	75 <sup>0</sup> F	30% RH

5.2 AIR CIRCULATION RATES.

5.2.1 THE FOLLOWING AIR CHANGE RATES WILL BE USED TO DETERMINE SPACE AIR VOLUMES UNLESS CALCULATED HEAT GAINS INDICATE LARGER AMOUNTS ARE REQUIRED. PRESSURE RELATIONSHIP TO ADJACENT AREAS INDICATED FOR CERTAIN AREAS BY (+) FOR POSITIVE AND (-) FOR NEGATIVE. OUTDOOR AIR

REQUIREMENTS WILL BE A MINIMUM IN AN EFFORT TO CONSERVE ENERGY. OUTDOOR AIR WILL BE PROVIDED TO REPLACE AIR REQUIREMENTS OF EXHAUST SYSTEMS.

5.3

AIR RATE CHANGES PER HOUR

AREA DESIGNATION	SUPPLY		RETURN	EXHAUST OR RELIEF
	OUTDOOR AIR	TOTAL AIR		
ANESTHESIA WORK ROOM	2	8		8
CHARTING	2	6	6	
CLEAN & STERILE SUPPLY (+)	2	4	3	
CLEAN UTILITY (=)	2	4	3	
CONFERENCE	2	6	6	
CORRIDORS	2	2	2	
DARK ROOM (-)	2	10		10
EQUIPMENT ROOM		4	4	
EXAM & TREATMENT ROOM	2	6	6	
HOUSEKEEPING	2	6	6	
INTENSIVE CARE (+)	2	6	5	
ISOLATION	2	6		6
ISOLATION ANTE ROOM	2	10		10
JANITOR (-)				2 CFM/FT <sup>2</sup>
LABS	2	6		6
LINEN CLEAN (+)	2	4	4	
LINEN & TRASH CHUTE (-)		10		10
LOBBIES		6	6	
LOCKERS (-)	2	6		7
LOUNGE	2	8	8	
MEDICATION (+)	2	4	3	
MEALS	2	10		10
NURSERY UNIT (+)	5	12	11	
NURSES STATION	2	6	6	
OFFICES	2	6	6	
OPERATING ROOMS (+)	5	25	24	
PATIENT ROOMS	2	6	6	
PHARMACY (+)	2	4	4	
PLAY/DINING	2	8	8	
PUMP ROOM		2	2	
RECOVERY ROOMS (+)	2	6	5	
SCRUB ROOM	2	8	8	
SOILED UTILITY (-)	2	10		10
STERILIZERS (-)	2	10		12
STORAGE	2	4	4	
TOILETS (-)				2 CFM/FT <sup>2</sup>
WAITING	2	4	4	
WORK ROOM (-)	2	10		10

MECHANICAL - SYSTEMS OUTLINE - K/E BUILDING

1. THE EXISTING MECHANICAL SYSTEMS WERE INSTALLED IN 1973 WHEN THE BUILDING WAS CONSTRUCTED AND ARE IN GOOD CONDITION. SEVERAL OF THE SYSTEMS WERE SET UP FOR EXTENSION WHEN VERTICAL EXPANSION OCCURS. THESE WILL BE UTILIZED AT THIS TIME.
2. PLUMBING
  - 2.1 WASTE AND VENT PIPING WILL BE EXTENDED FROM EXISTING SHAFTS TO PROVIDE SERVICES AS REQUIRED.
  - 2.2 A CAPPED 3" COLD WATER MAIN WILL BE EXTENDED THROUGH A NEW BOOSTER SYSTEM LOCATED IN BASEMENT EQUIPMENT ROOM TO PROVIDE DOMESTIC COLD, HOT AND RECIRCULATING HOT WATER FOR THE VERTICAL EXPANSION.
  - 2.3 A FIRE PUMP AND JOCKEY PUMP WILL BE REQUIRED AT THIS TIME AS WELL AS SPRINKLER PIPING TO ALL NEW AREAS. PUMP WILL BE LOCATED IN EXISTING EQUIPMENT ROOM.
  - 2.4 THE EXISTING 1" OXYGEN LINE IN THE BASEMENT EQUIPMENT ROOM WILL BE UTILIZED TO PROVIDE OXYGEN TO PATIENT AREAS AS REQUIRED.
  - 2.5 A CENTRAL CLINICAL VACUUM SYSTEM USING DUPLEX PUMPS WILL BE PROVIDED FOR PATIENT AREAS IN THIS BUILDING. THE SYSTEM PUMPS WILL BE LOCATED IN THE NEW MECHANICAL ROOM.
  - 2.6 CLINICAL COMPRESSED AIR (BREATHING AIR) USING DUPLEX PUMPS WILL BE PROVIDED TO THE INTENSIVE CARE AREAS AND P.A.R. UNIT WILL BE LOCATED IN NEW MECHANICAL ROOM.
  - 2.7 EXISTING ROOF DRAINAGE RISERS WILL BE EXTENDED UPWARD TO NEW ROOF DRAINS FOR NEW ROOF AREAS.
  - 2.8 THE EXISTING DEMINERALIZED AND DISTILLED WATER SYSTEM WILL BE RELOCATED TO THE NEW MECHANICAL ROOM. SERVICES WILL BE EXTENDED TO NEW BLOOD GAS LAB AND PHARMACY AREA.

- 2.9 THE EXISTING STILL'S AND THE 500 GALLON STORAGE TANK WILL BE RELOCATED UP TO THE NEW MECHANICAL ROOM AS IT IS USED AS PART OF THE DEMINERALIZED WATER SYSTEM.
3. HEATING, AIR CONDITIONING, VENTILATING & REFRIGERATION
- 3.1 A NEW 1200 TON ABSORPTION REFRIGERATION MACHINE WILL BE ADDED IN THE EXISTING BASEMENT EQUIPMENT ROOM IN SPACE AND LOCATION PROVIDED ORIGINALLY. THIS IS PART OF THE UNIVERSITY'S PLANT NO. 11 SERVING K/E BUILDING AND ADJACENT AREAS. A NEW CHILLED WATER AND CONDENSER WATER PUMP WILL ALSO BE PROVIDED.
- 3.2 A NEW 1200 TON COOLING TOWER WILL BE ADDED ON TOP OF THE NEW MECHANICAL ROOM TO MATCH THE NEW CHILLER. THE EXISTING COOLING TOWER WILL BE RELOCATED TO THE NEW ROOF. CONDENSER WATER PIPING WILL BE EXTENDED TO BOTH TOWERS.
- 3.3 A NEW COOLING TOWER WILL ALSO BE ADDED TO SERVE THE EXISTING COLD ROOMS, FREEZERS, ETC., FOR YEAR-ROUND CONDENSER WATER ON THE NEW ROOF. THE EXISTING SYSTEM MUST REMAIN IN OPERATION DURING CONSTRUCTION. A NEW INDOOR RECEIVER WILL BE LOCATED IN THE NEW MECHANICAL ROOM.
- 3.4 THE EXISTING STEAM SERVICE IN THE BASEMENT EQUIPMENT ROOM WILL BE EXTENDED TO THE NEW CHILLER AND UP TO THE NEW EQUIPMENT ROOM. NEW PRESSURE REDUCING STATIONS WILL BE REQUIRED. STEAM WILL BE UTILIZED TO HEAT THE BUILDING, HEAT HOT WATER AND BE USED FOR EQUIPMENT AS REQUIRED.
- 3.5 CHILLED WATER PIPING WILL BE EXTENDED FROM THE BASEMENT EQUIPMENT ROOM UP TO THE NEW MECHANICAL ROOM TO THE NEW AIR HANDLING UNITS.
- 3.6 THE EXISTING FUME HOODS AND OTHER EXHAUST FANS IN THE EXISTING PENTHOUSE WILL REMAIN IN OPERATION DURING CONSTRUCTION. NEW DUCTWORK WILL BE EXTENDED FROM THE EXISTING SHAFTS TO THE NEW MECHANICAL ROOM. NEW FANS WILL BE INSTALLED FOR THESE SYSTEMS IN THE NEW MECHANICAL ROOM. CONNECTION OF NEW DUCTWORK TO EXISTING DUCTWORK AT THE SHAFT RISERS WILL MINIMIZE DOWNTIME.

- 3.7 THE NEW AIR HANDLING UNITS' SERVING THE FOUR NEW PATIENT FLOORS WILL BE LOCATED IN THE NEW MECHANICAL ROOM. THE UNITS RETURN-EXHAUST FANS WILL ALSO BE LOCATED IN THE NEW MECHANICAL ROOM.
- 3.8 NEW EXHAUST FANS AS REQUIRED WILL ALSO BE LOCATED IN THE NEW MECHANICAL ROOM.
- 3.9 SPACE WILL BE ALLOCATED IN THE NEW MECHANICAL ROOM FOR AIR HANDLING UNITS FOR THE FUTURE LAB FLOORS; AS WELL AS SPACE FOR EXHAUST FANS.
- 3.10 CONVERTORS AND THEIR ASSOCIATED PUMPS FOR THE HEATING SYSTEMS WILL ALSO BE LOCATED IN THE NEW MECHANICAL ROOM.
- 3.11 RADIANT CEILING HEATING PANELS WILL BE UTILIZED AROUND THE PERIMETER OF THE BUILDING TO COMPENSATE FOR THE GLASS AND WALL LOSSES.
- 3.12 A BUILT-UP AIR HANDLING UNIT OF APPROXIMATELY 52,000 CFM WILL PROVIDE CONDITIONED AIR FOR THE NEW FOURTH AND FIFTH FLOOR SPACES. A BUILT-UP UNIT OF APPROXIMATELY 48,000 CFM WILL PROVIDE CONDITIONED AIR TO THE SIXTH AND SEVENTH FLOOR SPACES.

MECHANICAL - SYSTEMS OUTLINE - UNIT H & SURGERY REMODELING

- 1. THE EXISTING MECHANICAL SYSTEMS WERE CONSTRUCTED IN 1953 WITH SOME UPGRADING IN 1966 FOR THE EXISTING SURGERY AREA. SINCE THE PRESENT AIR CONDITIONING SYSTEM CANNOT PROVIDE AIR CONDITIONING COMPLYING TO GOOD ENGINEERING PRACTICE, EXTENSIVE REMODELING WILL BE REQUIRED. A NEW AIR SUPPLY UNIT WILL BE REQUIRED TO PROVIDE ADEQUATE AIR VOLUME FOR THE EXISTING SURGERY AND ADJACENT RENOVATED AREAS.
- 2. PLUMBING
  - 2.1 EXISTING WASTE, VENT, COLD WATER, HOT WATER, OXYGEN, VACUUM AND OTHER PLUMBING SERVICES WILL BE UTILIZED AS IS WHERE POSSIBLE. MINOT REVISIONS IN EXISTING AREAS WILL BE CONNECTED TO PRESENT SYSTEMS.

- 2.2 NEW WASTE, VENT, COLD WATER, HOT WATER, RECIRCULATING HOT WATER AND CLINICAL VACUUM SYSTEMS WILL BE PROVIDED IN THE NEW UNIT H. WASTE AND STORM PIPING WILL BE CONNECTED TO SEWER AS DIRECTED BY THE UNIVERSITY ENGINEERING. COLD WATER SERVICE WILL CONNECT TO EXISTING MAINS IN ADJACENT BUILDINGS.
- 2.3 OXYGEN SERVICE WILL BE EXTENDED TO NEW UNIT H FROM THE EXISTING SYSTEM.
- 2.4 A NEW ANESTHESIA SCAVENGING VACUUM SYSTEM WILL BE PROVIDED TO ALL OPERATING ROOMS, BOTH NEW AND EXISTING. THE EQUIPMENT FOR THIS SYSTEM WILL BE LOCATED IN THE NEW MECHANICAL PENTHOUSE LOCATED DIRECTLY ABOVE THE NEW SURGERY AREAS.
- 2.5 FIRE PROTECTION WILL BE ADDED TO THE NEW UNIT H IN THE FORM OF SPRINKLERS IN ALL AREAS EXCEPT ROOMS EXEMPTED BY CODE. FIRE PROTECTION IN EXISTING AREAS WILL BE UPGRADED AS REQUIRED.
3. HEATING, AIR CONDITIONING, VENTILATING & REFRIGERATION
- 3.1 THE STEAM SERVICE TO BE USED FOR UNIT H WILL BE EXTENDED FROM THE BASEMENT EQUIPMENT ROOM OF UNIT BC. APPROXIMATELY 350 FEET OF STEAM PIPING WILL HAVE TO BE RUN THROUGH BC TO THE SERVICE SHAFT IN UNIT BC ADJACENT TO THE NEW UNIT H. A PUMPED CONDENSATE LINE WILL ALSO BE REQUIRED.
- 3.2 CHILLED WATER FOR UNIT H WILL BE PROVIDED BY EXTENDING THE 12" CHILLED WATER MAINS IN THE N.W. CORNER OF THE SECOND FLOOR OF MAYO GARAGE. THESE MAINS WILL BE EXTENDED TO THE SOUTH WALL OF THE GARAGE. PIPING WILL THEN BE EXTENDED UP TO THE NEW PENTHOUSE ABOVE SURGERY.
- 3.3 NEW BUILT-UP SUPPLY AIR HANDLING UNITS AND THEIR RETURN EXHAUST FANS WILL BE LOCATED IN THE NEW SURGERY PENTHOUSE. ONE UNIT WILL SERVE THE NEW OPERATING SUITE AND ITS ADJACENT NEW CONSTRUCTION. THE SECOND UNIT WILL SERVE THE EXISTING OPERATING ROOMS AND THE REMODELED EAST WING OF EXISTING MAYO FOURTH FLOOR.

- 3.4 HEATING CONVERTORS AND ITS ASSOCIATED PUMPS FOR THE HEATING SYSTEMS OF THE NEW UNIT H AND THE EXISTING SURGERY AND ADJACENT AREAS WILL BE LOCATED IN THE NEW SURGERY PENTHOUSE.
- 3.5 OUTDOOR AIR FOR THE AIR HANDLING UNITS WILL BE BROUGHT IN FROM THE SOUTH END OF THE NEW PENTHOUSE. RETURN AND EXHAUST AIR WILL BE EXHAUSTED OUT THE NORTH END OF THE NEW PENTHOUSE TO MINIMIZE THE EFFECTS ON ADJACENT BUILDINGS.
- 3.6 A BUILT-UP AIR HANDLING UNIT OF APPROXIMATELY 35,000 CFM WILL PROVIDE CONDITIONED AIR TO THE NEW UNIT "H" AREAS. ANOTHER UNIT OF APPROXIMATELY 40,000 CFM WILL BE REQUIRED TO SERVE THE EXISTING SURGERY AND ADJACENT REMODELED AREAS. HEPA FINAL FILTERS WILL BE UTILIZED FOR EACH OPERATING ROOM.

DIVISION 16 - ELECTRICAL WORK

1. 16000 - GENERAL PROVISIONS

1.1 THE INFORMATION CONTAINED HEREIN IS INTENDED TO DEFINE THE ELECTRICAL FACILITIES FOR THE UNIVERSITY OF MINNESOTA HOSPITAL ADDITION. THIS DATA PORTRAYS AS CLOSE AS PRACTICAL THE VARIOUS SYSTEMS AND PERFORMANCE CONCEPT TO BE INCORPORATED INTO THE FACILITY.

