May 1992

Tomanek Hall: Schematic design submittal

Fort Hays State University

NEW PHYSICAL SCIENCES BUILDING

FORT HAYS STATE UNIVERSITY • HAYS, KANSAS

SCHEMATIC DESIGN SUBMITTAL

MAY 12, 1992

SB+HTK

A JOINT VENTURE

SB+HTK
A JOINT VENTURE
Stecklein and Brungardt P.A., Architects
1200 Main Street, Suite 402, Hays, Kansas 67601
(913) 625 6425 FAX (913) 625 8691

Horst, Terrill and Karst Architects, P.A.
2900 MacVicar Avenue, Topeka, Kansas 66611
(913) 266 5373 FAX (913) 266 5270

May 12, 1992

Mr. Gerald R. Carter, Chairman
Architectural Negotiation Committee
Division of Architectural Services
625 Polk
Topeka, Kansas 66603

Re: New Physical Science Building • FHSU
CCRA A-6793 • SB+HTK No. 9109.01

Dear Jerry:

The Joint Venture Team is pleased to submit with this letter 10 copies of our Schematic Design Submittal, for distribution as follows: 2 for DOAS, 1 for Warren Corman, 2 for FHSU Facilities Planning, and 5 for the Building Committee.

This submittal reflects our best efforts to meet the requirements of the program, plus the needs and wishes of those who will be occupying the building. The Building Committee, faculty and staff of the various departments have been very cooperative to work with, and we are eagerly looking forward to the Design Development Phase.

Please be reminded that in order for us to meet the schedule as outlined within this submittal, we will need to have our Owner/Architect Agreement amended to include this service.

Sincerely,

Gary G. Karst

Gary G. Karst, AIA
Project Coordinator

Enclosures

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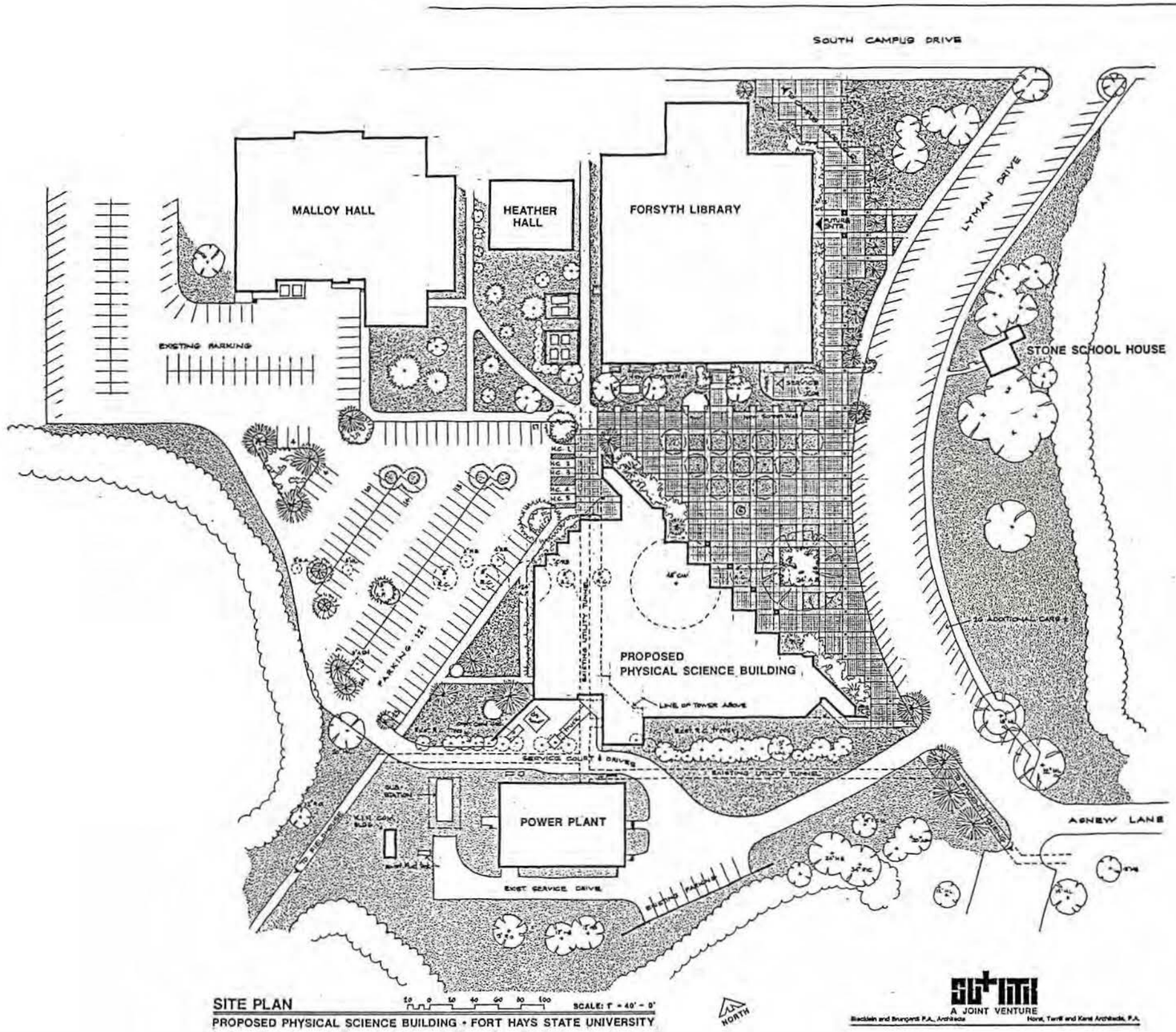
NEW PHYSICAL SCIENCES BUILDING
Fort Hays State University
Hays, Kansas

CCR Number: A-6793
SB+HTK Project Number: 9109.01

Schematic Design Submittal
Date: May 12, 1992

CONTENTS

SCHEMATIC PLANS



SITE PLAN

SCALE: 1" = 40' - 0"

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY

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Blacklein and Brungardt P.A., Architects — Horst, Terrill and Karst Architects, P.A.

PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS

Schematic Design Review

Horst, Terrill & Karst
ARCHITECTS, P.A.

KANSAS DEPT. OF ADMINISTRATION
DIVISION OF ARCHITECTURAL SERVICES
825 POLK STREET, TOPEKA, KS 66603
J. DAVID DE BUSHAW, DIRECTOR

Date
MAY 12, 1992

Revised Date

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Project Number
DCR A-0703/88-HTK 9109.01

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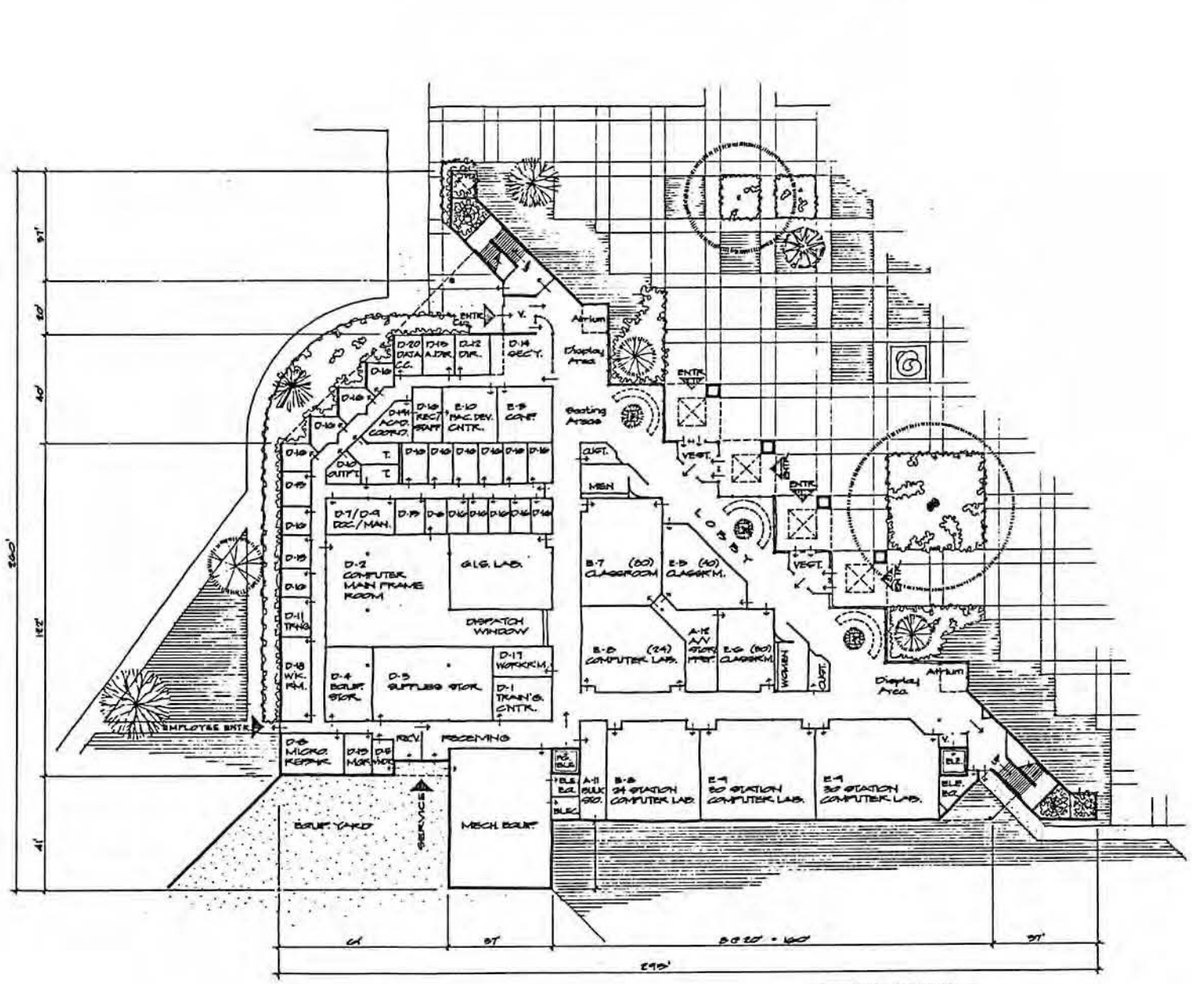