1.2 ELECTRICAL DESIGN SHALL CONFORM WITH THE FOLLOWING STANDARDS:

- 1.2.1 NATIONAL ELECTRIC CODE 1978 (NEC)
- 1.2.2 INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS (IEEE)
- 1.2.3 AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
- 1.2.4 NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
- 1.2.5 UNDERWRITERS LABORATORIES
- 1.2.6 ILLUMINATING ENGINEERING SOCIETY (IES)
- 1.2.7 PUBLIC HEALTH SERVICE (PHS)
- 1.2.8 UNIVERSITY OF MINNESOTA MANUAL ON CONSTRUCTION STANDARDS

1.3 ALL ELECTRICAL EQUIPMENT SHALL BE LOCATED TO PERMIT FUTURE SPACE ALTERATIONS.

1.4 MAXIMUM VOLTAGE DROPS SHALL NOT EXCEED RECOMMENDATIONS OF THE NATIONAL ELECTRICAL CODE.

1.5 SPARE CAPACITY SHALL BE INCLUDED IN ALL FEEDER AND BRANCH CIRCUIT WIRING WHERE IT IS REASONABLE TO EXPECT FUTURE LOAD GROWTH.

1.6 MAINTAIN CONTINUITY TO ALL DEVICES AND EQUIPMENT IN EXISTING AREAS DUE TO REMODELING.

2. 16100 - BASIC MATERIALS AND METHODS

2.1 CONDUIT:

- 2.1.1 ELECTRICAL WIRING FOR LIGHTING, POWER, AND COMMUNICATIONS SHALL BE INSTALLED IN A CONTINUOUS GROUNDED METALLIC RACEWAY SYSTEM. FINAL CONNECTIONS TO MOTORS AND DRY TYPE TRANSFORMERS SHALL BE MADE WITH FLEXIBLE CONDUIT.



- 2.1.2 CONDUITS SHALL BE GALVANIZED RIGID STEEL, ELECTRIC METALLIC TUBING OR FLEXIBLE METAL CONDUIT. ONLY RIGID STEEL CONDUIT SHALL BE USED FOR RUNS INSTALLED UNDERGROUND, FOR RUNS INSTALLED IN SLABS, OR FOR EXPOSED RUNS. ALL CONDUITS INSTALLED BELOW EARTH SHALL BE THOROUGHLY COATED WITH BITUMASTIC #50, OR FACTORY COATED WITH 20 MIL PVC.
- 2.1.3 ELECTRICAL EQUIPMENT CONDUIT, OUTLET BOXES, ETC., SHALL NOT BE ATTACHED TO DUCTWORK OR OTHER MECHANICAL EQUIPMENT.
- 2.2 WIRE AND CABLE:
- 2.2.1 600 VOLT BUILDING WIRE SHALL BE COPPER CONDUCTORS WITH THW, THWN OR XHHW INSULATION. CONDUCTORS SIZED NO. 8 AND SMALLER SHALL BE SOLID TYPES XHHW OR THHN. CONDUCTORS SIZED NO. 6 AND LARGER SHALL BE STRANDED TYPES THW OR RHW. MINIMUM WIRE SIZE FOR LIGHTING AND POWER SERVICES SHALL BE #12 AWG. #14 AWG MAY BE USED FOR EQUIPMENT CONTROL CIRCUIT WIRING.
- 2.3 WIRING DEVICES:
- 2.3.1 SWITCHES FOR LIGHTING SHALL BE SILENT MECHANICAL TOGGLE OPERATED TYPE WITH 3-WAY, 4-WAY, KEY OPERABLE, ETC. THE SWITCHES SHALL BE RATED FOR 120/277 VOLT AC WITH A MINIMUM CURRENT RATING OF 20 AMPERES.
- 2.3.2 GENERAL PURPOSE 120 VOLT, 20 AMP GROUNDING TYPE DUPLEX RECEPTACLES SHALL BE INSTALLED WITHIN VARIOUS BUILDING SPACES THROUGHOUT THE BUILDINGS.
- 2.3.3 ALL DEVICES SHALL BE EITHER BROWN WITH STAINLESS STEEL OR RED ON THE EMERGENCY BRANCHES.
- 2.3.4 GENERAL PURPOSE RECEPTACLES SHALL BE SPECIFICATION GRADE. HOSPITAL GRADE SHALL BE USED IN PATIENT AREAS.
- 2.3.5 PROVIDE WEATHERPROOF GFI DUPLEX RECEPTACLES ON THE ROOF, NEAR ANY ROOF MOUNTED EQUIPMENT.
- 2.4 GROUNDING:
- 2.4.1 GROUNDING WILL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
- 2.5 FUSES:
- 2.5.1 FUSES SHALL BE CLASS R CARTRIDGE OR PLUG TYPE. A SPARE SET OF THREE FUSES OF EACH TYPE AND SIZE SHALL BE FURNISHED TO THE OWNER IN A WALL MOUNTED CABINET.

- 2.5.2 CARTRIDGE FUSES FOR MOTOR BRANCH CIRCUITS 60 AMPS OR LESS SHALL BE BUSS FRN OR FRS. CARTRIDGE FUSES FOR SERVICE ENTRANCE APPLICATIONS AND FOR OTHER CIRCUITS OF 600 AMPS AND ABOVE SHALL BE BUSS KRP-C.
- 2.5.3 CARTRIDGE FUSES FOR ALL OTHER APPLICATIONS SHALL BE BUSS LPN OR LPS.
- 2.6 TIME SWITCHES:
  - 2.6.1 TIME SWITCHES FOR CONTROL OF MECHANICAL EQUIPMENT SHALL BE 7-DAY TYPE.
- 2.7 LABELING:
  - 2.7.1 ALL ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH IDENTIFICATION LABELS. LABELS SHALL BE ENGRAVED PLASTIC, WHITE LETTERS ON BLACK BACKGROUND.
- 3. 16200 - SERVICE SYSTEMS
  - 3.1 TEMPORARY LIGHTING AND POWER:
    - 3.1.1 THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN A TEMPORARY LIGHT AND POWER SYSTEM FOR THE USE OF ALL TRADES.
    - 3.1.2 MATERIALS FURNISHED FOR THE TEMPORARY SYSTEM MAY BE USED. MATERIALS SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR AND SHALL BE REMOVED WHEN THERE IS NO LONGER ANY NEED FOR TEMPORARY LIGHT AND POWER.
    - 3.1.3 ELECTRICAL ENERGY COSTS FOR THE TEMPORARY LIGHT AND POWER SYSTEM WILL BE PAID BY THE OWNER.
  - 3.2 PRIMARY SERVICE DISTRIBUTION:
    - 3.2.1 THE MAIN POWER FOR THE NEW ADDITION WILL ORIGINATE FROM THE EXISTING SERVICES WITHIN THE MAYO HOSPITAL AND IN UNIT KE.
  - 3.3 UTILIZATION VOLTAGES:
    - 3.3.1 THE FOLLOWING NOMINAL VOLTAGES WILL BE USED:
 

UTILITY MOTORS 1/2 HP AND ABOVE	480V, 3Ø
UTILITY MOTORS UNDER 1/2 HP	120V
LIGHTING	277V
MISCELLANEOUS POWER	120V

3.3.2 ALL EQUIPMENT SHALL HAVE NEMA STANDARD RATINGS TO CONFORM TO THESE VOLTAGES.

4. 16300 - DISTRIBUTION SYSTEMS AND EQUIPMENT

4.1 MAIN SWITCHBOARD:

4.1.1 ADDITIONAL SWITCHES WILL BE PROVIDED IN EXISTING SPACES OR NEW SECTIONS WILL BE ADDED TO EXISTING SWITCHBOARDS AS REQUIRED.

4.2 PANELBOARDS:

4.2.1 PANELBOARDS OF THE TYPE AND VOLTAGE REQUIRED SHALL BE PROVIDED.

4.2.2 BRANCH CIRCUIT PANELBOARDS FOR 480/277 VOLTS DISTRIBUTION SHALL HAVE CIRCUIT BREAKERS WITH A MINIMUM SHORT CIRCUIT RATING OF 14,000 RMS AMPERE SYMMETRICAL AT 277 VOLTS. BREAKERS SHALL BE BOLT ON TYPE.

4.2.3 BRANCH CIRCUIT PANELBOARDS FOR 120/208 VOLTS DISTRIBUTION SHALL HAVE BREAKERS WITH A MINIMUM SHORT CIRCUIT RATING OF 10,000 RMS AMPERES SYMMETRICAL.

4.2.4 POWER AND DISTRIBUTION PANELBOARDS SHALL BE THE FUSIBLE SWITCH TYPE. ALL FUSIBLE BRANCH SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK AND SHALL BE HORSEPOWER RATED. ALL PANELBOARDS SHALL HAVE COPPER BUSING WITH A SEPARATE COPPER EQUIPMENT GROUND BUS.

4.3 DRY TYPE TRANSFORMERS:

4.3.1 DRY TYPE TRANSFORMERS SHALL BE PROVIDED FOR TRANSFORMATION FROM THE 480 VOLT DISTRIBUTION SYSTEM TO 120/240 VOLTS OR 120/208 VOLTS AS REQUIRED. TRANSFORMERS SHALL HAVE CLASS H INSULATION FOR 150°C RISE.

4.4 ENGINE GENERATOR EQUIPMENT:

4.4.1 EMERGENCY ENGINE GENERATOR EQUIPMENT SHALL CONSIST OF PACKAGE UNITS WITH PRIME MOVER AND GENERATOR SIZED TO ACCOMMODATE THE EMERGENCY SYSTEM.

4.4.2 THE PRIME MOVER SHALL BE AIR COOLED, COMPRESSION IGNITION DIESEL ENGINE OPERATING WITH NATURAL GAS AS FUEL. (THIS FUEL TYPE IS CONTINGENT ON APPROVAL OF CODE AUTHORITIES AS AN EMERGENCY SOURCE.)

- 4.4.3 THE GENERATOR SHALL BE A REVOLVING FIELD ALTERNATOR CONFORMING TO NEMA STANDARDS. THE GENERATOR SHALL BE SINGLE BEARING TYPE, CLOSE COUPLED TO THE ENGINE. VOLTAGE SHALL BE 480/277 VOLT.
- 4.4.4 THE EMERGENCY POWER WILL BE DIVIDED INTO EQUIPMENT, LIFE SAFETY AND CRITICAL BRANCHES.
- 4.5 ELECTRICAL SYSTEMS IN CRITICAL CARE AND ANESTHETIZING LOCATIONS:
- 4.5.1 A SPECIAL POWER SYSTEM WILL BE PROVIDED IN AREAS WHERE INHALATION ANESTHETICS ARE USED. THE SYSTEM AND INSTALLATION SHALL BE IN COMPLIANCE WITH THE CURRENT NFPA STANDARDS AS STATED IN NFPA 56A AND 76A.
- 4.5.2 IT IS RECOMMENDED THAT ALL POWER RECEPTACLES AND FIXED ELECTRICAL EQUIPMENT THAT IS ACCESSIBLE DIRECTLY TO THE PATIENT OR INDIRECTLY TO THE PATIENT VIA ANOTHER PERSON OR PIECE OF CONDUCTIVE MATERIAL BE ELECTRICALLY SUPPLIED BY UNGROUNDED CIRCUITS. THESE CIRCUITS SHOULD ORIGINATE FROM AN ISOLATING POWER PANEL CONSISTING OF AN ISOLATION TRANSFORMER WITH UNGROUNDED SECONDARY LEADS, INDIVIDUAL TWO POLE CIRCUIT BREAKERS, DYNAMIC LINE ISOLATION MONITOR WITH REMOTE GROUND INDICATOR AND AN ISOLATED GROUND BUS. THESE PANELS WILL BE PART OF A FACTORY ASSEMBLED UNIT THAT IS LOCATED INSIDE THE ROOM. IF FLAMMABLE ANESTHETICS ARE USED, THE TRANSFORMER AND POWER CIRCUITRY WILL BE LOCATED ABOVE THE FIVE FOOT LEVEL.
- 4.5.3 THE PRIMARY OF THE ISOLATION TRANSFORMERS SHOULD BE FED FROM THE CRITICAL BRANCH OF THE EMERGENCY SYSTEM.
- 4.6 SPECIAL GROUNDING SYSTEM:
- 4.6.1 AN EQUIPOTENTIAL GROUND SYSTEM WILL BE PROVIDED IN INTENSIVE CARE AREAS AND ANESTHETIZING LOCATIONS. THE SYSTEM AND INSTALLATION SHALL BE IN COMPLIANCE WITH THE CURRENT NFPA STANDARDS AS STATED IN THE NATIONAL ELECTRICAL CODE.

- 4.6.2 THE EQUIPOTENTIAL GROUND SYSTEM SHALL CONSIST OF A SYSTEM OF GROUND BUSES AND GROUND CONDUCTORS AS FOLLOWS:
- 4.6.2.1 EQUIPMENT GROUND BUS - SHALL BE LOCATED IN THE CRITICAL POWER DISTRIBUTION PANEL AND SHALL BE CONNECTED TO THE BUILDING SERVICE GROUND IN CONFORMITY WITH NEC, 1978. THE EQUIPMENT GROUND BUS SHALL PROVIDE THE GROUND POINT FOR THE REFERENCE GROUND BUS LOCATED WITHIN THE ISOLATED POWER PANELS. THE GROUND WIRE BETWEEN THESE GROUND BUSES AND BUILDING SERVICE GROUND SHALL BE INCLUDED WITH THE FEEDERS TO THE VARIOUS PANELS.
- 4.6.2.2 REFERENCE GROUND BUS - SHALL BE LOCATED IN THE ISOLATED POWER PANELS SERVING THE ANESTHETIZING AREA. THIS GROUND BUS SHALL BE THE PRIMARY GROUND REFERENCE FOR THE ANESTHETIZING AREA. THE ROOM AND REMOTE PATIENT GROUND BUSES, THE CONDUCTIVE FLOOR (IF USED), AND THE NEAREST STRUCTURAL STEEL SHALL BE BONDED TO THE REFERENCE GROUND BUS.
- 4.6.2.3 ROOM GROUND BUS(ES) - SHALL BE MOUNTED IN ACCESSIBLE ENCLOSURES IN THE CEILINGS. THE ROOM GROUND BUS SHALL PROVIDE ACCESS TO GROUND FOR ALL FIXED, EXPOSED, CONDUCTIVE SURFACES WITHIN THE ROOM, SUCH AS, METAL DOOR AND WINDOW FRAMES, INTERCOM ENCLOSURES, MEDICAL GAS OUTLETS, PLUMBING, METAL CABINETS, CEILING COLUMN ENCLOSURES, ETC.
- 4.6.3 REMOTE PATIENT GROUND BUSES - SHALL BE LOCATED ADJACENT TO PATIENT BEDS AND SHALL BE PART OF THE POWER AND GROUND JACK MODULES. THIS GROUND BUS SHALL PROVIDE ACCESS TO GROUND FOR ALL CONDUCTIVE NON-ELECTRIC EQUIPMENT WITHIN THE ROOM VIA THE GROUND JACK RECEPTACLES AND GROUND EXTENSION CORDS. THE PATIENT GROUND BUSES SHALL ALSO PROVIDE THE GROUND REFERENCE FOR THE POWER RECEPTACLES.
- 4.6.4 REDUNDANT EQUIPMENT GROUND - THE GROUND JACK RECEPTACLES AND GROUND EXTENSION CORDS SHALL ALSO PROVIDE A MEANS OF REDUNDANT GROUNDING FOR ELECTRICAL EQUIPMENT USED WITHIN THE CRITICAL CARE AND ANESTHETIZING AREA.

4.6.5 GROUND INTEGRITY OHMMETER - A GROUND INTEGRITY OHMMETER SHALL BE PROVIDED FOR EACH ANESTHETIZING AREA. THE OHMMETER SHALL BE USED TO CHECK THE INTEGRITY OF ALL GROUND CONNECTIONS WITHIN THE ANESTHETIZING AREA.