PLAN AREA SUMMARY

MAIN LEVEL	24,264 GSF
SECOND LEVEL	29,144 GSF
THIRD LEVEL	29,529 GSF
TOTAL GROSS AREA*	84,937 GSF
PENTHOUSE ENCLOSURE	1,300 GSF

MAIN LEVEL PLAN COMPUTING CENTER & SHARED SPACES • SCALE: 1" = 20'

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY

NORTH

SB+HTK
A JOINT VENTURE
Steckman and Brungardt P.A., Architects — Horst, Terrill and Karst Architects, P.A.

PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS

Schematic Design Review

Horst, Terrill & Karst ARCHITECTS, P.A.

KANSAS DEPT. OF ADMINISTRATION
DIVISION OF ARCHITECTURAL SERVICES
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J. DAVID DE BUSMAN, DIRECTOR

Date
MAY 12, 1993

Revised Date

Sheet Contents

Project Number
DCR A-4793/SB+HTK 8108.00

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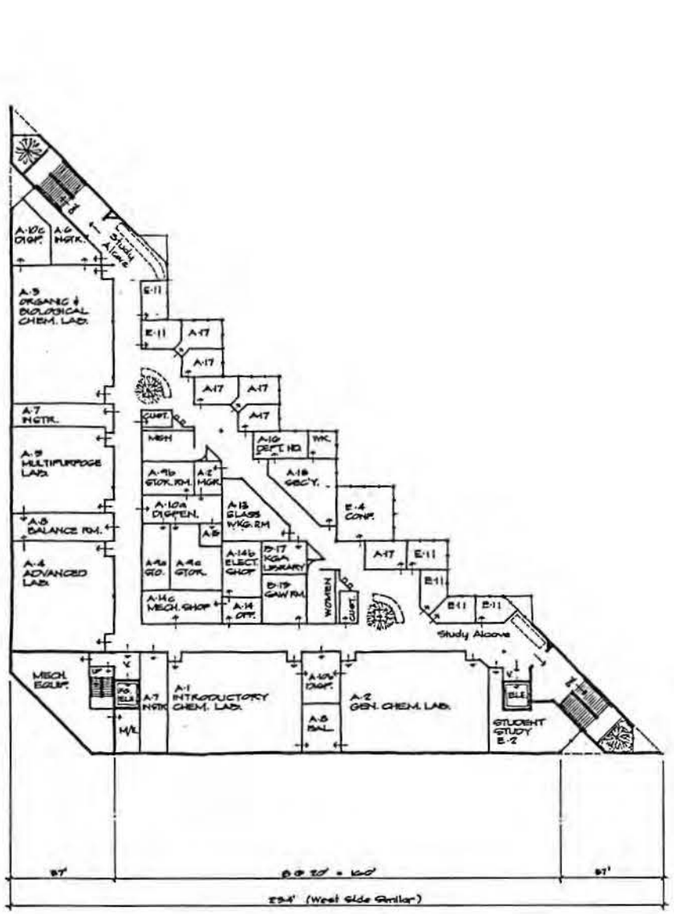
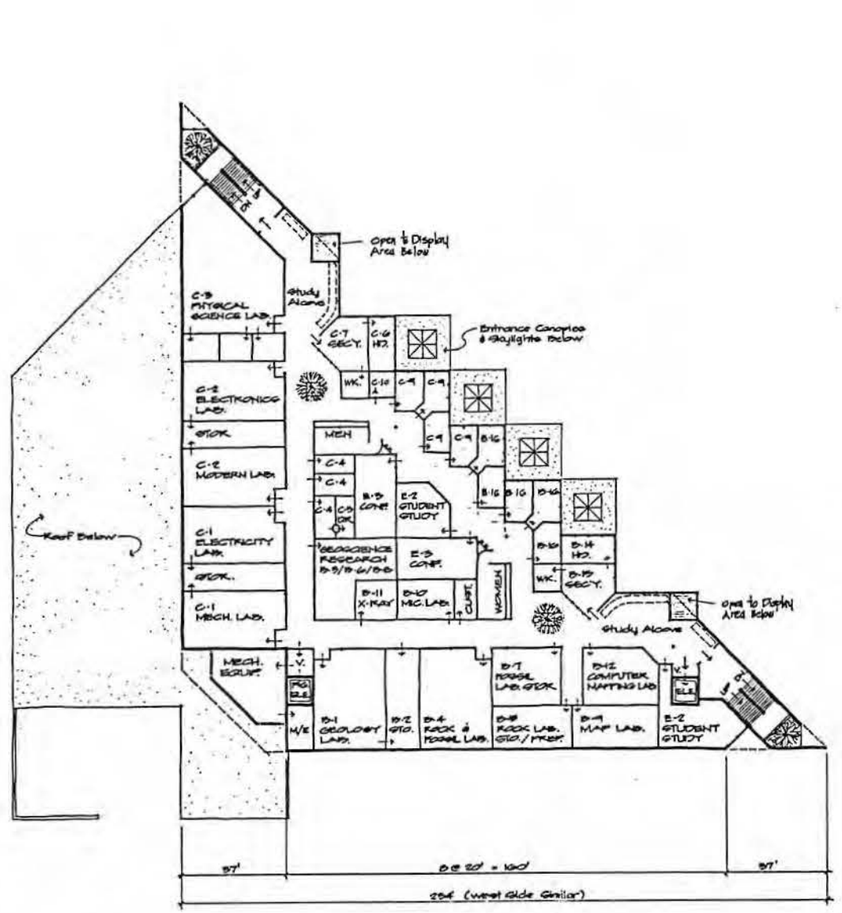


THIRD LEVEL FLOOR PLAN CHEMISTRY DEPARTMENT

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20' - 0"



SECOND LEVEL FLOOR PLAN GEOSCIENCES & PHYSICS DEPARTMENTS

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20' - 0"

SBT HTK
A JOINT VENTURE
Stecklein and Brungardt P.A., Architects — Horst, Terrill and Karst Architects, P.A.

PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS
Schematic Design Review

Horst, Terrill & Karst ARCHITECTS, P.A.

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MAY 12, 1992
Revised Date
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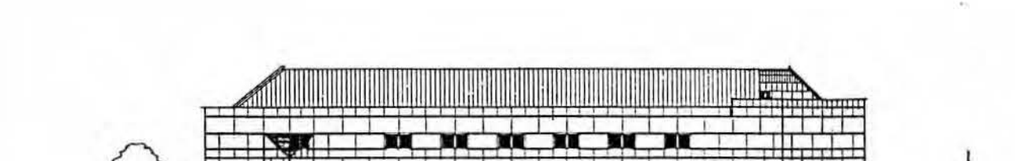
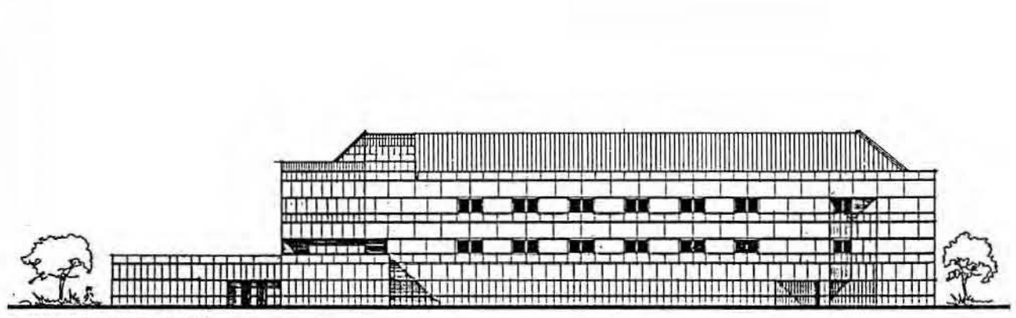
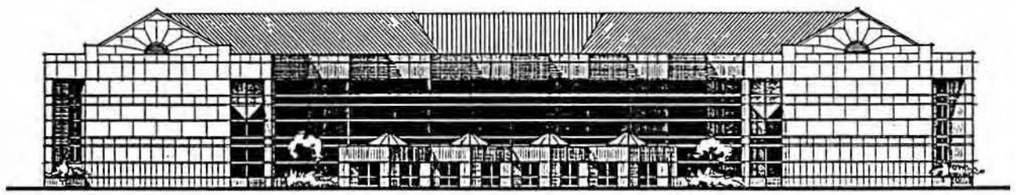


WEST BUILDING ELEVATION



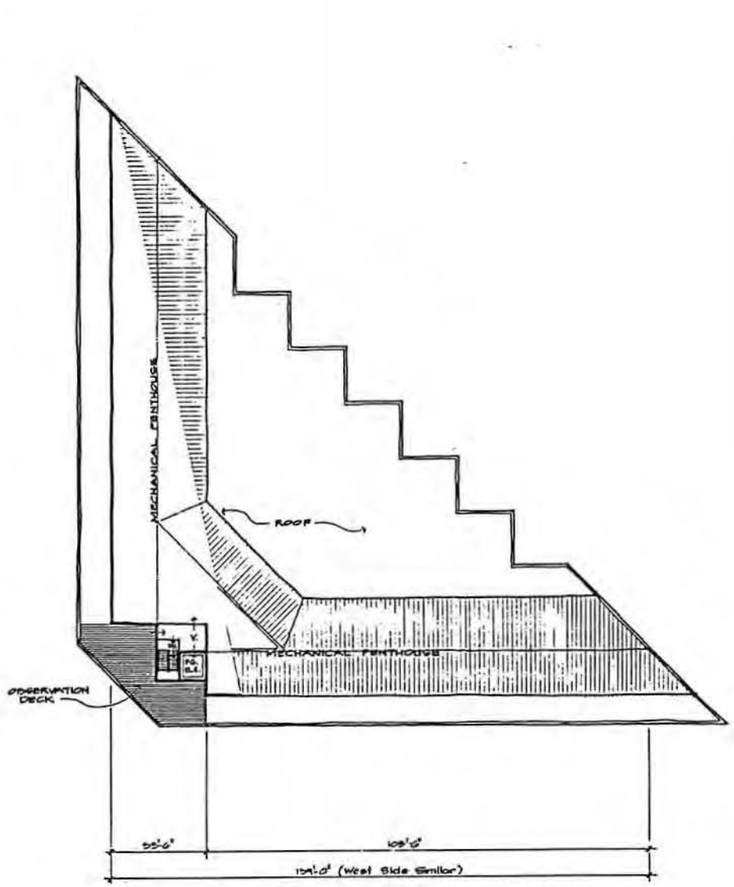
SOUTH BUILDING ELEVATION



NORTHEAST BUILDING ELEVATION

BUILDING ELEVATIONS SCALE: 1" = 20'-0"

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY



PENTHOUSE/ROOF LEVEL PLAN MECHANICAL EQUIPMENT

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20'-0"

AREA: APPROXIMATELY 7,500 SF USABLE

NORTH

SBT HTK
A JOINT VENTURE
Bleckbirn and Brungardt P.A., Architects — Horst, Terrill and Karst Architects, P.A.

PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS

Schematic Design Review

Horst, Terrill & Karst
ARCHITECTS, P.A.

KANSAS DEPT. OF ADMINISTRATION
DIVISION OF ARCHITECTURAL SERVICES
J. DAVID DE BUSMAN, DIRECTOR

Date
MAY 12, 1989

Revised Date

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Project Number
CCA A-8793/88-HTK 9805.00

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SPACE NEEDS ANALYSIS

A JOINT VENTURE

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SPACE NEEDS ANALYSIS

Physical Science Building
Fort Hays State University
Hays, Kansas

May 12, 1992

SPACE		PROGRAMMED NET AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	PLAN AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	REMARKS
CHEMISTRY DEPARTMENT				**14,590**					**15,140**	
Laboratories				8,240					8,240	
A-1	Introductory Chemistry Laboratory	1	1,900			1	1,900			
A-2	General Chemistry Laboratory	1	1,900			1	1,900			
A-3	Organic & Biological Chemistry Laboratory	1	1,900			1	1,900			
A-4	Advanced Laboratory	1	1,440			1	1,440			
A-5	Multipurpose Laboratory	1	1,100			1	1,100			
A-6	Instrument Room	1	250	250		1	250	250		
A-7	Instrument Rooms			580					580	
	Room A	1	290			1	290			
	Room B	1	290			1	290			
A-8	Balance Rooms			580					570	
	Room A	1	290			1	290			
	Room B	1	290			1	280			
A-9	Storerooms			850					850	
	Room A	1	250			1	250			
	Room B	1	200			1	200			
	Room C	1	400			1	400			
A-10	Dispensing rooms			1,000					950	
	Room A - Main Dispensing & Prep. Area	1	450			1	300			
	Room B - Satellite Dispensing & Prep.	1	300			1	250			
	Room C - Satellite Dispensing & Prep	1	250			1	280			
A-20	Storeroom Manager	1	150	150		1	120			
A-11	Bulk storage/Receiving Area	1	350	350		1	350	350		
A-12	A.V. Storage/Classroom Preparation Area	1	200	200		1	380	380		
A-13	Glass Working Room	1	200	200		1	430	430		
A-14	Electronics Technician Shop			800					810	
	Room A - Office	1	120			1	150			
	Room B - Electronics Shop	1	300			1	300			
	Room C - Mechanical Shop	1	380			1	360			
A-15	Alcohol Closet	1	70	70		1	70	70		
Departmental Administrative Suite				1,320					1,660	
A-16	Department Chair's Office	1	200			1	200			
A-18	Secretarial Office/Storage	1	280			1	460			
A-19	Workroom/Copy Room	1	120			1	100			
A-17	Faculty Offices	6	120			6	150			

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Fort Hays State University
Hays, Kansas

May 12, 1992

SPACE		PROGRAMMED NET AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	PLAN AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	REMARKS
CHEMISTRY DEPARTMENT					**14,590**				**15,140**	
Laboratories					8,240				8,240	
A-1	Introductory Chemistry Laboratory	1	1,900			1	1,900			
A-2	General Chemistry Laboratory	1	1,900			1	1,900			
A-3	Organic & Biological Chemistry Laboratory	1	1,900			1	1,900			
A-4	Advanced Laboratory	1	1,440			1	1,440			
A-5	Multipurpose Laboratory	1	1,100			1	1,100			
A-6	Instrument Room	1	250	250		1	250	250		
A-7	Instrument Rooms			580				580		
	Room A	1	290			1	290			
	Room B	1	290			1	290			
A-8	Balance Rooms			580				570		
	Room A	1	290			1	290			
	Room B	1	290			1	280			
A-9	Storerooms			850				850		
	Room A	1	250			1	250			
	Room B	1	200			1	200			
	Room C	1	400			1	400			
A-10	Dispensing rooms			1,000				950		
	Room A - Main Dispensing & Prep. Area	1	450			1	300			
	Room B - Satellite Dispensing & Prep.	1	300			1	250			
	Room C - Satellite Dispensing & Prep	1	250			1	280			
A-20	Storeroom Manager	1	150	150		1	120			
A-11	Bulk storage/Receiving Area	1	350	350		1	350	350		
A-12	A.V. Storage/Classroom Preparation Area	1	200	200		1	380	380		
A-13	Glass Working Room	1	200	200		1	430	430		
A-14	Electronics Technician Shop			800				810		
	Room A - Office	1	120			1	150			
	Room B - Electronics Shop	1	300			1	300			
	Room C - Mechanical Shop	1	380			1	360			
A-15	Alcohol Closet	1	70	70		1	70	70		
Departmental Administrative Suite					1,320				1,660	
A-16	Department Chair's Office	1	200			1	200			
A-18	Secretarial Office/Storage	1	280			1	460			
A-19	Workroom/Copy Room	1	120			1	100			
A-17	Faculty Offices	6	120			6	150			