5. 16400 - LIGHTING SYSTEMS AND EQUIPMENT

5.1 ALL LIGHTING FIXTURES IN FINISHED AREAS SHALL BE RECESSED, SURFACE, OR PENDANT MOUNTED.

5.2 FLUORESCENT BALLASTS SHALL BE HIGH POWER FACTOR TYPE. HID BALLAST SHALL BE CONSTANT WATTAGE HIGH POWER FACTOR TYPE DESIGN FOR -20°F STARTING IN OPERATION. BALLAST SHALL BE EXTERNALLY IN-LINE FUSED.

5.3 LOCAL CONTROL OF LIGHTING SHALL BE PROVIDED IN ALL AREAS WHERE POSSIBLE SWITCHING SHALL BE ARRANGED TO PROVIDE TWO LEVELS OF ILLUMINATION.

5.4 EXIT AND EGRESS LIGHTING SHALL BE PROVIDED THROUGHOUT THE FACILITY IN ACCORDANCE WITH THE LIFE SAFETY CODE.

5.5 TYPICAL LIGHTING LEVELS FOR VARIOUS AREAS WILL BE AS FOLLOWS:

CORRIDORS	20 FC
OFFICES	80 FC
PATIENT ROOMS	30 FC
LABORATORIES	100 FC
STAIRWAYS	20 FC
EXAM ROOMS	75 FC
EMERGENCY TREATMENT	100 FC
OPERATING ROOMS	125 FC
MECH, ELEC, STORAGE	20 FC

6. COMMUNICATION AND SIGNAL SYSTEMS

6.1 TELEPHONE:

6.1.1 THE TELEPHONE SYSTEM WILL CONSIST OF EMPTY CONDUIT, JUNCTION BOXES WITH COVERS AND EQUIPMENT PLYWOOD BACKBOARDS AS REQUIRED.

- 6.2 INTERCOM SYSTEM:  
6.2.1 INTERCOM SYSTEMS WILL MATCH EXISTING WHEN REQUIRED. WHEN NEW SYSTEMS ARE REQUIRED, A PUSHBUTTON TYPE INSTRUMENT WILL BE UTILIZED WITH MASTER AND STAFF STATIONS AS REQUIRED.
- 6.3 NURSE CALL SYSTEM:  
6.3.1 THE NEW NURSE CALL SYSTEM WILL BE AN AUDIO VISUAL TYPE WHICH PROVIDES TWO WAY VOICE AND SIGNAL COMMUNICATION BETWEEN THE PATIENT'S ROOM AND THE NURSE STATION ANNUNCIATOR. EMERGENCY CALL SIGNALS FROM TOILETS, SITZ BATHS, SHOW ROOMS, ETC. WILL ALSO BE ANNUNCIATED.
- 6.4 VOICE PAGING AND/OR MUSIC DISTRIBUTION SYSTEM:  
6.4.1 THE EXISTING VOICE PAGING-MUSIC SYSTEM WILL BE EXTENDED TO THE NEW ADDITION WITH EQUIPMENT MATCHING THE EXISTING. ADDITION CAPACITY TO THE AMPLIFICATION SYSTEM WILL BE PROVIDED AS REQUIRED.
- 6.5 CLOCK SYSTEM:  
6.5.1 A CLOCK SYSTEM WILL BE PROVIDED CONSISTING OF A SYNCHRONOUS WIRE SYSTEM COMPLETE WITH A MASTER CONTROL PANEL AND INDICATING CLOCKS.
- 6.6 PROVISIONS FOR POCKET PAGING SYSTEM:  
6.6.1 THE EXISTING POCKET PAGING SYSTEM WILL BE EXTENDED TO THE NEW ADDITION. THIS SHALL CONSIST OF PROVIDING SUPPLEMENTAL ANTENNAS AS REQUIRED TO PROVIDE RECEPTION IN ALL AREAS OF THE NEW ADDITION.
- 6.7 PROVISIONS FOR CLOSED CIRCUIT TELEVISION:  
6.7.1 AN EMPTY RACEWAY SYSTEM WILL BE PROVIDED AS REQUIRED FOR CLOSED CIRCUIT TELEVISION DISTRIBUTION THROUGHOUT THE ADDITION.
- 6.8 PROVISIONS FOR TELEVISION ANTENNA DISTRIBUTION:  
6.8.1 AN EMPTY RACEWAY SYSTEM WILL BE PROVIDED AS REQUIRED FOR A TELEVISION ANTENNA DISTRIBUTION SYSTEM PROVIDED BY THE OWNER.

- 6.9 FIRE ALARM SYSTEM:
  - 6.9.1 THE NEW ADDITIONS WILL BE PROVIDED WITH AN ELECTRICALLY SUPERVISED, ZONED, NON-CODED, FIRE ALARM SYSTEM. THE SYSTEM WILL COMPLY WITH STATE AND MUNICIPAL CODES.
  - 6.9.2 AUDIBLE SIGNALS TO MATCH THE EXISTING WILL BE PROVIDED THROUGHOUT THE NEW BUILDING. THE AUDIBLE SIGNALS WILL BE ACCOMPANIED BY A FLASHING VISUAL SIGNAL TO COMPLY WITH THE LATEST CODE REQUIREMENTS.
  - 6.9.3 MANUAL STATIONS WILL BE PROVIDED AT EXITS AND AS REQUIRED IN CORRIDORS BETWEEN EXITS.
  - 6.9.4 SMOKE DETECTORS WILL BE PROVIDED IN CORRIDORS, CRITICAL CARE AREAS, IN DUCT WORK. DETECTORS IN DUCT WORK WILL BE CONNECTED TO CONTROL AIR HANDLING SYSTEMS AND OPERATE SMOKE DAMPERS TO CONTROL THE SPREAD OF SMOKE.
  - 6.9.5 CONNECTION WILL BE MADE TO WATER FLOW ALARMS ON THE BUILDING SPRINKLING SYSTEM.
  - 6.9.6 MAGNETIC DOOR HOLDERS WILL BE PROVIDED TO HOLD AREA SEPARATION (SMOKE) DOORS OPEN. DOORS WILL AUTOMATICALLY CLOSE WHEN THE LOCAL SMOKE DETECTOR IS ACTIVATED.
  
- 6.10 SPECIAL ALARM SYSTEMS:
  - 6.10.1 SPECIAL ALARM SYSTEMS WILL BE PROVIDED AS REQUIRED. THE ALARM SYSTEMS WILL INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
    - 6.10.1.1 ESSENTIAL SYSTEMS ENGINE-GENERATOR DERANGEMENT SIGNAL.
    - 6.10.1.2 LOW PRESSURE AND SWITCH-OVER ALARMS FOR PIPED MECHANICAL GAS SYSTEMS.
  - 6.10.2 INDICATING LIGHTS WILL BE PROVIDED AND CONNECTED INTO NARCOTICS STORAGE LOCKERS TO INDICATE LOCKER IS NOT PROPERLY LOCKED. AN AUXILIARY INDICATION IS ALSO USUALLY MADE AT THE MASTER NURSE CALL UNIT IN EACH PATIENT AREA. WHEN SPECIALLY CONSTRUCTED NARCOTICS DRAWERS ARE PROVIDED IN LIEU OF LOCKERS, THIS INDICATION IS GENERALLY NOT PROVIDED.
  
- 6.11 PROVISIONS FOR PHYSIOLOGICAL MONITORING SYSTEMS:
  - 6.11.1 EMPTY CONDUITS AND OUTLETS SHOULD BE PROVIDED IN INTENSIVE CARE PATIENT AREAS FOR INSTALLATION OF PHYSIOLOGICAL MONITORING EQUIPMENT AND CABLING. THE EMPTY CONDUIT FROM EACH OUTLET WOULD EXTEND TO A TERMINAL CABINET IN EACH UNIT FOR THE CONNECTION OF CENTRAL MONITORING AND RECORDING EQUIPMENT.



6.11.2 A COMPLETE REVIEW OF THE REQUIREMENTS SHOULD BE MADE WITH THE OWNER TO INSURE ADEQUATE AND COMPLETE PROVISIONS ARE INCLUDED FOR THE SYSTEM.

6.12 CARDIAC ARREST ALARM SYSTEM:  
6.12.1 A CARDIAC ARREST ALARM SYSTEM WILL BE PROVIDED CONSISTING OF ALARM STATIONS AND ALARM ANNUNCIATORS LOCATED AT THE MAIN TELEPHONE OPERATORS ROOM AND AT EACH CRASH CART LOCATION.

6.12.2 LOCATION OF ALARM STATIONS WILL BE AS DIRECTED BY THE OWNER.

6.13 OPERATING ROOM STATUS SYSTEM:  
6.13.1 AN OPERATING ROOM STATUS SYSTEM WILL BE PROVIDED IN THE SURGERY DEPARTMENT.

6.14 SECURITY SYSTEM:  
6.14.1 NONE REQUIRED.

6.15 CENTRAL DICTATION:  
6.15.1 THE DICTATION SYSTEM WILL BE THROUGH THE TELEPHONE SYSTEM. NO SPECIAL PROVISIONS WILL BE MADE.

6.16 IN AND OUT DOCTORS REGISTER SYSTEM:  
6.16.1 NONE REQUIRED.

6.17 BED STATUS SYSTEM:  
6.17.1 NONE REQUIRED.

7. 16600 - ELECTRICAL POWER EQUIPMENT & CONNECTIONS

7.1 ELECTRIC SERVICE AND CONNECTIONS SHALL BE PROVIDED TO ALL EQUIPMENT FURNISHED BY ALL OTHER DIVISIONS OF THIS SPECIFICATION OR BY THE OWNER. CONNECTION SHALL INCLUDE SAFETY SWITCHES AS REQUIRED BY CODE, STARTERS AND MOTOR CONTROL.

7.2 SAFETY SWITCHES SHALL BE ENCLOSED, HORSEPOWER RATED, HEAVY DUTY, MULTIPLE POLE TYPE, RATED FOR 600 VOLT OPERATION. FUSE HOLDERS SHALL ACCOMMODATE TYPES OF FUSES SPECIFIED HEREIN.

- 7.3 PROVIDE STARTERS AND MOTOR CONTROL EQUIPMENT FOR ALL APPLICATIONS WHERE NOT SUPPLIED AS PART OF THE EQUIPMENT. MOTOR STARTERS SHALL BE FULL VOLTAGE, NON-REVERSING MAGNETIC TYPE EXCEPT THAT MANUAL STARTERS, REDUCE VOLTAGE STARTERS MULTI-SPEED STARTERS, ETC., SHALL BE PROVIDED AS REQUIRED. SEPARATE CONTROL TRANSFORMER SHALL BE FURNISHED WITH EACH 480 VOLT MAGNETIC STARTER TO PROVIDE 120 VOLT CONTROL POWER. COMBINATION STARTERS SHALL BE FUSIBLE SWITCH TYPE. PUSHBUTTON CONTROL STATIONS, SELECTORS SWITCHES, PILOT LIGHTS, ETC., SHALL BE FURNISHED AS REQUIRED AND SHALL BE INSTALLED IN THE COVER OF THE MOTOR STARTERS.
- 7.4 POWER FACTOR CORRECTION SHALL BE PROVIDED FOR ALL MOTORS AND LOADS GREATER THAN 20 HP WHOSE POWER FACTOR IS LESS THAN 90%. THE CORRECTED POWER FACTOR SHALL BE .95 MINIMUM.
- 7.5 STARTERS AND MOTOR CONTROL EQUIPMENT WILL, IN GENERAL, BE PROVIDED IN MOTOR CONTROL CENTERS LOCATED IN THE MECHANICAL ROOMS.

ELECTRICAL - UNIT H

1. ELECTRICAL SERVICE AND DISTRIBUTION SYSTEMS.
  - 1.1 ELECTRICAL SERVICE TO THE ADDITION TO UNIT H WILL COME FROM EXISTING SERVICE EQUIPMENT IN THE MAYO HOSPITAL. ADDITIONS TO EXISTING SWITCHGEAR WILL BE MADE AS REQUIRED.
  - 1.2 UNGROUNDED, ISOLATED POWER SYSTEMS HAVE RECENTLY BEEN INSTALLED IN THE EXISTING OPERATING ROOMS. NO REVISIONS TO THESE SYSTEMS ARE PLANNED.
  - 1.3 NEW ISOLATED POWER SYSTEM WILL BE INSTALLED IN THE NEW OPERATING ROOMS. THE NEW OPERATING ROOMS MUST BE BUILT AND FUNCTIONING BEFORE DEMOLITION CAN START ON EXISTING OPERATING ROOMS SCHEDULED TO BE ABANDONED, THEREFORE, RELOCATION OF THE EXISTING ISOLATED PANELS FROM THESE EXISTING ROOMS TO THE NEW ONES WILL BE IMPOSSIBLE.
  - 1.4 LOAD MEASUREMENTS ON THE EXISTING SURGERY GENERATOR WILL BE MADE BY THE OWNER. IF IT IS DETERMINED THAT THE EXISTING SYSTEM DOES NOT HAVE THE CAPACITY TO SERVE THE NEW LOADS, A NEW GENERATOR WILL BE PROVIDED IN THE NEW SURGERY MECHANICAL PENTHOUSE.
  - 1.5 A NEW MOTOR CONTROL CENTER WILL BE PROVIDED IN THE NEW SURGERY MECHANICAL PENTHOUSE TO SERVE NEW MECHANICAL EQUIPMENT.
2. LIGHTING.
  - 2.1 NEW FLUORESCENT LIGHTING WILL BE PROVIDED IN THE EXISTING OPERATING ROOMS.
  - 2.2 A CENTRAL BATTERY SYSTEM WILL BE PROVIDED AND CONNECTED TO ONE FLUORESCENT FIXTURE IN EACH OPERATING ROOM TO PROVIDE CONTINUOUS LIGHT DURING THE INTERVAL BETWEEN A POWER OUTAGE AND GENERATOR START UP.

ELECTRICAL - UNIT KE

1. ELECTRICAL SERVICE AND DISTRIBUTION SYSTEMS.
  - 1.1 THE EXISTING SERVICE CAPACITY IS ADEQUATE FOR THE NEW ADDITION. THE EXISTING SWITCHGEAR WILL BE EXPANDED AS REQUIRED.
  - 1.2 A NEW GENERATOR SET WILL BE PROVIDED TO SERVE THE NEW ADDITION.
2. LIGHTING.
  - 2.1 FLUORESCENT LIGHTING WILL BE USED IN OFFICES, EXAM ROOMS, THERAPY ROOMS, CORRIDORS AND STAIRS. INCANDESCENT IN SPECIAL AREAS WHERE LOW LEVELS OF ILLUMINATION ARE REQUIRED.
3. ELECTRICAL SYSTEMS.
  - 3.1 THE FIRE ALARM SYSTEM IN THE KE UNIT WILL BE PART OF A FIRE MANAGEMENT SYSTEM. THE SYSTEM SHALL PROVIDE FOR A COMPLETE FIRE ALARM SYSTEM IN THE ENTIRE BUILDING INCLUDING UPGRADING THE EXISTING FLOORS IN COMPLIANCE WITH THE CODE REQUIREMENTS FOR A HIGH RISE BUILDING. THE SYSTEM SHALL INCLUDE VOICE ALARM, VOICE COMMUNICATION AND CONTROL TO SHUTDOWN MECHANICAL VENTILATION SYSTEMS.
  - 3.2 A NURSES CALL SYSTEM WILL BE PROVIDED FOR EACH SEPARATE NURSING UNIT.
  - 3.3 A VOICE PAGING/MUSIC SYSTEM WILL BE PROVIDED. THIS SYSTEM WILL BE CONNECTED TO THE EXISTING HOSPITAL SYSTEM.
  - 3.4 THE EXISTING CLOCK SYSTEM IN UNIT KE WILL BE EXTENDED AS REQUIRED.

## ENERGY CONSERVATION (ELECTRICAL)

1. POWER DISTRIBUTION.
  - 1.1 USE 277/480 V SYSTEM TO MINIMIZE FEEDER SIZES AND FEEDER VOLTAGE DROPS.
  - 1.2 INSTALL POWER FACTOR CORRECTION CAPACITORS AT THE SERVICE ENTRANCE TO MAINTAIN A SYSTEM POWER FACTOR .95 LAG.
  - 1.3 INSTALL POWER FACTOR CORRECTION CAPACITORS ON MOTORS 20 HP AND LARGER TO MAINTAIN A TERMINAL POWER FACTOR OF .95 LAG.
2. LIGHTING.
  - 2.1 USE FLUORESCENT LIGHTING WHEREVER POSSIBLE. INCANDESCENT LIGHTING WILL BE LIMITED TO SMALL AREAS THAT HAVE INFREQUENT USE. MAXIMUM LIGHTING WILL BE PER IES RECOMMENDATIONS.
  - 2.2 USE COOL WHITE (CW) FLUORESCENT LAMPS AS PRACTICAL THROUGHOUT THE FACILITY. COOL WHITE LAMPS PROVIDE THE HIGHEST LUMEN OUTPUT (3150) FOR THE LEAST COST. (COOL WHITE DELUXE (CWX) WILL BE USED IN AREAS WHERE OBSERVATION OF THE PATIENT IS CRITICAL EVEN THOUGH THE EFFICIENCY IS POORER.)
  - 2.3 AN ATTEMPT TO PROVIDE HIGH REFLECTANCE SURFACES IN ROOMS SHOULD BE MADE.
  - 2.4 TASK ILLUMINATION WILL BE PROVIDED WHERE THE TASK CAN BE ACCURATELY DEFINED.
  - 2.5 USE HIGH EFFICIENCY BALLASTS AND LENSES.
3. OPERATION AND MAINTENANCE.
  - 3.1 TIME CLOCK OPERATION OF AIR SYSTEMS WILL BE PROVIDED TO PERMIT SHUTDOWN DURING UNOCCUPIED HOURS.
  - 3.2 ALL AREAS WILL HAVE LOCAL SWITCHING THAT WILL ALLOW MULTIPLE LEVELS OF ILLUMINATION WHERE APPLICABLE.

PCI

**PROJECT  
CODE  
INVESTIGATION**

**For:**

**University  
of  
Minnesota  
Hospitals  
Minneapolis, Minnesota**

**Project:**

**K/E/H (Schematic Phase)  
Hospital  
Expansion  
Commission No. 5515-781**

**Preliminary  
February 16, 1979**

**By**

**Donal P. Nelson  
Code Consultant**

Architects Engineers Planners  
One Appletree Square  
Bloomington MN 55420  
612 853 2000 Telex 290 814

 **Ellerbe.**

# PCI – PROJECT CODE INVESTIGATION

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- B. Objective
- C. Preliminary Project Code Investigation (PCI)
- D. Roster of U of M Departments and Staff involved with Code Criteria
- E. Code Criteria memos
- F. References

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## PCI - PROJECT CODE INVESTIGATION

### A. Introduction

This Preliminary Project Code Investigation was developed subsequent to a number of meetings with University of Minnesota Code Oriented Departments.

See Section D.

### B. Objective

The objective is to arrive at a consensus with the U of M staff as to which U of M department will have jurisdiction as to coordination with Code Agencies outside the campus area agreeable to the University of Minnesota Manual of Construction, Section 11D.4 (page 1 of 1) Responsibility for Conformance:

"Consultants are expected to ascertain and comply with applicable codes and regulations in the design of University facilities. If programmed requirements or other University standards are at variance with codes or regulations, Consultant shall notify the University Planning Office who will resolve conflicting requirements with the agency involved."

### C. Project Code Investigation (PCI) Description

1. The main object of the PCI is to arrive at a consensus of actual code criteria applicable to the project, if during review of this PCI there is a difference of opinion, it should become readily identifiable and can be resolved.
2. Some agencies or publications may or may not be applicable to this project and U of M jurisdiction will attempt to be identified.
3. Many of the codes that apply will be administered and interpreted by the U of M agency noted as having jurisdiction.



PCI - PROJECT CODE INVESTIGATION

D.

ROSTER OF U OF M DEPARTMENTS  
AND  
STAFF INVOLVED WITH CODE CRITERIA

Roster of U of M staff members referred to in memos:

<u>University of Minnesota Staff</u>	<u>Key to Dept. having Jurisdiction</u>
A. Physical Planning and Development Department	U of M - PPD
1. Mr. Clinton Hewitt Assistant Vice President	U of M - PPD
2. Mr. A. Eilers Project Coordinator of K/E/H Project	U of M - PPD
3. Mr. Eugene Kogl Building Code Official	U of M - PPD
4. Mr. Ron Holden Building Inspector	U of M - PPD
5. Mr. Les Szomor Physically Handicapped Code Specialist	U of M - PPD
B. Health Sciences Planning Office	U of M - HSPD
1. Mr. Paul J. Maupin	
C. Engineering and Construction	U of M - ECD
1. Mr. Paul Kopietz Director	
D. Environmental Health and Safety Dept.	U of M - EHSD
1. Mr. Donald F. Herron Safety Officer Life Safety Code - 1976	U of M - EHSD

PCI (Con't)

Roster of U of M Departments  
and Staff Involved with Code Criteria  
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	<u>Key to Department having Jurisdiction</u>
E. University Hospitals Administration Department	U of M - HAD
1. Mr. Thomas Jones Associate Director	U of M - HAD
2. Mr. Leland Larson Project Coordinator	U of M - HAD

E.

CODE CRITERIA MEMOS

Ellerbe memos regarding code criteria for the project:

1. Ellerbe memo dated January 11, 1979  
To: Ron Cannamore, Project Architect  
From: Donal P. Nelson, Code Coordinator  
Memo used as an agenda for meeting with Mr. G. Kogl's department on January 16, 1979.
2. Ellerbe memo dated January 18, 1979  
To: Ron Cannamore, Project Architect  
From: Donal P. Nelson, Code Coordinator  
Memo used as an agenda for meeting with Mr. D. Herron's department of January 31, 1979.
3. Ellerbe memo dated February 6, 1979  
To: Ron Cannamore, Project Architect  
From: Donal P. Nelson, Code Coordinator  
Memo used as an agenda for meeting with the Minneapolis Fire Department on February 9, 1979.
4. Ellerbe memo dated February 13, 1976  
To: Ron Cannamore, Project Architect  
From: Donal P. Nelson, Code Coordinator  
Memo used as an agenda for meeting with the Minneapolis Fire Department on February 15, 1979.

INTER-OFFICE MEMORANDUM

TO: Ron Cannamore DATE: February 14, 1979  
FROM: Donal P. Nelson, Code Coordinator RE: Code Review of U of M Hospitals  
KE/H Expansion  
COMMISSION NO.: 5515-781

Meeting held on February 9, 1979.

Present: Don Herron, U of M  
Ron Holden, U of M  
Lee Larson, U of M  
A. Eilers, U of M  
Paul J. Maupin, U of M, H.S.P.O.  
Howard Prentice, Chief, Minneapolis Fire Department  
George Rykyto, Inspector, Minneapolis Fire Department  
Donal P. Nelson, Ellerbe

The following are items reviewed regarding the KE/H Expansion project.

1. Donal P. Nelson reviewed schematic design plans dated February 7, 1979, showing the relationship of the 40' addition to the north of Mayo Hospital, and the expansion of the unit between Mayo and BC Unit going from 40' north down to the south end to the break in Todd Hospital, which creates a 29' distance between this addition and Diehl Hall.
2. It was shown how the steps and ramps going up to this plaza area and the access as far as fire vehicles backing in adjacent to the BC unit will be shortened by about 24'.
3. The plans shown the 105' x 135' circle driveway turnaround at the main entrance to Mayo Building being the same dimensions as the existing turnaround only turned 90 degrees.
4. It was noted that the exiting from BC Building and the Mayo Building into the plaza would remain the same as it is now.
5. The configuration of the plan did note a 20' separation between the Todd Hospital and the penthouse at the upper penthouse level.
6. It was pointed out that there was a 10'+ x 24'+ recess in the building in the north center shaft, west of the center shaft at unit BC.
7. We noted that the addition between Todd Hospital, Diehl Hall, and BC Building extends approximately 80' to the south of the existing steps along the existing fire lane access and will shorten that access from the existing turnaround in front of Powell Hall.

8. It was noted by the firemen that the 29' between Diehl Hall and the surgical addition might be wide enough to gain access into and up closer to the center of the plaza.
9. In regard to the cross-section north and south of Unit H looking east, we reviewed the 10' clearance below the structural members to the plaza level and noted that, beyond the stairways leading up to the plaza, it would increase from 10' to 13'+. This would be true coming both from the south and underneath the surgical addition on the west.
10. It was noted that the total overall height of the structure on the north would be approximately 40', with a 10' clearance below, which would give a dimension of 30' above the opening below. This additional height was due to the mechanical equipment that would have to be placed on the roof.
11. The mechanical equipment space on the roof would extend from the north end down to the south side of the existing pylon shaft north of Diehl Hall.
12. We reviewed the fourth floor plan and noted the OR's and spaces. A question was directed to Mr. Ron Holden regarding the Uniform Building Code (UBC) options given in the State Building Code (SBC) for I-1 Occupancies, stating that, in OR's and other electrically sensitive areas, a detector can be provided in lieu of a sprinkler. This option also relates to patient rooms 600 sq. ft. or less. In regard to this same subject, Mr. Don Herron was asked to make a decision whether or not, in light of the Life Safety Code, we could use that same option. They informed me that they would investigate and report back to us.
13. It was noted that the corridors would have sprinkling and detection systems, as called for in the Life Safety Code and the Uniform Building Code.
14. We deferred any discussion of the 10'-8"+ distance between Powell Hall and KE Building Expansion, until we looked at the condition of the site. The windows on the east side of KE Building will be flush with the existing pylons. Subsequent to field conditions, the various options that were broached included the following:
  - A. Fire shutters at the patient windows, which would be a great expense at this time and not needed when Powell Hall is taken down.
  - B. Install the windows agreeable to the present plans and protect the windows with fire-protective material on the outside of the windows until Powell Hall is demolished.

- C. The Fire Chief suggested the possibility of lowering the snorkel between the two buildings to fight any fire in Powell Hall, which appeared to be the problem. He also suggested that Powell Hall was endangering the KE Building.
  - D. The consensus was to fasten the dry sprinkling line, which would go vertically and horizontally between KE Building and Powell Hall, onto Powell Hall. This would be a dry line coming down to a siamese connection to the south, off of the River Road, for access. This water curtain solution appeared to be acceptable with all parties.
  - E. It was determined that this line should go in prior to the construction of the KE Building, because fire hazards during construction are usually higher than after a building is occupied. The line would be outside of the present K/E/H project at this time.
  - F. It was determined that some type of fire detection should be provided in Powell Hall. It was not determined what type. This fire protection would also be outside the present K/E/H project.
  - G. It was noted that, as far as the KE Building and Powell Hall relationship is concerned, a report would be made from the Fire Chief to Mr. Don Herron, and that this report would be passed along to Ellerbe.
15. We reviewed the conditions at the site that we had previously reviewed in Mr. Herron's office, to cover a physical review of the clearances in regard to the plaza and the access to the site by vehicles. The chief concurred that, if we had the same turning radii that exists at the entrance of the Mayo Building, it would be adequate as it is adequate now.
16. In regard to the access through the H Building from the turnaround at the entrance of Powell Hall, it was noted that this would be a back-in type of operation in either case, so the shortening of that distance didn't seem to be any problem. It was concurred that most of the firefighting would be from the inside out in most of the buildings at best.
17. It was noted that the Chief would also make a report regarding the overhangs in the Mayo Hospital expansion to the north, and Todd Hospital in the expansion of H Building to the east, and the Penthouse above.
18. The bridge was discussed. Relocation was not part of any problem.
19. The shortening of the distance at BC Building coming from the north for fire vehicles backing in did not appear to be a problem.
20. The conclusion was that the upgrading and updating of the plan, in regard to the Fire Department, was well received by them. The Fire Department will be kept abreast of the changes being made on the campus, and reports of decisions will be given to Ellerbe as they

Code Review of U of M Hospitals  
February 14, 1979  
Page Four

receive them from the Fire Department. We were directed to proceed with our plans as we have them without delaying the project.

DPN/bdl

P.S.: There appears to be a narrow margin of distances for the 150' to an exit on the surgical level of H Building. We will determine with Mr. Kogal's office and Mr. Herron's office whether or not sprinkling and detection are necessary on the total floor, if a waiver to this particular section of the code could be obtained, or if the passage could be extended down to meet the 150' requirement. A meeting will be held on February 15, 1979, in Morrell Hall.

INTER-OFFICE MEMORANDUM

TO: Ron Cannamore DATE: February 6, 1979  
FROM: Donal P. Nelson RE: Code Review of U of M Hospitals  
Code Coordinator K/E/H Expansion  
COMMISSION NO.: 5512-781

Meeting held on January 31, 1979.

Present: Don Herron, U of M; Ron Szomor, U of M; Ron Holden, U of M; L. Larson, U of M; A. Eilers, U of M; Ron Cannamore, Ellerbe; C. Jones, Ellerbe; G. Partyka, Ellerbe; Donal P. Nelson, Ellerbe.

The following are items reviewed regarding the K/E/H expansion project:

We used Ellerbe memo of January 18, 1979 re meeting with Mr. Kogl's staff held on January 16, 1979 as an agenda. Memos of this meeting were distributed to all parties, the following are items recorded at the meeting:

1. Ron Cannamore reviewed the preliminary plans and the project.
2. Mr. D. Herron's department will make decisions in regard to the following state agencies:
  - A. Minnesota State Department of Public Safety.
    1. This agency includes the Minnesota State Fire Marshal's Department criteria.
    2. Uniform Fire Code, 1973 edition.
    3. NFPA 101 - Life Safety Code, 1973 edition.
    4. We were directed to use the 1976 edition.
    5. We were informed that smoke towers would not be required, which agrees with Mr. Kogl's department and TAC report.
    6. Areas to be sprinklered were discussed. Essentially, Herron's interpretation is that the U of M complies with UBC and Life Safety Code and requirements will be met. Pat. Room Detectors can be used in lieu of sprinkler heads.



Memo to Ron Cannamore  
February 6, 1979  
Page Two

7. An exit in the NE corner of ICU to the corridor was preferred by Mr. Herron.
8. The 5,000 sq ft limitation for ICU Suite as noted in NFPA 101 was not resolved.
9. The separation problem at Powell Hall was noted and referred to in the TAC Code Analysis, so we are not changing from the schematics shown in that report.

B. Minnesota State Health Department

1. This agency refers to the DHEW publication #79-14500 "Minimum Requirements of Construction and Equipment for Hospital and Medical Facilities".
2. Ellerbe recommends this publication, as did TAC.
3. Mr. Eilers to confirm for Ellerbe which gasses will be used/required in the project.
4. Exhausts for Surgery will be 5th Floor Mechanical Room toward the north. Will be directed as far from existing intake as possible.
5. Isolation will be designed for zero differential from adjacent to isolated space. Mr. Keith Carlson prefers negative pressure.