SPACE		PROGRAMMED NET AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	PLAN AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	REMARKS
GEOSCIENCES DEPARTMENT					**6,800**				**8,202**	
B-1	Geology Laboratory (24 ea.)	1	950	950		1	950	950		
B-2	Geology Lab. Stor./Prep./Grad. Students	1	450	450		1	450	450		
B-3	Geology Lab. Research	1	250	250		1	700	700		1
B-4	Rock and Fossil Laboratory (20 to 24)	1	950	950		1	950	950		
B-5	Rock Lab Stor./Prep./Grad. Students	1	450	450		1	450	450		
B-6	Rock Lab. Research	1	250	250		1	(700)	(700)		1
B-7	Fossil Lab. Stor./Prep./Grad. Students	1	450	450		1	500	500		
B-8	Fossil Lab. Research	1	250	250		1	(700)	(700)		1
B-9	Map Laboratory	1	450	450		1	450	450		
B-10	Microscope Laboratory	1	250	250		1	300	300		
B-11	X-Ray Laboratory	1	200	200		1	200	200		
B-12	Computer Mapping Laboratory	1	450	450		1	522	522		
B-13	Saw Room	1	250	250		1	250	250		2
Departmental Administrative Suite				600				600		
B-14	Department Chair's Office	1	200			1	200			
B-15	Sect. Off./Recpt./Copy Room/Mail Rm.	1	400			1	400			
B-16	Faculty Offices	5	120	600		5	150	750		
B-17	Geological Alliance Library	1	100	(100)		1	180	180		2
B-18	G.I.S.(Geographic Information Systems) Lab.	1	450	(450)		1	950	950		3
B-19	Field Equipment Storage Room	1	400	(400)		0				
PHYSICS DEPARTMENT					**7,420**				**7,400**	
C-1	Electricity & Mechanics Lab. Cluster	1	2,100	2,100		1	1,900	1,900		
C-2	Electronics & Modern Physics Lab. Cluster	1	1,900	1,900		1	1,900	1,900		
C-3	Physical Science Labs./Storage	1	1,900	1,900		1	1,900	1,900		
C-4	Research Cubicles	3	80	240		3	100	300		
C-5	Darkroom	1	100	100		1	100	100		
Departmental Administrative Suite				600				600		
C-6	Department Chair's Office	1	200			1	200			
C-7	Secretarial Office	1	300			1	300			
C-8	Workroom	1	100			1	100			
C-9	Faculty Offices	4	120	480		4	150	600		
C-10	Teaching Assistant's Offices	1	100	100		1	100	100		
COMPUTING CENTER					**10,400**				**9,549**	
D-1	Training Center	1	300	300		1	300	300		
D-2	Computer Room	1	3,550	3,550		1	(3,430)	2,480		4
D-3	Supplies Storage	1	1,000	1,000		1	1,000	1,000		
D-4	Equipment storage	1	400	400		1	400	400		
D-5	Off Campus Vendor Repair	1	100	100		1	100	100		
D-6	Tape Vault	1	120	120		1	100	100		
D-7	Documentation/Manual Room	1	150	150		1	300	300		5
D-8	Micro Repair/Consulting	1	300	300		1	300	300		
D-9	Documentation/Manual Room	1	200	200		1	(300)	(300)		5
D-10	Output	1	100	100		1	100	100		
D-11	Training Room	1	100	100		1	150	150		
Departmental Administrative Suite				1,200				1,345		
D-12	Director's Office	1	200			1	195			
D-13	Assistant Director's Office	1	160			1	160			
D-14	Secretarial Office/Waiting/Workroom	1	400			1	440			
D-16	Staff Offices (Reception/Staff)	1	200			1	200			
D-19	Data Computing Coordinator's Office	1	120			1	200			
D-20	Data Communications Coordinator's Office	1	120			1	150			
D-15	Manager Offices	4	120	480		4	120	480		
D-16	Staff Offices	13	100	1,300		2	125	250		
						2	112	224		
						6	120	720		
						8	100	800		
D-17	Work Area	1	200	200		1	200	200		
D-18	Work Area	1	300	300		1	300	300		
GENERAL USE/SHARED SPACES					**11,470**				**16,788**	
E-1	Lobby and Display Area			500		1	4,700	4,700		
E-2	Student Study Rooms	3	200	600		2	450	900		
						1	350	350		

SPACE		PROGRAMMED NET AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	PLAN AREA Qty.	Unit Area (SF)	Total Area (SF)	Div. Total	REMARKS
E-3	20 Person Conference Room	1	400	400		1	400	400		
E-4	20-Person Conference/Seminar Rooms	3	400	1,200		1	400	400		
						2	450	900		
E-5	40-Person Classroom	1	600	600		1	688	688		
E-6	30-Person Classroom	1	450	450		1	600	600		
E-7	80-Person Classroom	1	1,200	1,200		1	1,200	1,200		
E-8	24-Station Computer Laboratory	2	1,200	2,400		1	1,200	1,200		
						1	1,150	1,150		
E-9	30-Station Computer Laboratory	2	1,500	3,000		2	1,500	3,000		
E-10	Faculty Development center	1	400	400		1	400	400		
E-11	Faculty Offices (Unassigned)	6	120	720		6	150	900		
	TOTAL NET ASSIGNABLE AREA			(59.5% of GSF)	**50,680**			(67.2% of GSF)	**57,079**	
	TOTAL UNASSIGNABLE AREA (walls, circ., toil.,etc.) @			(40.5% of GSF)	34,462			(32.8% of GSF)	27,908	*(6)
	TOTAL GROSS AREA				**85,142**				**84,987**	

NOTES

1) Space is shared by B-3 (Geology Lab. Research), B-6 (Rock Lab. Research) & B-8 (Fossil Lab. Research)
2) Located on third floor.
3) Located temporarily on first floor in the space allocated for future Main Frame Computer Room expansion.
4) 950 SF of this space is temporarily being used by the G.I.S Lab. until such time that the additional space is required for computer main frame equipment.
5) Space is shared by both Documentation/Manual rooms D-7 & D-9.
6) Unassignable area does not include the mechanical penthouse which contains approximately 7,300 SF.

CODE ANALYSIS AND REVIEW

A JOINT VENTURE

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Physical Science Building
Fort Hays State University
Concept Development and Schematic Design

May 12, 1992

Code and Standard Compliance

The submitted plans have been designed based upon our interpretation with the requirements of the:

1991 Uniform Building Code
1991 Uniform Building Code Standards
1991 Uniform Mechanical Code
1991 Uniform Plumbing code
1990 National Electric Code
1991 Uniform Code for Building Conservation
1991 Uniform Code for the Abatement of Dangerous Buildings
1979 Uniform Disaster Mitigation Plan
1986 Kansas State Boiler Code, adopted A.S.M.E. Boiler and Pressure Vessel Code
Non discrimination on the Basis of Disability in State and Local Government Services, 28 CFR Part 35.
1979 Kansas Maximum Lighting Standards K.A.R. 27-2-1
1979 Kansas Thermal Standards (K.C.C.'S Order in Docket No. 110, 766-U)
1990 ASHRAE 90A
1991 State Fire Marshal/NFPA Life Safety Code
1990 Underwriter's Laboratories Fire Resistance Directory
Underwriter's Laboratories Performance Standards, as required
National Board of Fire Underwriters, as required
1990 National Fire Protection Association, National Fire Codes
American Welding Society, AWAS, D-10.12-79, AWAS D-10.9-80
American Institute of Steel Construction - Ninth Edition, As required
American Concrete Institute, ACI Standards 318-83
1987 ANSI Safety Code for Elevators and Excalators, ANSI/ASME A17.1
1988 ASME Boiler and Pressure Vessel Code
The Secretary of the Interior's Standards for Historic Preservation Projects and Guidelines for Rehabilitating Historic Buildings

1. New facility for Physical Sciences at Fort Hays State University.

2. UBC Occupancy Groups:
   A-3: 80 person classroom
   B-2: All other areas

3. LSC Occupancy Groups:
   Assembly: 80 person classroom
   Business: All other areas

4. LSC Classification of Hazard of Contents:
   Ordinary Hazard: All areas (LSC Handbook - 1991 states that low hazard or high hazard contents are rare. Thus, ordinary hazard represents most building conditions.