C. Minnesota State Pollution Control Agency

D. Minnesota Department of Labor

1. Minnesota Occupational Safety and Health Agency (MOSHA)
2. The U of M will inform us of any special precautions necessary during construction.
3. We will be informed as to which existing research laboratory exhausts cannot be shut down during construction.

E. Joint Commission on Accreditation of Hospitals

1. The U of M will take care of any existing deficiencies regarding this body.
2. Mr. Herron concurred with Mr. Kogl's department that doors with signage "not an exit" to the new elevators would resolve the dead end condition.

Memo to Ron Cannamore  
February 6, 1979  
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F. The U.S. Department of Health, Education and Welfare

1. This agency administers public law 90-480 regarding discrimination against the handicapped, which refers to American National Standard All7.1-1961 (R 1979).

G. Minneapolis Fire Department

1. We were informed that coordination with this agency will be administered jointly with Mr. Kogl's department.
2. Mr. Herron and Mr. Holden were to arrange a meeting with the Minneapolis Fire Department to review how this particular project affects the existing access to the existing structures involved.
3. Smoke towers as noted in TAC report will be held to future vertical expansion and not addressed in this project.

DPN/bdl



F. Environmental Impact Study

1. Mr. Kogl will inform us if required.
4. Mr. Kogl informed us that plan review for the following codes and agencies would be made by Mr. Don Herron's department and would make decisions on any variances from the codes or regulations:
  - A. Minnesota State Fire Marshal's regulations
    1. Uniform Fire Code (UFC)
  - B. Minnesota State Health Department
    1. We stated that we are designing according to the latest "Minimum Requirements of Construction and Equipment for Hospital and Medical Facilities" D HEW Publ. No. (HRA) 79-14500. We recommend adherence to this publication on all hospital projects.
  - C. Minnesota Pollution Control Agency
  - D. Minnesota Occupational Safety and Health (MOSHA)
  - E. Joint Commission on Accreditation of Hospitals
  - F. Federal Handicapped Law #504
5. Mr. Kogl, in a review of the plans presented at the meeting, noted that we would not have to have vestibules at the stairways, as is usually considered in smoke towers; however, a mechanical pressurized system would be required at the stairways. (This is a variance to smoke tower stairways.)
6. We were informed that adherence to the Minnesota State Energy Code should be followed as closely as possible.
7. We questioned the elevator tower to the west and a possible dead end corridor problem. Mr. Kogl noted that, if we show a pair of doors separating this Elevator Lobby from the corridor and provide signage on the doors reading "not an exit", that we would not have to provide an additional stairway.

Memo to Ron Cannamore  
January 18, 1979  
Page Three

8. In regard to the waiting area forming and a possible dead end condition, Mr. Kogl informed us that we could keep the plan the way it was shown without providing an emergency exit through the isolation corridor, which should be kept clean.
9. We inquired in regard to the compliance with the Federal Code 504 in regard to the discrimination against the handicapped as far as staff is concerned, and were informed that Mr. Lee Larson is on that committee and that reasonable interpretation would be made by the University and informed the plans to date are in compliance.
10. We discussed the existing separation of KE and Powell Hall which, according to the State Building Code, would require extremely complicated fire shutters. Fire shutters on the windows on the new addition would be a real problem as far as the patient rooms are concerned. Mr. Kogl said they would investigate the problem and report back to us as far as the tenure or life for Powell Hall; this condition must have been investigated previously as it is an existing condition.
11. We were informed by Mr. Kogl that a 2-hour horizontal separation by floor between the B-2 "office" occupancy below and the I-1 "hospital" occupancy above would be approved by their department as adequate separation of occupancies.
12. We were informed that any radioactive wastes and exhausts regarding the pollution control agencies would be investigated by Mr. Don Harron's department.
13. We were informed by Mr. Kogl that the location of existing smoke barriers would be conveyed to us and that they are in the process of upgrading them at this time; he was concerned that any fire or smoke dampers we show should be located in the immediate walls as per code.
14. A set of our preliminaries will be given to Mr. Kogl for review regarding the agencies their department representatives

INTER-OFFICE MEMORANDUM

TO: Ron Cannamore DATE: January 11, 1979  
FROM: Donal P. Nelson, Code RE: Code Review of U of M Hospitals  
Coordinator Project  
Distribution: Brovold, Ramseth, K/E/H Expansion  
C. Jones, Partyka, Strandlund  
COMMISSION NO.: 5515-781Q

Meeting held on December 27, 1978

Present: Lee Larson, U of M  
Ron Cannamore, Ellerbe  
Duane Ramseth, Ellerbe  
Donal P. Nelson, Ellerbe

The following is a list of the items covered during our meeting.

Recommendations:

1. Have the University Hospitals and Physical Plant, Offices, etc., issue Ellerbe any reports regarding the structures involved in the project from the following:
  - A. Copies of Life Safety Investigations which will point out past and existing deficiencies, and those being resolved.
  - B. Copies of the U of M Hospitals Evacuation plans as required by JCAH and usually required by local fire department.
  - C. Any Fire Department vehicle access procedures and plans to the structures involved, such as:
    1. Health Sciences Building
    2. Mayo Building
    3. Etc.
  - D. Present and Future Automatic Fire Protection plans contemplated for the existing structures involved in the project.
  - E. Contemplated Life Span of Existing Structures
    1. This is critical with regard to existing building separations.

Memo to Ron Cannamore  
January 11, 1979  
Page Three

1. We should be informed of where in existing structures fire and smoke separations exist and, if future remedial work is involved to to upgrade them by fire or smoke dampers, it will have to be field conditions, which cannot be determined at this time.
4. It was agreed that upgrading of the existing stair adjacent to the Anesthesia Work Room on the Fourth Floor is not contemplated if we have required means of egress elsewhere and leave it as an inter-departmental stair, if the authorities agree. The possibility of providing an opening to the West stair in the Health Sciences Building will be made.
5. Mr. Larson stated he will inform us of any exhausting of air pollutants or contaminants which will require special treatment, i.e., afterburners, etc. Mr. Larson stated there will be some radioactive exhaust.
6. Variances to Minnesota State Department of Health criteria and other code agencies will have to be negotiated by the U of M before approval of schematics by the U of M Hospitals are submitted:
  - a. Omission of toilet bathing facilities for each isolation room.
  - b. Identification of toilet facilities for Surgical ICU.
  - c. Over 5,000 sq. ft. for the Surgical ICU area.
  - d. Omission of patient windows in inside rooms of Surgical ICU.
  - e. Location of handicapped toilets and non-handicapped toilets.
7. Existing stair north of PAR shows stair and elevator with a common vestibule; this should be separated because of the possibility of smoke entering the stair from the sides of the elevator doors.

I would appreciate your review of the memorandum and any additional notes you may wish to add to this memorandum for correction.

DPN/jls

PCI (con't)

PRELIMINARY PCI

YES N/A

- 1.0 Applicable Governing Standards - U of M - EHSD  
 Except 1.0.1.11 is PPD
- 1.0.1 Federal Laws - U of M - EHSD
  - 1.0.1.1 U.S Public Law No. 89-97  
 MEDICARE  
 Referenced agencies - See:
    - 1.1.1 HEW - U.S. Department of Health, Education & Welfare
    - 1.1.1.1 SSA - Social Security Administration
    - 1.4.1 JCAH - Joint Commission on Accreditation of Hospitals
  - 1.0.1.2 U.S. Public Law No. 92-603  
 (PSRO) Professional Standards Review Organization  
 Referenced Agencies:
    - 1.1.1 HEW - U.S. Department of Health, Education & Welfare
    - 1.1.1.1 SSA - Social Security Administration
    - 1.4.1 JCAH - Joint Commission on Accreditation of Hospitals
  - 1.0.1.3 U.S. Public Law No. 91-596  
 (OSHA) Occupational Safety and Health Act of 1970  
 Referenced Agencies:
    - 1.1.2 U.S. Department of Labor
    - 1.1.2.1 OSHA
  - 1.0.1.4 U.S. Public Law No. 91-190  
 (NEPA) National Environmental Policy Act  
 1.1.1 HEW - U. S. Department of Health, Education & Welfare
  - 1.0.1.5 U.S. Public Law No. 93-641  
 (NHO) National Health Planning and Resources Development  
 Act of 1974
    - 1.1.1 HEW - U.S. Department of Health, Education & Welfare  
 (HSA)- Health Services Agency
  - 1.0.1.6 U.S. Public Law No. 94-163  
 National Energy Conservation Policy.  
 Refers to (ASHEAE 90-75) in most cases.
  - 1.0.1.7 U.S. Public Law No. 90-480  
 Provisions for the Handicapped on all Federally Funded Projects  
 ANSI Publication No. A-117.1
    - 1.1.1 HEW - U.S. Department of Health, Education & Welfare  
 (OCR) Office of Civic Rights
  - 1.0.1.8 U.S. Public Law No. 88-443 & Act . No. 299  
 Certificate of Need.
    - 1.1.1 HEW - U.S. Department of Health, Education & Welfare
  - 1.0.1.9 U.S. Public Law No. 91-646  
 Relocation Assistance
    - 1.1.1 HEW - U.S. Department of Health, Education & Welfare



1.1 Federal Governing Standards

1.1.1 U.S. Department of Health, Education and Welfare (HEW)

U of M - EHSD

1.1.1.1 Social Security Administration

EHSD

1.1.1.1.1 Medicare and Medicaid

X \_\_\_\_\_

1.1.1.1.2 Hospital Survey Report

SSA - 1537 (11-74); OMB No. 72-RO 723

National Fire Protection Association

(NPPA) Publications Referenced

NFPA 101 - Life Safety Code (1967 & 1973 Edition)

NFPA Publications Referred to from NFPA 101

NFPA 56A - Standard for Use of Inhalation Anesthetics (1971)

NFPA 56B - Standard for Use of Inhalation Therapy (1968)

NFPA 56F - Non Flammable Medical Gas Systems (1970)

1.1.1.1.3

Fire Safety Survey Report for Medicare and Medicaid SSA Form 2786 (11-74); OMB No. 72-RO 973

X \_\_\_\_\_

U of M - EHSD

NFPA NO.	EDITION	NFPA NO.	EDITION
----------	---------	----------	---------

10

56F

1970

10A

90A

13

101

1967 & 1973

13A

220

56A

1971

56B

1968

(See 1.5 for Index for NFPA Titles)

1.1.1.1.4

ANSI A117.1 - 1961 (R 1971)

PPD

"Specifications for Making Buildings and Facilities Accessible to and Usable by, the Physically Handicapped".

X \_\_\_\_\_

YES N/A

- 1.1.1.2 Federally Funded Hospital Projects (i.e. Hill Burton) & JCAH. X
- 1.1.1.2.1 "Minimum Requirements of Construction and Equipment for Hospital and Medical Facilities", U.S. Department of Health, Education and Welfare (HEW), Publication No. HRA 79-14500

NFPA NO.	EDITION	NFPA NO.	EDITION	NFPA NO.	EDITION
101	1967 - 1973	56F		90A	
10		58		90B	
11		61B		91	
11A		70		96	
12		70A		101	
12A		71		102	
12B		72A		211	
14		72B		220	
15		72C		241	
16		72D		251	
17		73		252	
20		74		255	
30		76		409	
31		80		501A	
321		82		501B	
40		85		701	
54		87		703	
56A		88A			
56C		88B			

The following publications are also referred to:

- 1.1.1.2.2 "American Standard Specifications for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped" ANSI No. A117.1 - 1961 (R 1971)
- 1.1.1.2.3 "Method of Test for Surface Burning Characteristics of Buildings Materials" ASTM-E84
- 1.1.1.2.4 "Recommended Practice for Laboratory Measurement of Airborne Sound Transmission Loss of Building Floors and Walls"
- 1.1.1.2.5 "Handbook of Fundamentals" American Society of Heating, Refrigeration and Air Conditioning Engineers. ASHRAE
- 1.1.1.2.6 "Methods of Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter" ASHRAE 52-68
- 1.1.1.2.7 "Standard for Medical - Surgical Vacuum Systems in Hospitals: CGA (Compressed Gas Association)" CGA-P2.1
- 1.1.1.2.8 "Filter Units, Protective Clothing, Gas-Mask Components and Related Products." Performance Test Methods, DOP Penetration Test Method MIL STD NO. 282

PCI (con't)

PUBLICATION NO.

1.1.1.2.9	"Uniform Building Code" Vol. 1 International Conference of Building Officials	UBC
1.1.1.2.10	"National Standard Plumbing Code", National Association of Plumbing-Heating-Cooling Contractors	PHCC
1.1.1.2.11	"Test method for Measuring the Smoke Generation Characteristics of Solid Materials" National Bureau of Standards (NBS) Technical Note 708-Appendix 11.	NBS-708
1.1.1.2.12	"Medical X-Ray and Gamma Ray Protection for Energies up to Mev Structural Shielding Design and Evaluation"	NCRP No. 34
1.1.1.2.14	"Standard for the Use of Inhalation Anesthetics" (Flammable and NonFlammable) NFPA 56A	
1.1.1.2.15	"Standard for Nonflammable Medical Gas Systems"	NFPA 56F
1.1.1.2.16	"National Ellectrical Code"	NFPA 70
1.1.1.2.17	"Standard for Fire Doors and Windows"	NFPA 80
1.1.1.2.18	"Standard for Incinerators"	NFPA 82
1.1.1.2.19	"Installation of Air Conditioning and Ventilation Systems" 1973 Edition	NFPA 90A
1.1.1.2.20	"Life Safety Code"	NFPA 101
1.1.1.2.21	"Flame Resistant Textiles and Films"	NFPA 701
1.1.1.2.22	"Food Service Sanitation Manual"	PHS No. 934
1.1.1.2.23	"Air Ducts"	U.L. No. 181
1.1.1.2.24	"Standpipe and Hose Systems"	
1.1.1.2.25	"Hospital Laboratories"	
1.1.1.3	<b>Selected PHS Publications:</b> (not used unless directed by client)	<b>PHS No.'s</b>
1.1.1.3.1	A study of Hospital Central Medical and Surgical Supply Services	PHS-930-C-10
1.1.1.3.2	Hospital Dietary Services: A Planning Guide HEW	HSM 72-4001
1.1.1.3.3	Electronics for Hospital Patient Care.	PHS-930-D-25
1.1.1.3.4	The Hospital Electroencephalographic Suite	PHS-930-D-13
1.1.1.3.5	Design Features Affecting Asepsis in the Hospital	PHS-920-D-9
1.1.1.3.6	The Hospital Laundry	PHS-930-D-24
1.1.1.3.7	Planning Nurseries for Newborn in the General Hospital	PHS-930-D-5
	Hospital Outpatient and Emergency Activities: Functional Programming Guideline Guidelines	PHS-930-H-1

PCI (con't)

		PHS No.'s
1.1.1.3.8	Planning for Hospital Pharmacies	(HRA 74-4003)
1.1.1.3.9	Administrative Services and Facilities for Hospitals: A Planning Guide	(HSM 72-7035)
1.1.1.3.10	Radioisotope Facilities in the General Hospital	PHS 930-D-22
1.1.1.3.11	Food Service Sanitation Manual	PHS 934

1.1.2 U.S. Department of Labor. -U of M - EHSD

YES N/A

1.1.2.1 Occupational Safety and Health Administration (OSHA).

X ---

1.1.2.1.1 "Federal Register" June 24, 1974, Vol. 39, and No. 125 NFPA Publications Index (see attached Index (1.5) for identification titles).