5. UBC Type of Construction: Type I Fire-Resistive
   a) Basic Allowable Floor Area: Unlimited
   b) Maximum Height in Feet: Unlimited
   c) Maximum Height in Stories: Unlimited

6. UBC Types of Construction - Fire-Resistive Requirements:
   a) Exterior Bearing Walls: 4 hours
   b) Interior Bearing Walls: 4 hours
   c) Exterior Non-bearing Walls: 4 hours [1]
   d) Structural Frame: 3 hours
   e) Partitions - Permanent: 1 hour
   f) Shaft Enclosures: 2 hours
   g) Floors - Ceilings/floors: 2 hours
   h) Roofs - Ceilings/Roofs: 2 hours
   i) Exterior Doors and Windows: N/A
   j) Stairway Construction: Noncombustible Const.
   [1] Section 1803 (a) Exception 1 allows unprotected non-combustibel construction.

7. UBC Occupancy Separtations:
   Each laboratory containing hazardous materials shall be separated by a one-hour fire-resistive occupancy separation (UBC 702(b)3)

8. Actual Gross Floor Areas in Square Feet:

Main Level:	34,264 GSF
Second Level:	25,194 GSF
Third Level:	25,529 GSF
Penthouses:	3,900 GSF
Total:	88,887 GSF

9. Actual Stories: 4

10. Actual Height: 57'±

11. Location on Property:
    Forsyth Library is 80'± to the North. The Power Plant is 32'± to the South. The centerline of Lyman Drive is 80'± to the East. The Campus grounds are open to the West.

12 UBC Occupant Load: (See Occupant Load & Exiting Plans)
   a) Lecture rooms and teaching labs with fixed seats or stations: Load is determined by number of seats or stations.
   b) Occupant Load Factors in other areas (Sq. Ft. per Occupant)

Conference Rooms:	15
Classrooms:	20
Library Reading Rooms:	50
Laboratories:	100
Shops:	50
Offices:	100
Storage Rooms:	300
Mechanical Equipment:	300

   c) Total Occupant Load per Floor:

Main Level:	386
Second Level:	193
Third Level:	171
Penthouse:	13

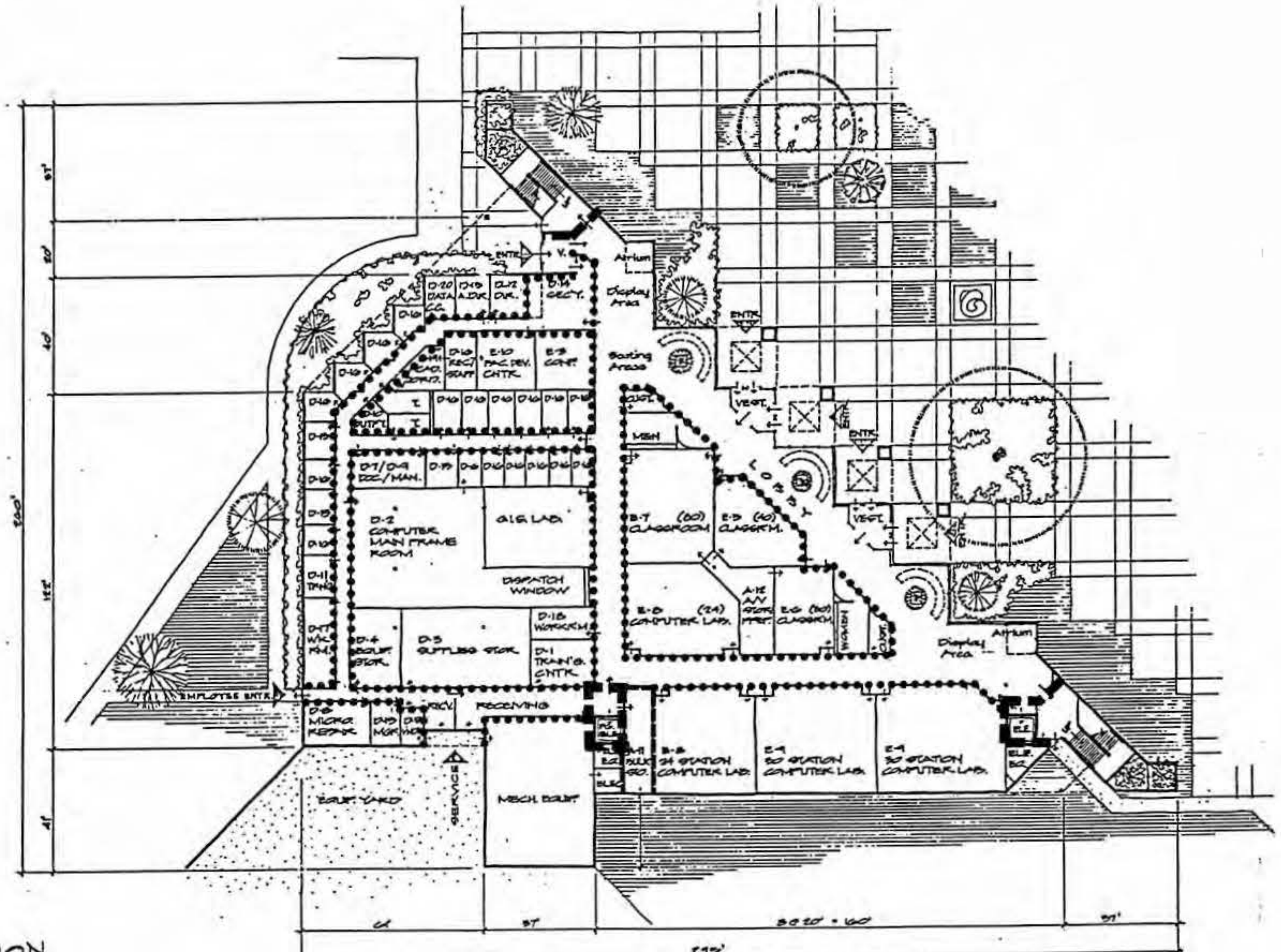
Roof	13
Totals:	776

13. Exiting Requirements: (See Occupant Load & Exiting Plans)
    a) Labs exceeding 200 sq. ft. shall have two exits if they contain hazardous materials.
    b) All portions of a room shall be within 75' of an exit.
    c) Maximum distance to exits: 150 feet in non-sprinklered buildings, increased 100 feet when the last 150 feet is within a corridor. (UBC 3303(d)). 200 feet in buildings not sprinklered (LSC 5-6.4)
    d) Corridors shall be of one-hour fire-resistive construction, with non-laboratory doors protected by a 20-minute smoke and draft control assembly. Laboratory doors will be one-hour rated, due to the occupancy separation requirement.

14. Minimum Plumbing Fixture Requirements:
    a) Total Calculated Occupant Load: 776 (Assume 388 male, 388 female)
    b) Per UPC 1991, Appendix C, Schools (Colleges, Universitties, Etc.)

Fixture:	Occ/Fixt	Total Fixt. Req'd
Water Closets		
Male	40	10
Female	30	13
Urinals	35	11
Lavatories		
Male	40	10
Female	40	10
Drinking Fountains	75	10

15. Fire Extinguishing Systems:
    a) Class II standpipes with hoses shall be provided in buildings less than 4 stories in height but greater than 20,000SF per floor.



LEGEND :

••••••••	1 HR RATED CORRIDORS
------	1 HR OCCUPANCY SEPARATION
■■■■	2 HR SHAFT ENCLOSURE

MAIN LEVEL PLAN COMPUTING CENTER & SHARED SPACES • SCALE: 1" = 20'

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY

CODE COMPLIANCE PLAN

N.T.S.

NORTH

SB+HTK
A JOINT VENTURE

Boeckstein and Brungardt P.A., Architects — Horst, Terrill and Karst Architects, P.A.

Horst, Terrill & Karst ARCHITECTS, P.A.