NFPA NO.	EDITION	SUBPART	NFPA NO.	EDITION	SUBPART
10	1970	H,L,N	70	1968	F,G,H,J,N,S
10A	1970	L	72A	1967	L
11	1970	H	78	1968	H
12	1968	H,L	80	1970	H,Q,S
13	1969	H,L,N	86A	1969	H
14	1970	H,L,N	91	1961	G,H,R
15	1969	H	96	1970	H
17	1969	H,L	101	1970	E,R
20	1970	L	194	1968	L
22	1970	L	198	1969	L
24	1970	L,N	203M	1970	L
30	1969	H,N	220	1961	H
31		R	231	1970	L,N
33	1969	G	251	1969	H,S
34	1966	G,H	302	1968	R
37	1970	H	385	1966	H
50A	1969	H	490	1970	H
50B	1968	H	492	1968	H
51	1969	H,Q	495	1970	H
51B	1962	Q	496	1967	H
54	1969	H,R	505	1969	H,N
54A	1969	H	566	1965	H,Q
58	1969	H,M,N	644	1962	R
62	1967	R	655	1968	R
68	1954	G	656	1959	R

PCI (con't)

PRELIMINARY PCI

1.1.3 U.S. Department of Defense. U of M - EHSD

YES    N/A

1.1.3.1 Defense Civil Preparedness  
Advisory Committee  
Fallout Shelters  
Box 47  
Olney, Maryland 20832

— — —  
— N/A  
EHSD

Defense Civil Preparedness Agency  
Region Four  
Federal Center  
Battle Creek, MI 49016  
Mr. Rodney P. Schwartz - Chief  
Engineering Services Division

1.2 State of Minnesota:

YES NO

1.2.1 Agency: State Planning Agency  
Health Planning Division  
802 Capitol Square Building  
St. Paul, MN 55101

Approval: Mr. John R. Dilley  
296-2407

Re: Certificate of Need  
Documents Section  
Reg SPA 205 - 1971 Edition

U of M  
PPD     

Review Date:

Responsibility: Owners U of M - EHSD

1.2.2 Agency: Department of Health U of M - EHSD  
Hospital Services Division  
Licensing and Certification  
717 Delaware Street SE  
Minneapolis, MN 55440

U of M  
EHSD     

Approval: Mr. Hans P. Larsen, Chief  
Division of Health Facilities  
Section of Engineering and Technical Services  
296-5405

Re: Minnesota State Regulations: Rules & Regulations of the Minnesota State Board  
of Health, for the Construction, Equipment, Maintenance, Operation and Licensing  
of Hospitals (statutes included) Documents Section: Reg MMD 76 - 1974 Edition

Code: Minnesota State Building Code (SBC) with Amendments - PPD X     

Standards: National Fire Prevention Association (NFPA) - EHSD X     

Standards: For Medicare & Medicaid X     

1.2.3 Agency: Department of Administration - U of M - PPD  
Building Code Division  
Suite 408  
Metro Square Building  
7th and Roberts Streets  
St. Paul, MN 55101  
296 - 4682

U of M  
PPD     

Mr.  
State Building Inspector

Mr.  
Building Code Inspector

Responsibility: Owner - U of M - PPD  
(Using the Following Procedure)

- |           |   |            |            |
|-----------|---|------------|------------|
| A.        | Design Development Phase  | ___        | <u>N/A</u> |
| B.        | Revised Design Development Phase  | ___        | <u>N/A</u> |
| C.        | Final Approval of Construction Document Phase will be Reviewed and Approved with the State of Minnesota Building Code Division.   | ___        | <u>N/A</u> |
|           | Minnesota State Building Code (SBC)   | <u>PPD</u> | ___        |
|           |   | <u>X</u>   | ___        |
| 1.        | State Building Code Regulations Known and Identified by Prefix "SBC" 1976 & 1976 Editions.  | <u>X</u>   | ___        |
|           |   | <u>PPD</u> | ___        |
| 2.        | SBC Adopting by Reference to the following Codes:   |            |            |
|           | A. 1976 & 1973 Editions of the Uniform Building Code Identified as UBC  |            |            |
|           | B. 1973 & 1978 National Electrical Code, Identified as "NEC".   |            |            |
|           | C. 1971 American National Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks, Identified as "ANSI A17.1 - 1971" Plus Supplements A and B and Exceptions in the Minnesota Occupational Safety and Health Rules 1974 Edition. |            |            |
|           | D. 1973 Minnesota Plumbing Code, Identified as Reg MHD 120 through MHD 135.   |            |            |
|           | E. 1971 State Fire Marshal (SFM) Rules Governing Buildings. Identified as SFM 568.  |            |            |
| 3.        | SBC Minnesota Heating, Ventilating, Air Conditioning and Refrigeration Code Identified as SBC 7601 through SBC 8599.  |            |            |
| 4.        | "Certain Appendices Which Contain the Listings of Various National Standards Referred to in the Body." Terminal Requirements for Fallout Shelters.  |            |            |
| 1.2.3.2   | State Architects Division   | ___        | <u>N/A</u> |
| 1.2.3.2.1 | Building Code Division Approval-Sec 1.2.3.1   | ___        | <u>N/A</u> |
| 1.2.3.2.2 | Dept. of Education  | ___        | <u>N/A</u> |

1.2.4 Department of Public Safety  
State Fire Marshal  
95 Sherburne Ave.  
St. Paul, Minnesota 55101  
296 - 76

EHSD  
X   \_\_\_

Responsibility: Owner - U of M - EHSD

Re: Minnesota State Fire Marshal  
State Fire Marshal (SFM)  
Rules Governing Buildings

Note:

— State Fire Marshals Office makes review together with "SBC" code.



- A. Code SBC (SFM) 500  
"Rules & Regulations of the State Fire Marshal Governing Public Buildings  
EHS X PPD
- B. Rules & Regulations Relating to the State Fire Marshal Flammable Liquids  
Code 1967 Edition  
EHS X PPD
- C. Uniform Fire Code - 1973 Edition  
EHS X PPD
- D. NFPA 101 - Life Safety Code  
EHS X PPD

1.2.5 Department of Labor & Industry  
444 Lafayette Road  
St. Paul, Minnesota

Minnesota State Industrial Commission  
Occupation Safety  
296-2116

Re: Minnesota Regulations Relating to the installation of High Pressure Steam Piping  
& Appurtenances. 1967 Edition  
EHS X PPD       

Code: Minnesota Occupation Safety and Health Code (MOSMC) 1961  
Performance Requirements  
EHS X PPD       

Standards: OSHA (Federal Register)  
EHS X PPD       

\*Review Mechanical Only

See Sec. 1.1.2

1.2.6 Department of Education  
U of M - HAD

       N/A

	<u>YES</u>	<u>N/A</u>
1.3 Municipal - Minneapolis, Minnesota		
Responsibility: Owners		
1.3.1 Metropolitan Planning Commission	—	<u>N/A</u>
Responsibility: Owners - U of M - PPD		
1.3.2 Housing & Redevelopment Authority (HRA)	—	<u>N/A</u>
Responsibility: Owners		
1.3.3 Municipal Zoning - U of M - PPD and EHSD	—	<u>N/A</u>
Standards: State Building Code (SBC) See Section 1.2.3		
1.3.3.1 Inspectional Services Dept. - U of M - PPD	—	<u>N/A</u>
Re: Building Inspection		
1.3.3.2 Director of Inspectional Services		
1.3.3.3 Re: City Health Dept.	—	<u>N/A</u>
Responsibility: Owners		
1.3.3.4 City Director of Planning		
1.3.3.5 Planning & Redevelopment		
Responsibility: Owners		
1.3.3.6 Fire Dept.-See 1.2.4 - U of M - PPD and EHSD	PPD <u>X</u>	—
Director of Fire Prevention		
Chief - Mr. Howard Prentice		
Re: Fire Prevention		
Standards: U F C - UNIFORM FIRE CODE	EHSD <u>X</u>	—
State Building Code	PPD <u>X</u>	—
NFPA Standards	EHSD & PPD <u>X</u>	—

PCI (con't)

YES N/A

1.3.5. ROSTER OF CITY OFFICERS

Mayor Office	---	---
1st Ward Commissioner	---	---
2nd Ward Commissioner		
3rd Ward Commissioner		
4th Ward Commissioner		
5th Ward Commissioner		
6th Ward Commissioner		
7th Ward Commissioner		
8th Ward Commissioner		

TERMS OF THE ABOVE EXPIRE

Accountant	---	---
Assessor		
Attorney		
Cemetery Supt.		
Chief Bldg. Inspector	---	<u>N/A</u>
City Clerk		
Electrical Inspector	---	<u>N/A</u>
Office of Emerg. Measures		
Engineer		
Fire Chief - Mr. Howard Prentice	EHSD & PPD	<u>X</u> ---
City Forester		
Heating Inspector	---	<u>N/A</u>
Acct. Library Dir. (Asst)		
City Manager		
District Judge		
District Judge		
Parking Supt.	---	<u>N/A</u>

Parks Director		
Physician		
Police Chief		
Public Housing Director		
Purchasing (Adm Asst)		
Personnel Director		
Public Works Supt.	ECD	<u>X</u> ---
Recreation & Park Supt.	ECD	<u>X</u> ---
Sewage Plant Supt.		
Treasurer		
Water Dept. Supt. - SAC Charges - ECD	ECD	<u>X</u> ---
Fire Inspector	EHSD	<u>X</u> ---

Consumers Power Co. - Electrical      ---      N/A

Consumers Power Co. - Gas      ---      N/A

YES    N/A

1.4 Independent Agencies

1.4.1 Joint Commission on Accreditation of Hospitals (JCAH). PPD, EHSD    <sup>HAD</sup>  
X        

1.4.1.1 All Hospital Projects must meet criteria listed in the JCAH "Statement of Construction and Fire Protection".

1.4.1.2 JCAH Manual and All Applicable Publications.    <sup>HAD</sup>  
X        

"Accreditation Manual of Hospitals" updated 1979 by the Joint Commission on Accreditation of Hospitals (JCAH) the following publications are referred to:

NFPA Publications:

- 3M    "Hospital Emergency Preparedness".
- 10    "Maintenance and Use of Portable Fire Extinguishers".
- 11    "Foam Extinguisher Systems".
- 12    "Carbon Dioxide Systems".
- 13    "Sprinkler Systems".
- 13A   "Care & Maintenance of Sprinkler Systems".
- 15    "Water Spray Extinguisher Systems".
- 17    "Dry Chemical Extinguisher Systems".
- 18    "Wetting Agents".
- 56A   "Inhalation Anesthetics".
- 56B   "Respiratory Therapy".
- 56C   "Laboratories in Health Related Institutions".
- 56F   "Nonflammable Medical Gas Systems".
- 71    "Central Station Protective Signaling Systems".
- 72D   "Proprietary Protective Signaling Systems".
- 76A   "Essential Electrical Systems for Health Care Facilities".
- 82    "Incinerators, Rubbish Handling".
- 90A   "Air Conditioning and Ventilating Systems".
- 101   "Life Safety Code" 1973 Edition".
- 220   "Standard Types of Building Construction".

PCI (con't)	PRELIMINARY PCI	
	<u>YES</u>	<u>N/A</u>
1.4 Independent Agencies (con't)		
1.4.1.3 Publications of the National Fire Protection Association (NFPA) (See 1.5)	EHSD <u>X</u>	<u>---</u>
1.4.1.4 U.L. Building's Materials List (JCHA Reference) 1969	HAD <u>X</u>	<u>---</u>
1.4.1.5 Emergency Handling of Radiation Accident Cases 1969 Edition (JCHA References)	<u>HAD</u>	<u>N/A</u>
1.4.1.6 Hospital Planning for Natural Disaster Public Health Service Publication Number (1071 -G-1) 1968	<u>HAD</u>	<u>N/A</u>
1.4.1.7 American Hospital Association Guidelines for Implementation of Certificate of Need (Document 572)	<u>HAD</u>	<u>N/A</u>
1.4.2 Owners Insurance Underwriters (Review)	<u>PPD</u>	<u>N/A</u>
1.4.2.1 -(U.L.) Underwriters Laboratories Criteria	<u>PPD</u>	<u>N/A</u>
1.4.2.2 -(FM) Factory Mutual	<u>PPD</u>	<u>N/A</u>
1.4.3 American Hospital Association		
1.4.3.1 -See 1.4.1.6	<u>HAD</u>	<u>N/A</u>
1.4.4 American Medical Association		
1.4.4.1 -See 1.4.1	<u>HAD</u>	<u>N/A</u>
1.4.5 American College of Surgeons		
1.4.5.1 -See 1.4.1	<u>HAD</u>	<u>N/A</u>
1.4.6 American College of Physicians		
1.4.6.1 -See 1.4.1	<u>HAD</u>	<u>N/A</u>
1.4.7 American College of Pathologists Their own inspections	<u>HAD</u>	<u>N/A</u>
1.4.8 American Society of Hospital Pharmacists	<u>HAD</u>	<u>N/A</u>

1.5 Index to (NFPA)  
National Fire Protection Association Publications

1.5.1 Key to Symbols

- \*\* May 1974 (Revised)
- x NFPA 101-B.1.1.1 - 1973 Codes and Standards
- + NFPA 101-B.1.1.1 - 1976 Codes and Standards
- NFPA 101-B.1.1.2 - Guides and Manuals
- NFPA 101-B.2 Informational Publications
- Ø
- \* U.F.C. (Etc.)
- O OSHA

1.5.2 NFPA Series Divisions

NFPA No.	TITLE
X ----101-1973	
+-----101-1976	
	<b>0 Series: Administration</b>
2M	Model Drafts for Enabling Legislation, 1967
• 3M	Hospital Emergency Preparedness, 1975
4	Organization for Fire Services, 1971
4A	Fire Department, Organization of a, 1969
** 6	Industrial Fire Loss Prevention, Organization of, 1974
** 7	Management Control of Fire Emergencies, 1974
** 8	Management Responsibility, Effects of Fire, 1974
9	Training Reports and Records, 1970
	<b>10 Series: Extinguishing Appliances</b>
+ X ** 10	Portable Fire Extinguishers, Installation, Maintenance and Use, 1975
- 10A	
10L	Model Enabling Act, Portable Fire Extinguishers, 1969
+ X ** 11	Foam Extinguishing Systems, 1976
+ X 11A	High Expansion Foam Systems, 1976
** 11B	Synthetic Foam and Combined Agent Systems, 1974
+ X 12	Carbon Dioxide Extinguishing Systems, 1973
+ X 12A	Halon 1301 High Expansion Foam Systems, 1973
+ X 12B	Halon 1211 System, 1973
+ X ** 13	Installation of Sprinkler Systems, 1976
- - 13A	Sprinkler Systems, Care, Maintenance, 1976
13E	F. D. Operations in Protected Properties, 1973
+ X ** 14	Standpipe and Hose Systems, 1976
+ X 15	Water Spray Fixed Systems, 1973
+ X ** 16	Foam Water Sprinkler and Spray Systems, 1974
+ X 17	Dry Chemical Extinguishing Systems, 1975
18	Wetting Agents, 1972
182M	Hazards of Vaporizing Liquid Agents, 1965
19	Automotive Fire Apparatus, 1973
19B	Respiratory Prot. Equip. For Fire Fighters, 1971
191	Portable Pumping Units, F.D. Service, 1959
193	Fire Dept. Ladders, Use, Maint., Testing, 1972