KANSAS DEPT. OF ADMINISTRATION
DIVISION OF ARCHITECTURAL SERVICES
635 POLK STREET, TOPEKA, KS
J. DAVID DE BUSMAN, DIRECTOR

Date
MAY 12, 1992

Revised Date

Sheet Contents

Project Number
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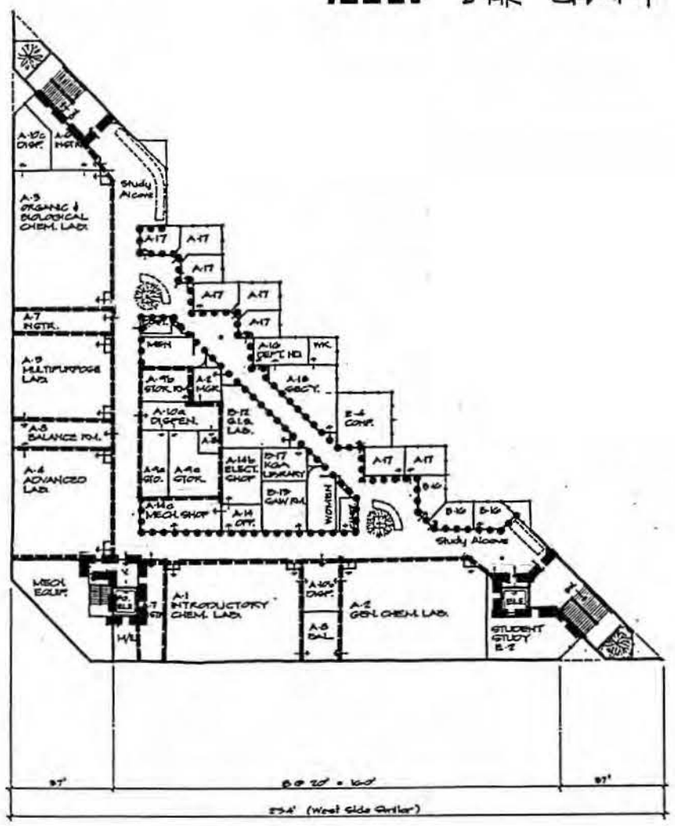
LEGEND:

..... 1 HR RATED CORRIDORS

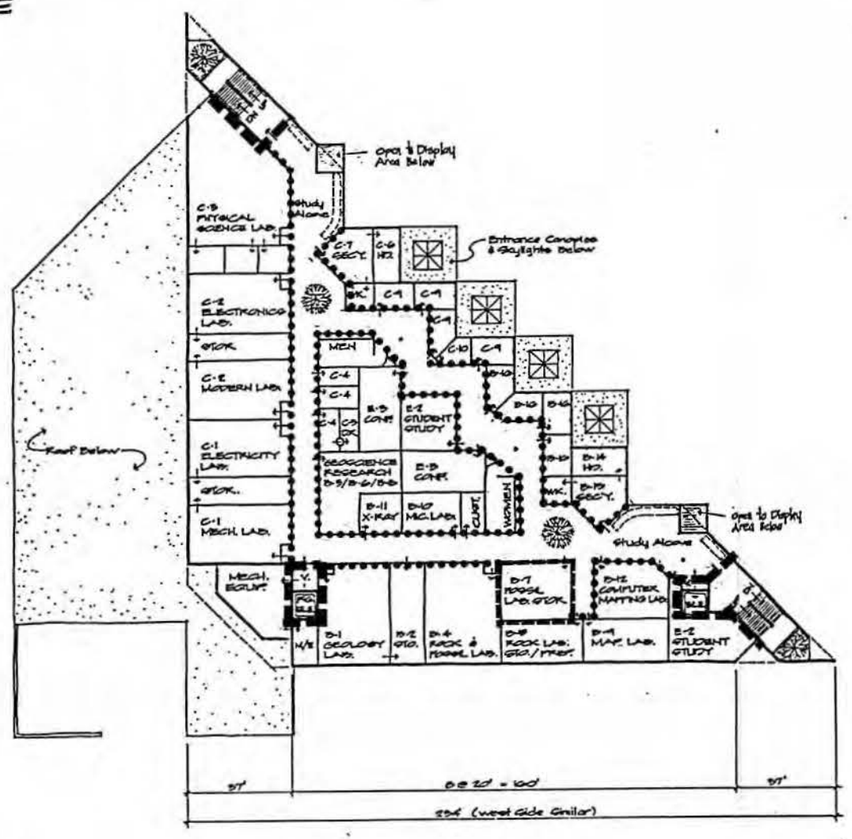
------ 1 HR OCCUPANCY SEPARATION

▪▪▪▪ 2 HR SHAFT ENCLOSURE



THIRD LEVEL FLOOR PLAN — CHEMISTRY DEPARTMENT

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20'-0"



SECOND LEVEL FLOOR PLAN — GEOSCIENCES & PHYSICS DEPARTMENTS

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20'-0"

CODE COMPLIANCE PLAN

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PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS

Schematic Design Review

HTK Horst, Terrill & Karst ARCHITECTS, P.A.

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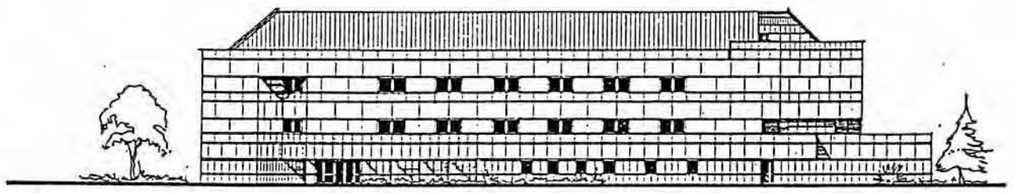
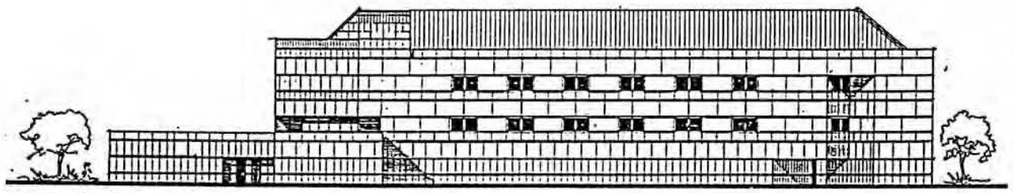
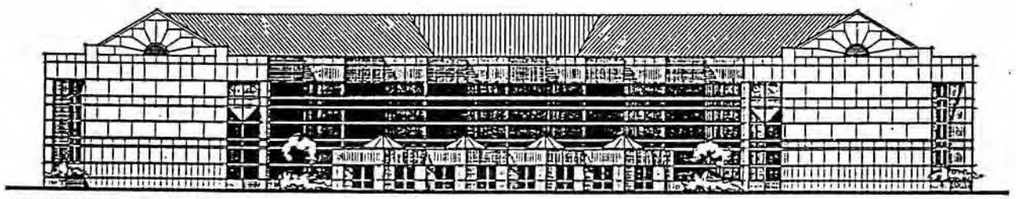


WEST BUILDING ELEVATION



SOUTH BUILDING ELEVATION



NORTHEAST BUILDING ELEVATION

BUILDING ELEVATIONS SCALE: 1" = 20'-0"

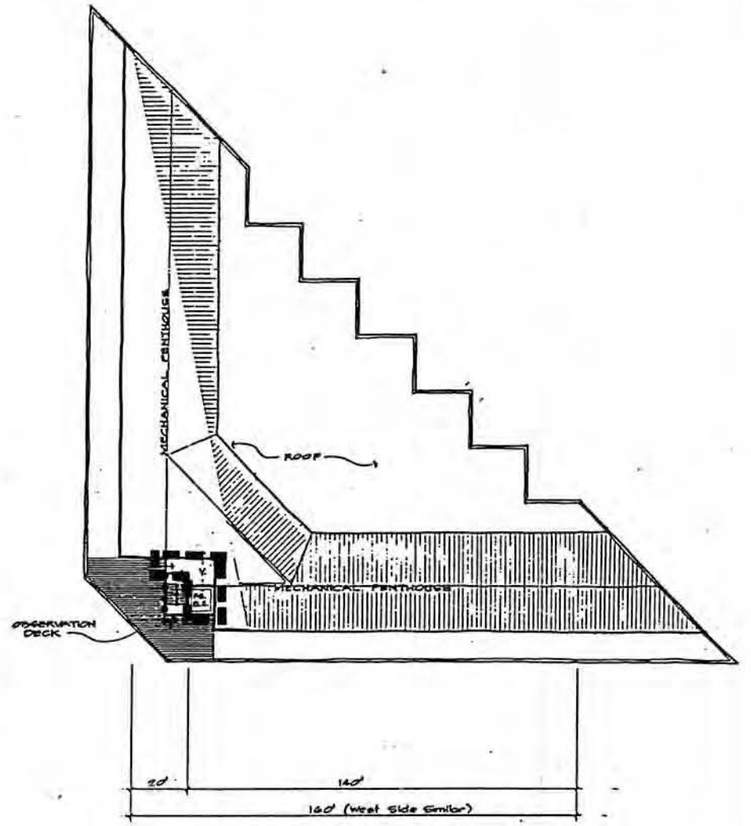
PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY

LEGEND :

..... 1 HR RATED CORRIDORS

------- 1 HR OCCUPANCY SEPARATION

▬▬▬ 2 HR SHAFT ENCLOSURE



PENTHOUSE/ROOF LEVEL PLAN MECHANICAL EQUIPMENT

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20'-0"

NORTH

CODE COMPLIANCE PLAN

N.T.S.

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PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS

Schematic Design Review

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22 OCCUPANTS IN STAIR FROM 3RD FLR (88 x 0.25)
47 OCCUPANTS IN STAIR FROM 2ND FLR (94 x 0.5)
69 OCCUPANTS (TOTAL) EXITING BUILDING
(69 x 0.2 = 13.8" < 36" DOOR, O.K.)