## 1.5.2 NFPA Series Divisions (con't)

	NFPA No.	TITLE
X	--101-1973	
+	-----101-1976	
.	** 194	Screw Threads & Gaskets for Fire Hose Connections, 1974
	196	Fire Hose, 1972
	197	Initial Fire Attack, Training Standard on, 1966
.	198	Fire Hose, Care, 1972
		<b>20 Series: Extinguishing Auxiliaries</b>
X	** 20	Centrifugal Fire Pumps, 1976
	21	Steam Fire Pumps, 1963
*	** 22	Water Tanks, 1974
*	24	Outside Protection, 1973
	25	Rural Fire Protection, Water Supply System, 1969
	26	Supervision of Valves, Water Supplies, 1958
	27	Private Fire Brigades, 1967
	** 291	Uniform Marking of Fire Hydrants, 1974
	** 292M	Water Charges for Private Fire Protection, 1974
	295	Wildfire Control, 1973
		<b>30 Series: Flammable Liquids</b>
X	30	Flammable and Combustible Liquids Code, 1976
X	** 31	Oil Burning Equipment, 1974
.	** 32	Drycleaning Plants, 1974
X	321	Basic Classification, Flam. & Liquids, Gases & Volatile Solids, 1976
	325A	Flash Points - Trade Name Liquids, 1972
	325M	Fire - Hazard Props., Flam. Liquids, Gases & Volatile Solids, 1969
	327	Small Tanks and Containers, Cleaning or Safeguarding, 1970
	328	Manholes, Sewers, Flam. & Combust. Liquids in, 1970
	329	Underground Flam. & Comb. Liquid Tanks, Leakage From, 1972
*	33	Spray Application, 1976
	** 34	Dip Tanks Containing Flam. or Comb. Liquids, 1974
.	35	Spray Application, 1973
.	** 36	Solvent Extraction Plants, 1974
	37	Stationary Combustion Engines & Gas Turbines, 1970
*	** 385	Tank Vehicles for Flam. & Comb. Liquids 1974
	** 386	Portable Shipping Tanks, 1974
	** 393	Gasoline Blow Torches & Plumbers' Furnaces, 1974
	395	Farms and Isolated Construction Projects, Flam. Liquid Storage at, 1972
		<b>40 Series: Combustible Solids</b>
X	** 40	Cellulose Nitrate Motion Picture Film, 1974
	41L	Model Rocketry Code, 1968
	42	Pyroxylin Plastics in Factories, 1967
	43	Pyroxylin Plastics in Warehouses, Stores, 1967
	** 43A	Code for Storage of Liquid & Solid Oxidizing Materials 1974
	** 44A	Code for the Manufacture, Transportation and Storage of Fireworks, 1974
	46	Lumber, Outdoor Storage of 1973
	46A	Outdoor Storage of Wood Chips, 1973
	46B	Outdoor Storage of Logs, 1971

## 1.5.2 NFPA Series Divisions (con't)

NFPA No.	TITLE
X-----101-1973	
1-----101-1976	
47	Lumber Storage Yards, Retail & Wholesale, 1973
**48	Storage, Handling & Processing of Magnesium, 1974
**481	Titanium, Handling and Storage, 1974
**482M	Zirconium, Handling and Storage, 1974
49	Hazardous Chemicals Data, 1973
* 490	Ammonium Nitrate, Storage of, 1970
491M	Hazardous Chemical Reactions, Manual of, 1971
492	Separation Distances of Ammonium Nitrate and Blasting Agents from Blasting Agents or Explosives, 1968
493	Intrinsically Safe Process Control Equipment, 1969
494L	Fireworks Law, Model State, 1972
495	Explosives and Blasting Agents Code, 1973
**496	Purged & Pressurized Enclosures for Electrical Equipment, 1974
498	Explosions, Motor Vehicles, Terminals, 1970
	<b>50 Series: Gases</b>
**50	Bulk Oxygen Systems, 1974
* 50A	Gaseous Hydrogen Systems, 1973
* 50B	Liquefied Hydrogen Systems at Consumer Sites, 1973
* **51	Welding and Cutting Systems, 1974
**51A	Acetylene Cylinder Charging Plants, 1974
51B	Cutting & Welding Processes, 1971
Ø **53M	Fire Hazards in Oxygen-Enriched Atmospheres, 1974
X **54	National Fuel Gas Code, 1974
X 56A	Inhalation Anesthetics Code, 1973
* 56B	Respiratory Therapy, 1973
X 56C	Laboratories in Health-Related Institutions, 1973
• 56D	Hyperbaric Facilities, 1976
• 56E	Hypobaric Facilities, 1972
X **56F	Nonflammable Medical Gas Systems, 1974
56HM	Home Respiratory Therapy, 1973
57q	Fumigation, 1973
X **58	Liquefied Petroleum Gases, Storage & Handling, 1976
* **59	Liquefied Petroleum Gases at Utility Gas Plants, 1974
• 59A	Liquefied Natural Gas at Utility Gas Plants. 1975
	<b>60 Series: Explosive Dusts</b>
* 60	Pulverized Fuel Systems, 1973
• 61A	Manufacturing and Handling Starch, 1973
X 61B	Grain Elevators, Bulk Handling, 1973
* 61C	Feed Mills, 1973
• 61D	Agricultural Commodities, 1973
• 62	Sugar & Cocoa, Pulverized, Dust Hazards, 1967
* 63	Industrial Plants, Fundamental Principles, 1971
* 65	Aluminum Processing and Finishing, 1973
* **651	Manufacture of Aluminum & Magnesium Powder, 1974
* 653	Coal Preparation Plants, 1971
• 654	Plastics Industry, 1975
* 655	Sulfur Fires and Explosions, 1971
• 656	Spice Grinding Plants, 1971
• 657	Confectionery Manufacturing Plants, 1967
* 66	Pneumatic Conveying Systems, Feed, Flour, Grain, 1973
• 664	Woodworking & Wood Flour Mfg. Plants, 1971
- **68*	Explosion Venting Guide, 1974
- 69	Inerting for Fire & Explosion Prevention, 1973
- 69M	



1.5.2 NFPA Series Divisions

	NFPA No.	TITLE
	101-1973	
	101-1976	
		<b>70 Series: Electrical</b>
X **	70	National Electrical Code, 1975
X	70A	Electrical Code for 1-and 2- Family Dwellings, 1975
	70C	Hazardous Locations Classification
	70L	Model State Electrical Law, 1973
X **	71	Central Station Protective Signaling Systems, 1974
X **	72A	Local Protective Signaling Systems, 1974
X **	72B	Auxillary Protective Signaling Systems, 1975
X **	72C	Remote Station Protective Signaling Systems, 1975
X **	72D	Proprietary Protective Signaling Systems, 1975
+	** 72E	Automatic Fire Detectors, 1974
X	73	Public Fire Service Communications, 1975
X **	74	Household Fire Warning Equipment, 1975
	75	Electronic Computer Systems, 1972
X	76	Essential Electrical Systems for ---
	76A	Health-Care Facilities, 1973
Ø	76CM	High-Frequency Elec. Equipment in Hospitals, 1970
*	77	Static Electricity, Recommended Practice on, 1972
	78	Lightning Protection Code, 1968
	** 79	Electrical Metalworking Machine Tools, 1974
		<b>80-90 Series: Construction</b>
X **	80	Fire Doors and Windows, 1975
	80A	Fire Resistive Walls, Protection of Openings in, 1970
	81	Fur Storage, Fumigation & Cleaning, 1969
X	82	Incinerators, Rubbish Handling, 1972
X	85	Fuel Oil & Natural Gas-Fired Watertube Boiler-Furnaces, 1976
	** 85B	Natural Gas-Fired Multiple Burner Boiler-Furnaces, 1974
	** 85D	Fuel Oil-Fired Multiple Burner Boiler-Furnaces, 1974
	** 85E	Pulverized Coal-Fired Multiple Burner Boiler-Furnaces, 1974
*	86A	Ovens & Furnaces, Design, Location & Equipment, 1973
	** 86B	Industrial Furnaces, 1974
	** 86C	Industrial Furnaces, Using Special Processing Atmosphere, 1974
X	87	Piers & Wharves, Construction & Protection, 1975
X	88A	Parking Structures, 1973
X	88B	Repair Garages, 1973
	89M	Heat Producing Appliances, Clearances for, 1976
X **	90A	Air Conditioning & Ventilating Systems, 1976
X	90B	Warm Air Heat. & Air Conditioning Systems, 1976
X	91	Blower & Exhaust Systems, 1973
	92M	Waterproofing, Draining of Floors, 1972
X	96	Vapor Removal from Cooking Equipment, 1976
	97M	Chimneys, Gas Vents, & Heat Producing Appliances, Glossary of Terms, 1972
		<b>101 Series: Safety To Life</b>
X	101	Life Safety Code, 1973
X	102	Tents, Grandstands & Air-Supported Structures Used for Places of Assembly, 1972

## 1.5.2 NFPA Series Divisions ( con't )

	NFPA No.	TITLE
X	-----101-1973	
+	-----101-1976	
		<b>200 Series: Building Construction</b>
	203M	Roof Coverings, 1970
-	204	Smoke & Heat Venting Guide, 1968
	206M	Guide on Building Areas & Heights, 1970
X	211	Chimneys, Fireplaces & Venting Systems, 1972
	214	Water Cooling Towers, 1971
X	220	Building Construction, Standard Types, 1975
	** 224	Homes & Camps in Forest Areas, 1974
.	** 231	Indoor General Storage, 1974
	231A	Outdoor General Storage, 1970
	** 231B	Storage of Cellular Rubber and Plastics Materials, 1974
	** 231C	Rack Storage of Materials, 1974
	232	Protection of Records, 1970
	232AM	Archives and Record Centers, 1972
X	241	Building Construction and Demolition Operations, 1975
X	251	Building Construction & Materials, Fire Tests, 1972
X	252	Door Assemblies, Methods of Fire Tests, 1976
X	255	Building Materials, Tests of Surface Burning Characteristics, 1972
	256	Roof Coverings, Methods, of Fire Tests of, 1970
	257	Fire Test of Window Assemblies, 1970
		<b>300 Series: Marine</b>
	302	Motor Craft, Fire Protection for, 1972
	303	Marinas & Boatyards, Fire Protection of, 1969
	306	Control of Gas Hazards on Vessels, 1972
*	307	Marine Terminals, Operation of, 1967
	312	Vessels, Construction & Repair During Layup, 1970
		<b>400 Series: Aviation</b>
	402	Aircraft Rescue Procedures, 1973
**	403	Aircraft Rescue and Fire Fighting Services at Airports, 1974
	406M	Handling Crash Fires, 1968
* **	407	Aircraft Fuel Servicing, 1974
	408	Aircraft Hand Fire Extinguishers, 1973
X	409	Aircraft Hangars, 1975
	410A	Aircraft Electrical System Maintenance, 1968
	410B	Aircraft Breathing Oxygen Systems Maintenance Operations, 1971
	410C	Aircraft Fuel System Maintenance, 1972
	410D	Aircraft Cleaning, Painting & Paint Removal, 1971
	410E	Aircraft Welding Operations in Hangars, 1970
	410F	Aircraft Cabin Cleaning & Refurbishing, 1970
**	412	Evaluating Foam Fire Fighting Equipment, 1974
	414	Aircraft Rescue & Fire Fighting Vehicles, 1970
	415	Aircraft Fueling Ramp Drainage, 1973
.	416	Airport Terminal Buildings, 1975
.	417	Aircraft Loading Walkways, 1973
.	418	Roof-top Heliport Construction and Protection, 1973
	419	Airport Water Supply Systems, 1969
	421	Aircraft Interior Fire Protection, 1973
	422M	Aircraft Fire Investigators Manual, 1972

## 1.5.2 NFPA Series Divisions (con't)

	NFPA No.	TITLE
X	-----101-1973	
	-----101-1976	
		<b>500 Series: Ground Transportation</b>
X **	501A	Mobile Home Parks, 1975
X **	501B	Mobile Homes, 1976
**	501C	Recreational Vehicles, 1974
**	501D	Recreational Vehicle Parks, 1974
	505	Powered Industrial Trucks, 1973
	512	Truck Fire Protection, Good Practices for, 1970
	513	Motor Freight Terminals, 1973
		<b>600 Series: Operating Methods</b>
	601	Watchman or Guard, Instructions, & Duties, 1968
	601A	Standard for Guard Operations in Fire Loss Prevention, 1968
	602	Community Dumps, Good Practice for, 1964
	604	Salvaging Operations, 1964
		<b>700 Series: Classification, Treatment Materials</b>
X	701	Flame-Resistant Textiles and Films, 1976
*	702	Wearing Apparel, Flammability of, 1968
X	703	Building Materials, Fire Retardant Treatments, 1961
*	704M	Fire Hazards of Materials, Identification System for, 1969
		<b>800 Series: Radioactive Materials</b>
	801	Radioactive Materials, Facilities Handling, 1970
**	802	Nuclear Reactors, 1974
-	901	Uniform Coding for Fire Protection, 1976
	901AM	Fire Rep. Field Incident Manual, 1973
	910	Protection of Library Collections, 1970
**	911	Protection of Museum Collections, 1974
		<b>Tentative Standards</b>
	5A-T	Recommendations for Evaluating Fire Protection at a New Facility, 1970
	19A-T	Protective Clothing for Fire Fighting, 1973
**	43C-T	Storage of Gaseous Oxidizing Chemicals, 1974
**	43D-T	Storage of Pesticides, 1974
**	45-T	Laboratories Using Chemicals, 1974
	56G-T	Use of inhalation Anesthetics in Ambulatory Care Facilities, 1973
**	70B-T	Electrical Equipment Maintenance, 1974
*	76B-T	Safe Use of Electricity in Patient Care Areas of Health Care Facilities, 1973
	205M-T	Guide for Plastics in Building Construction, 1973
**	220-T	Types of Building Construction, 1974
**	231D-T	Storage of Rubber Tires, 1974
**	258-T	Test Method for Measuring Smoke Generated by Solid Materials, 1974
	502-T	Fire Protection for Limited Access Highways, Tunnels, Bridges and Elevated Structures, 1972

PCI (con't)

PRELIMINARY PCI

	YES Date	NO
2.3 Local Agencies U of M - PPD, EHSD & HAD	See 1.3 <u>X</u>	<u>      </u>
2.3.1 Local Building Department	See 1.3.3.1 <u>      </u>	<u>N/A</u>
Local Zoning Ordinances	See 1.3.3 <u>      </u>	<u>N/A</u>
2.3.2 Local Fire Department U of M - PPD, EHSD & HAD	See 1.3.3.6 <u>X</u>	<u>      </u>
2.3.3 Local Police Department	See 1.3 <u>      </u>	<u>N/A</u>
2.4 Independent Agencies U of M - EHSD & HAD	See 1.4 <u>      </u>	<u>      </u>
2.4.1 Architect to verify adherence to JCAH Manual	See 1.4.1 <u>X</u>	<u>      </u>
2.5 Insurance Underwriters	See 1.4 <u>      </u>	<u>      </u>
2.5.1 Clients direction to contact his insurance underwriters	<u>      </u>	<u>N/A</u>

Date February 9, 1979

Project Code Investigation

Project Name: U of M KE/H Exp.

Type of Project

**2.0 PRELIMINARY/FINAL APPROVALS AND REVIEWS**

Include name of governmental agency, address, name of person giving approval and date of review. If approval is conditional or a final review is required later, note this under Additional Comments.