64 OCCUPANTS EXITING BUILDING
(64 x 0.2 = 12.8" < 72" DOORS, O.K.)

117 OCCUPANTS EXITING BUILDING
(117 x 0.2 = 23.4" < 72" DOORS, OK)

NOTE: ALL OFFICES ARE CALCULATED W/ ONE OCCUPANT UNLESS NOTED OTHERWISE.

○- NUMBER IN CIRCLE INDICATES THE ROOM OCCUPANT LOAD.

164 OCCUPANTS EXITING BLDG.
(164 x 0.2 = 32.8" < 72" DRS, OK)

25 OCCUPANTS EXITING BUILDING
(25 x 0.2 = 5" < 36" DOOR, O.K.)

27 OCCUPANTS IN STAIR FROM 3RD FLR. (109x0.25)
50 OCCUPANTS IN STAIR FROM 2ND FLR. (99 x 0.5)
77 OCCUPANTS (TOTAL) EXITING BUILDING
(77 x 0.2 = 15.4" < 36" DOOR, O.K.)

6 OCCUPANTS EXISTING BUILDING
(6 x 0.2 = 5" < 72" DOORS, O.K.)

10 OCCUPANTS EXITING BUILDING
(10 x 0.2 = 2" < 72" DOORS, O.K.)

MAIN LEVEL PLAN COMPUTING CENTER & SHARED SPACES • SCALE: 1" = 20'
PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY

OCCUPANT LOAD & EXITING PLAN

N.T.S.

NORTH

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Bleckley and Steingardt P.A., Architects
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Horst, Terrill & Karst ARCHITECTS, P.A.

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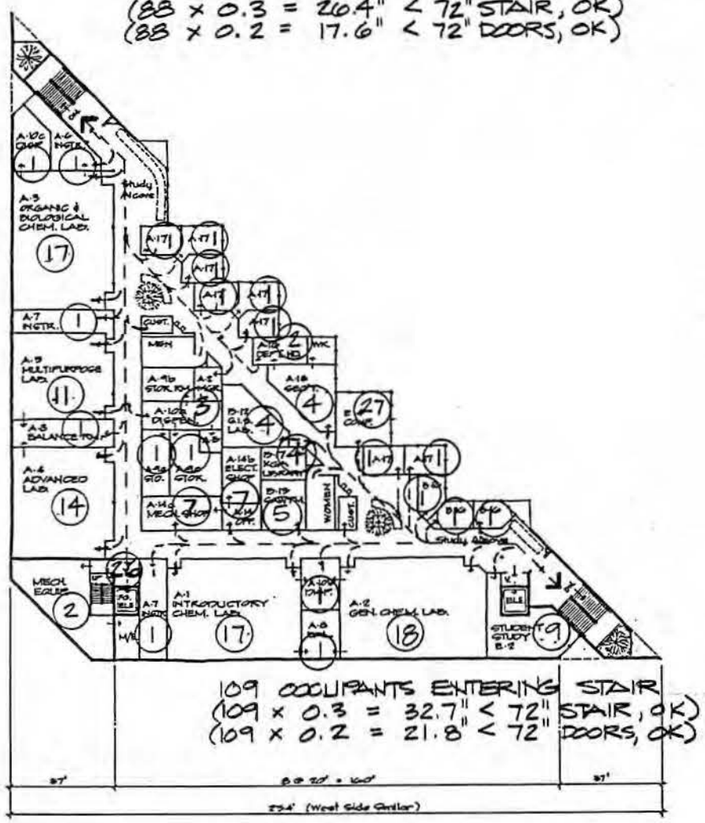
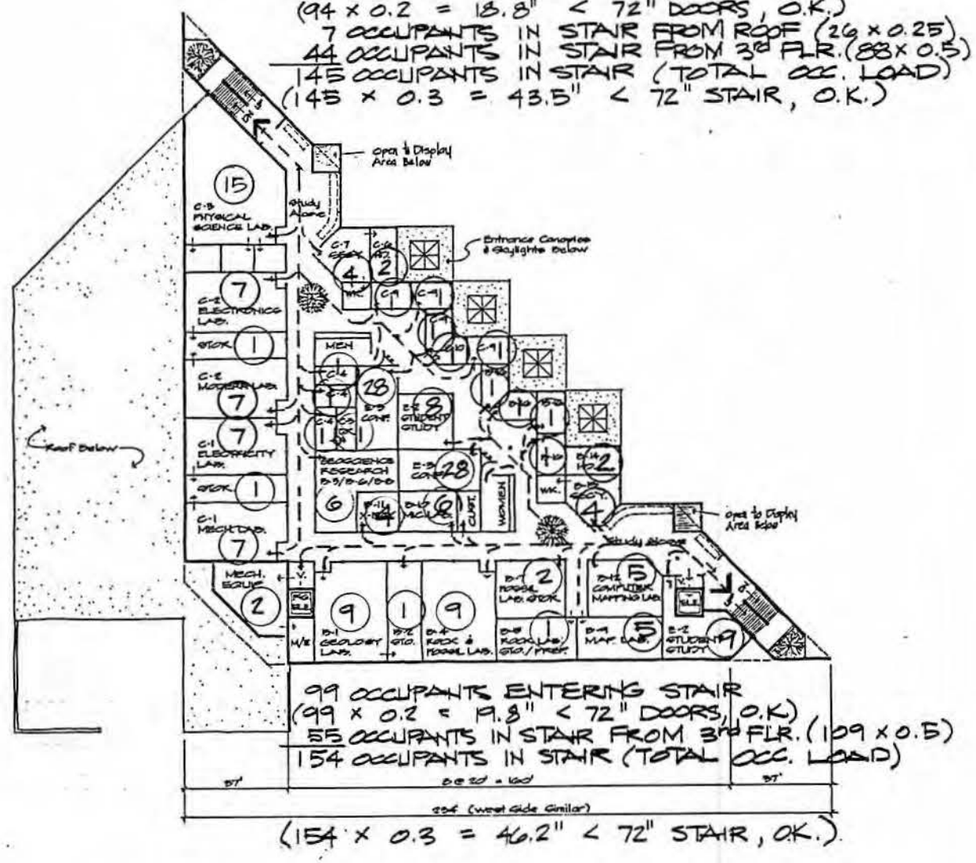


THIRD LEVEL FLOOR PLAN — CHEMISTRY DEPARTMENT

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20'-0"



SECOND LEVEL FLOOR PLAN — GEOSCIENCES & PHYSICS DEPARTMENTS

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20'-0"

OCCUPANT LOAD & EXITING PLAN

N.T.S.

SU+HTI
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PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
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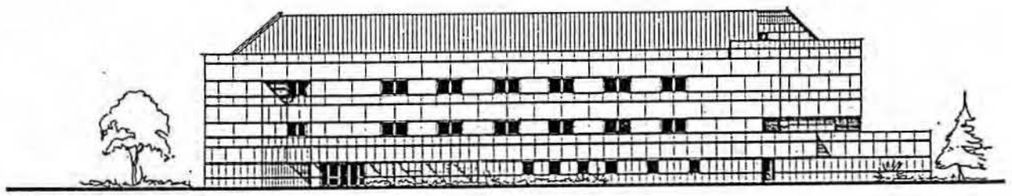
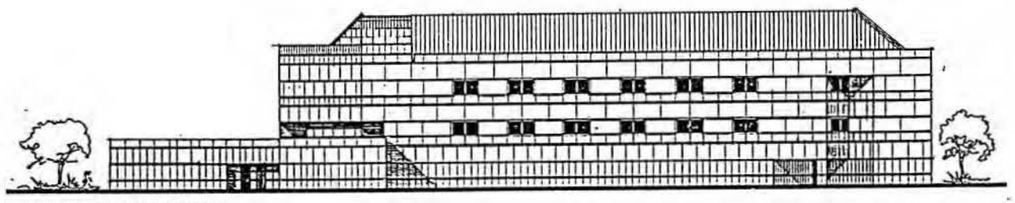
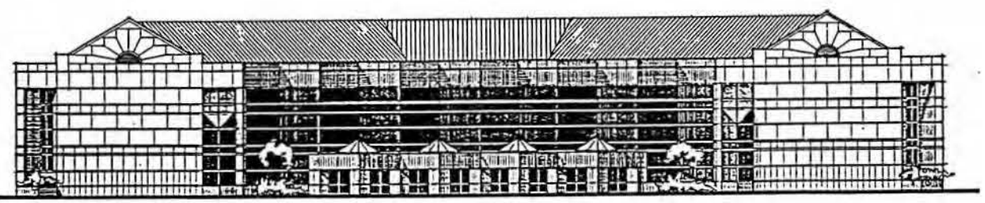