	<u>YES</u>	<u>N/A</u>
	<u>Date</u>	
<b>2.0.1 Index to Agency Approvals</b>		
<b>2.1 Federal</b>		
2.1.1 U.S. Department of Health, Education and Welfare - see 1.1.1 and 1.1.1.1	_____	<u>N/A</u>
2.1.1.1 SSA	See 1.1.1.1 _____	<u>N/A</u>
2.1.1.2 Hill-Burton Funds	See 1.1.1.2 _____	<u>N/A</u>
2.1.1.3 Other Federal Grants or Funds	See 1.1.1.1.4 _____	<u>N/A</u>
2.1.2 U.S. Department of Labor	See 1.1.2	
2.1.2.1 Occupational Safety and Health Administration (OSHA) - See 1.1.2.1	_____	<u>N/A</u>
2.1.3 U.S. Department of Defense		
2.1.3.1 Civil Defense Preparedness	_____	<u>N/A</u>
2.1.3.2 U.S. Army	_____	<u>N/A</u>
2.1.3.3 U.S. Navy	_____	<u>N/A</u>
2.1.4 U.S. Department of Commerce		
2.1.4.1 National Fire Prevention and Control Administration	_____	<u>N/A</u>
2.1.5 U.S. Department of Housing and Urban Development (HUD)	_____	<u>N/A</u>
2.1.5.1 Fire Protection Funds	_____	<u>N/A</u>
<b>2.2 State Agencies</b>		
2.2.1 State Dept. of Health	See 1.2.3 _____	<u>N/A</u>
2.2.2 State Dept. of Labor	See 1.2.3 _____	<u>N/A</u>
2.2.3 State Dept. of Public Safety	See 1.2.4 _____	<u>N/A</u>
2.2.4 State Dept. of Administration	See 1.2.5 _____	<u>N/A</u>
2.2.4.1 State Architects Office	_____	<u>N/A</u>
2.2.4.2 State Building Code Division	See 1.2.3 _____	<u>N/A</u>
2.2.5 State Dept. of Commerce	See 2.1.5.1 _____	<u>N/A</u>
2.2.6 State Dept. of Education	See 1.2. _____	<u>N/A</u>

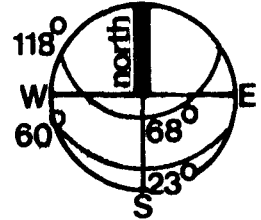
## ENERGY CONSERVATION MEASURES & TECHNIQUES

### SITE

#### CLIMATIC ANALYSIS

##### SUN ANALYSIS

LATITUDE 44° 53' N  
LONGITUDE 93° 13' W



PREVAILING WINDS NORTHWEST  
AT 10.6 MPH AVERAGE

#### TEMPERATURE RANGES -

SUMMER AVERAGE MAX. TEMP. 83°  
AVERAGE MIN. TEMP. 63°, DESIGN 89°

WINTER AVERAGE MAX. TEMP. 22°  
AVERAGE MIN. TEMP. 5°, DESIGN -19°

#### PRECIPITATION, NORMALS

SNOW 40"  
RAIN 26"

MEAN RELATIVE HUMIDITY 69%  
MEAN HEATING DEGREE DAYS 8382

## ENVIRONMENTAL SYSTEMS

### HEATING

AUTOMATIC OUTDOOR RESET WILL BE EMPLOYED ON PERIMETER RADIANT PANEL HEATING SYSTEMS WHERE USED TO PREVENT OVERHEATING AND TO CONSERVE ENERGY USAGE AS OUTDOOR TEMPERATURE RISE.

HEAT RECOVERY SYSTEMS, COIL TO COIL TYPE, WILL BE EMPLOYED ON LARGE EXHAUST SYSTEMS WHERE PRACTICAL TO HELP PREHEAT THE OUTDOOR AIR.

EXCESS RETURN AIR WILL BE UTILIZED TO ASSIST IN HEATING AND VENTILATING EQUIPMENT ROOMS WHENEVER IT IS AVAILABLE BEFORE IT IS EXHAUSTED.

ECONOMIZER CYCLE WITH ENTHALPY CONTROL ON AIR HANDLING SUPPLY SYSTEMS WILL BE PROVIDED.

OUTDOOR AIR WILL BE MINIMIZED, BUT DESIGNED WITHIN CODE LIMITATIONS.

DUCTWORK WILL BE GIVEN SPECIAL ATTENTION TO REDUCE LEAKAGE AND SUPPLY DUCTWORK WILL BE INSULATED TO REDUCE HEAT TRANSFER THROUGH DUCTWORK.

HEAT LOSSES AND GAINS WILL BE MINIMIZED WITH CONSTRUCTION IN CONFORMANCE WITH MINNESOTA ENERGY CODE AND UNIVERSITY OF MINNESOTA CONSTRUCTION STANDARDS.

WALL U VALUE	= .10
ROOF U VALUE	= .08
INSULATED GLASS U	= .55

AUTOMATIC TEMPERATURE CONTROL SYSTEMS WILL BE SPECIFIED AND INSTALLED TO INCLUDE NECESSARY HARDWARE FOR FUTURE CONNECTION TO A HONEYWELL DELTA 2000 CONTROL CENTER.

#### POWER DISTRIBUTION

USE 277/480V SYSTEM TO MINIMIZE FEEDER SIZES AND FEEDER VOLTAGE DROPS.

INSTALL POWER FACTOR CORRECTION CAPACITORS AT THE SERVICE ENTRANCE TO MAINTAIN A SYSTEM POWER FACTOR .95 LAG.

INSTALL POWER FACTOR CORRECTION CAPACITORS ON MOTORS 20 HP AND LARGER TO MAINTAIN A TERMINAL POWER FACTOR OF .95 LAG.

#### LIGHTING

USE FLUORESCENT LIGHTING WHEREVER POSSIBLE. INCANDESCENT LIGHTING WILL BE LIMITED TO SMALL AREAS THAT HAVE INFREQUENT USE. MAXIMUM LIGHTING WILL BE PER IES RECOMMENDATIONS.

USE COOL WHITE (CW) FLUORESCENT LAMPS AS PRACTICAL THROUGHOUT THE FACILITY. COOL WHITE LAMPS PROVIDE THE HIGHEST LUMEN OUTPUT (3150) FOR THE LEAST COST. (COOL WHITE DELUXE (CWX) WILL BE USED IN AREAS WHERE OBSERVATION OF THE PATIENT IS CRITICAL EVEN THROUGH THE EFFICIENCY IS POORER.

AN ATTEMPT TO PROVIDE HIGH REFLECTANCE SURFACES IN ROOMS SHOULD BE MADE.

TASK ILLUMINATION WILL BE PROVIDED WHERE THE TASK CAN BE ACCURATELY DEFINED.

USE HIGH EFFICIENCY BALLASTS AND LENSES.

OPERATION AND MAINTENANCE

TIME CLOCK OPERATION OF AIR SYSTEMS WILL BE PROVIDED TO PERMIT SHUTDOWN DURING UNOCCUPIED HOURS.

ALL AREAS WILL HAVE LOCAL SWITCHING THAT WILL ALLOW MULTIPLE LEVELS OF ILLUMINATION WHERE APPLICABLE.



PRELIMINARY CONSTRUCTION SEQUENCE

THIS STATEMENT INDICATES A PRELIMINARY CONSTRUCTION SEQUENCE WHICH IS STATED IN GENERAL TERMS. DURING THE UPCOMING PHASES OF DESIGN WORK, THE MAJOR CATEGORIES OF WORK DESCRIBED WILL BE EXAMINED IN MORE DETAIL.

THE SEQUENCE INDICATES A METHOD OF COMPLETING THE PROJECT CONSTRUCTION WITH MINIMAL DISRUPTION OF ON-GOING PATIENT CARE FUNCTIONS IN THE HOSPITAL. IT IS SUGGESTED THAT THIS STATEMENT BE REVIEWED IN CONJUNCTION WITH THE DESIGN AND CONSTRUCTION SCHEDULE WHICH FOLLOWS. IF THIS IS DONE, ONE WILL NOTE THAT THE SCHEDULE IDENTIFIES TASKS BY CONSTRUCTION SEQUENCE STEP NUMBERS AND DEFINES THE ANTICIPATED PHASING AND THE REQUIRED TIME INTERVALS TO ACCOMPLISH THE VARIOUS TASKS.

IN FORMULATING THE PHASING AND CONSTRUCTION ACTIVITIES, CERTAIN DIFFICULTIES HAVE SURFACED REGARDING THE PROVISION OF CONSTRUCTION ACCESS TO INTERIOR AREAS IN WHICH WORK IS PLANNED. IN ORDER TO AVOID THE CROSSING OF THE HOSPITAL'S ON-GOING ACTIVITIES AND THE ROUTES WHICH WILL BE REQUIRED BY THE CONSTRUCTORS, CAREFUL COORDINATION MUST BE PLANNED DURING THE DETAILED DESIGN PHASES. THESE POSSIBLE CONFLICTS, IF NOT PROPERLY PLANNED WILL INCREASE THE LENGTH OF CONSTRUCTION TIME AND THE ASSOCIATED COSTS.

STEP	TASK
1.	CONSTRUCT FLOORS 4,5,6 AND 7 OF UNIT K/E ADDITION, INCLUDING THE NEW ELEVATOR TOWER AND THE NEW BUILDING LINK (ON FLOORS 3,4 AND 5 OF UNIT K/E) TO THE SOUTH EXTERIOR WALL OF THE TODD WING OF THE EXISTING HOSPITAL. CONSTRUCT THE NEW BRIDGE CONNECTION AT THE SECOND FLOOR OF UNIT K/E TO THE EXISTING VARIETY CLUB HEART HOSPITAL.
2.	DISMANTLE THE EXISTING BRIDGE BETWEEN THE MAYO BUILDING AND UNIT B/C. THE BRIDGE MATERIALS WILL BE TURNED OVER TO THE UNIVERSITY. IF THE UNIVERSITY REQUIRES THAT THE BRIDGE IS TO BE RE-ERECTED AT A FINAL LOCATION, COST ESTIMATES FOR THAT WORK CAN BE PROVIDED WHEN THE FINAL SITE AND CONDITIONS ARE KNOWN.

STEP	TASK
3.	CONSTRUCT THE NEW FOURTH FLOOR SURGERY ADDITION EAST OF GRID W5 AND SOUTH OF GRID S36, INCLUDING THE FIFTH FLOOR LEVEL MECHANICAL ROOMS AND THE REPLACEMENT PASSAGEWAY BETWEEN THE MAYO BUILDING AND UNIT B/C.
4.	CONSTRUCT THE TEMPORARY (CONSTRUCTION INTERIM) MAIN HOSPITAL ENTRANCE DRIVEWAY IN THE COURTYARD EAST OF THE EXISTING LOBBY.  CONSTRUCT THE NEW FOURTH FLOOR SURGERY CORRIDOR ADDITION ON THE NORTH SIDE OF THE SOUTHEAST COURT OF THE EXISTING MAYO BUILDING.
5.	CONSTRUCT THE NEW FOURTH FLOOR SURGERY ADDITION NORTH OF THE EXISTING MAYO BUILDING EAST WING, BETWEEN GRIDS W19 AND W5; GRIDS S36 AND S39.  COMMENT: STEPS 1,2,3 AND 4 MUST BE COMPLETED BEFORE RENOVATION WORK CAN BE INITIATED IN THE EXISTING BUILDING SURGERY AREAS.
6.	OPEN THE NEW SURGERY ADDITION FOR SERVICE, PROVIDING TEN NEW OPERATING ROOMS AND SUPPORT. OWNER-PROVIDED EQUIPMENT INSTALLATION MUST BE ACCOMPLISHED PRIOR TO OPENING THE SURGERY SUITE FOR SERVICE.  COMMENT: USE THE COMPLETED NEW CORRIDOR LOCATED AT THE NORTH END OF THE SOUTHEAST COURTYARD TO PROVIDE CIRCULATION AND NEW SUPPLY ROUTE TO THE SURGERY ADDITION.
7.	RENOVATE THE EXISTING SURGERY EAST WING OF THE MAYO BUILDING.
8.	RELOCATE THE EXISTING NURSING STATION 41 TO A NEW (AS YET UNDEFINED BY THE HOSPITAL) LOCATION IN THE MAYO BUILDING.

STEP	TASK
9.	<p>RENOVATE NURSING STATION 41 AND PORTIONS OF NURSING STATIONS 40 AND 42 TO PROVIDE THE CORRIDOR CONNECTION BETWEEN THE NEW SURGERY SUITE AND THE FINAL LOCATIONS OF PAR AND SICU. THIS CORRIDOR CONNECTION MUST BE COMPLETED TO COINCIDE WITH THE COMPLETIONS OF THE SURGERY EAST ADDITION (STEP 6) AND THE PAR AND SICU AREAS OF UNIT K/E (STEP 10).</p> <p>RELOCATE NURSING STATION 40 AND CONTINUE THE RENOVATION OF THE AREA TO PROVIDE THE FINISHED SURGERY INSTRUMENT PROCESSING AREA AND SUPPORT SPACES.</p>
10.	<p>INSTALL OWNER-PROVIDED EQUIPMENT IN THE PAR AND SICU.</p> <p>RELOCATE THE EXISTING PAR FROM THE NORTH WING OF THE MAYO BUILDING TO ITS NEW QUARTERS ON THE FOURTH FLOOR OF UNIT K/E. CONSTRUCT THE NEW CORRIDOR BYPASS NORTH OF THE MAIN BANK OF ELEVATORS IN THE MAYO WING.</p> <p>COMMENTS: THE RENOVATION OF THE EXISTING SURGERY EAST WING OF THE MAYO BUILDING MUST BE COMPLETED BEFORE RENOVATION OF THE MAYO NORTH WING CAN BEGIN.</p> <p>A MINIMUM OF FOURTEEN (14) OPERATING ROOMS MUST REMAIN IN SERVICE THROUGHOUT THE CONSTRUCTION PERIOD.</p>
11.	<p>RENOVATE THE MAYO BUILDING FOURTH FLOOR NORTH WING. RENOVATE THE EXISTING SUPPLY AND WORK ROOM AND ADJACENT LOUNGE, LOCKERS AND TOILET ROOMS.</p>
12.	<p>INSTALL EQUIPMENT FOR SURGICAL PATHOLOGY LABORATORY.</p> <p>RELOCATE THE EXISTING SURGICAL PATHOLOGY FUNCTION TO NEW QUARTERS IN THE MAYO BUILDING FOURTH FLOOR NORTH WING. RELOCATE THE EXISTING NURSING STATION 40 TO NEW QUARTERS IN UNIT K/E.</p>

STEP	TASK
13.	<p>RENOVATE THE EXISTING HOSPITAL AREAS VACATED BY SURGICAL PATHOLOGY TO PROVIDE SUPPORT AREAS AS REQUIRED FOR THE NEW SURGERY SUITE.</p> <p>CONSTRUCT THE PERMANENT HOSPITAL ENTRANCE COURT AND DRIVE.</p>
14.	<p>RENOVATE THE EXISTING CENTRAL PROCESSING AREA ON THE FIRST FLOOR OF THE MAYO BUILDING.</p>
15.	<p>RENOVATE OTHER AREAS IN THE MAYO BUILDING AS REQUIRED BY PROGRAM AND THE RELOCATION SCHEDULE FOR EXISTING FUNCTIONS AS DETERMINED BY THE HOSPITAL. ESSENTIALLY, THESE OTHER AREAS SHOULD BE RENOVATED AT THE EARLY STAGES OF THE PROJECT CONSTRUCTION TO AVOID CONFLICTS WITH THE CONTRACTORS. PROVISION OF ADEQUATE MANPOWER TO ACCOMPLISH THE LATER-STAGE RENOVATION WORK ASSOCIATED WITH THE NEW CONSTRUCTION.</p>
16.	<p>FINAL SITE WORK.</p>