WEST BUILDING ELEVATION



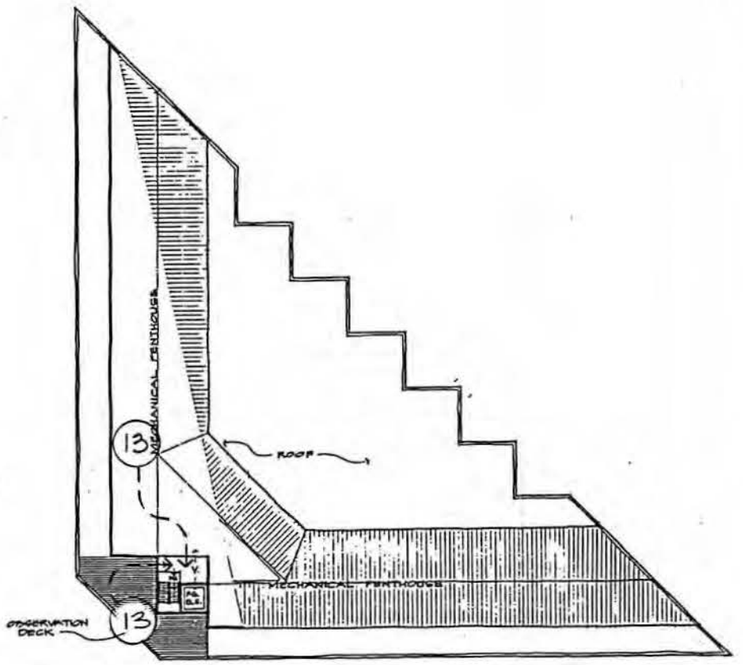
SOUTH BUILDING ELEVATION



NORTHEAST BUILDING ELEVATION

BUILDING ELEVATIONS SCALE: 1" = 20'-0"

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY



26 OCCUPANTS ENTERING STAIR
(26 x 0.3 = 7.8" < 48" STAIR, O.K.)

4/23/92 PHONE CALL W/ FRED HOBLIN (STATE FIRE MARSHALS OFFICE) - WILL ALLOW ONE 48" WIDE STAIR AS THE REQ'D. EXIT.

NORTH

PENTHOUSE/ROOF LEVEL PLAN MECHANICAL EQUIPMENT

PROPOSED PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY SCALE: 1" = 20'-0"

OCCUPANT LOAD & EXITING PLAN

N.T.S.

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PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
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Schematic Design Review

Horst, Terrill & Karst ARCHITECTS, P.A.

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DIVISION OF ARCHITECTURAL SERVICES
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Sheet Contents

Project Number
CCA A-6783/56-HTK 8105.01

Sheet Number
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ENGINEERING CONCEPTS

BASIC MECHANICAL & ELECTRICAL ENGINEERING CONCEPTS

Physical Sciences Building
Fort Hays State University
Concept Development and Schematic Design

Date: May 12, 1992

HVAC Non-Lab Areas

The non-laboratory areas of the building will be conditioned by VAV central air handling systems. The cooling will be through chilled water coils located in the AHU's. The AHU's will be provided with air side economizer controls to utilize outdoor air for "free" cooling when the outdoor air temperature and humidity allow same. The conditioned air will in turn be supplied from the AHU's via medium pressure, round, externally insulated ductwork which will feed cooling only, pressure dependent VAV control units. The system capacity modulation will be accomplished through solid state frequency invertors controlling the supply fan RPM.

The heating of these spaces will be from a separate perimeter air distribution system. This system will be comprised of heating only fan and coil units concealed in the plenum space, feeding unlined, rectangular sheetmetal ducts which in turn will blanket the exterior walls with warm air in sufficient quantity to offset the conducted heat losses.

HVAC - Lab Areas

The laboratory areas of the building will be designed in compliance with NFPA Standard 45 and other codes and regulations. The lab exhaust system(s) shall be of the "once through" type with make-up air conditioned from outdoor design conditions (-10 degrees F winter; 100 degrees F DB and 78 degrees F WB summer) to the indoor design conditions (75 degrees F winter; 78 degrees F DB and 65 degrees F WB summer).

The laboratory space heating and cooling will be via 4-pipe chilled water/hot water fan and coil units concealed above the ceiling of the laboratories.

The fume hoods utilized in the laboratories will be standard bypass type hoods with vertical sashes. The teaching laboratories may be provided with a glass enclosed unit to enhance the teaching environment and improve classroom visibility. With both these types of hoods, the make-up air will be supplied directly to the lab space in such a manner as to limit air velocities in the area of the hood sashes to insure proper air flow into same.

In general, the fume hoods will each be supplied with a dedicated exhaust fan sized to provide 100 FPM sash face velocity and its associated make-up supply air control unit. It is our plan to manifold up to six hoods in the teaching labs on a single exhaust/make-up system to simplify the installation and control schemes. All hood exhaust ductwork will be stainless steel. All fume hood exhaust fans will be coated with two coats of baked phenolic (P-413 Heresite) coating to minimize corrosion. Each fan or fan system will be energized by its respective hood mounted control switch. The non-teaching hood will be provided with a dual flow rate control system that will provide a minimum exhaust flow at all times insuring the required pressure relationships. Teaching hoods will be designed with on-off controls to allow the hood system(s) to be de-energized during unassigned time periods and thereby conserving energy.

The individual hood exhaust fans will discharge into a heat recovery plenum which will feed into a heat recovery coil bank and exhaust system. The exhaust system will discharge the effluent into the atmosphere with sufficient velocity to exit the ASHRAE defined recirculation zone created by wind velocities interacting with the building profile. System capacity control will be provided to allow for varying hood operations while maintaining the required discharge velocity.

The make-up air will be supplied from 100% outside air make-up units located in the mechanical penthouse. These units will be comprised of a steam IFB heating coil to heat the outdoor air to 75 degrees F and a chilled water cooling coil to cool the air to 62 degrees F DB. The units(s) will be supplied with a heat recovery coil in the entering air and a heat recovery coil in the leaving air downstream of the cooling coil. The two heat recovery coils will be served by a closed loop circulation system allowing the entering air heat in the summer months to supply the reheat needs to raise the 62 degrees F DB cooling supply air temperature to 75 degrees F DB. The 62 degree F DB summer cooling coil discharge temperature is required to remove the latent load from the outdoor air based on the aforementioned outside air design conditions. The resultant tempered make-up air will be delivered to the laboratories via uninsulated, round, medium pressure ductwork. The system capacity modulation will be accomplished through solid state frequency invertor controlling the supply fan RPM. The make-up air will be introduced to the laboratory environment through pressure- independent, constant volume control units. The dual flow rates on the non-teaching hoods will be controlled by a sash mounted switch located in the fume hood. An air flow switch in the exhaust air system will sound a local alarm if a system failure is detected by a loss of air flow in the exhaust system.

The laboratory areas are required to be held at a negative pressure relative to the non-laboratory areas. This will be accomplished by constantly exhausting the non-teaching hoods at a minimum air flow not less than .70 air changes per hour. In teaching areas where dual flow hoods may or may not be present, exhaust will be provided to insure the required pressure relationships.

Plumbing

After visiting several laboratory facilities at other Universities and discussing the acid waste systems with the users and the maintenance personnel, we propose to utilize flame retardant polypropylene acid drain waste and vent piping with electrically fused joints. It is our opinion that with the chemicals utilized in this type of facility, this pipe material will provide a viable waste and vent system. The acid waste drain system will feed through a neutralization tank located outside of the building prior to connection to the non-acid waste drain system.

The non-lab waste and vent system will be cast iron with no-hub joints and shall not connect to the acid waste system prior to the neutralization tank.

Laboratory services shall include non-potable domestic hot and cold water, compressed air, natural gas, distilled water, equipment condenser cooling water (where required), and vacuum. The services will be distributed overhead in the ceiling plenums with valved take-offs at each laboratory. The valved take-offs will allow for modifications and additions in the individual labs without interrupting services in the adjacent labs.

Piping material will be as follows:

a) Above grade domestic water, vacuum, compressed air and condensate drains lines will be Type L hard copper with 95/5 lead-free solders joints.
b) Below grade domestic water will be Type K hard copper with silfos solder joints.
c) Below grade condensate drain lines will be cast iron, no-hub pipe.
d) Distilled water lines will be virgin polypropylene pipe with fusion weld joints.
e) Above grade gas lines will be schedule 40 black steel pipe with malleable screwed or welded fitting depending on the line size.
f) Below grade gas lines will be polyethylene pipe with butt fusion fittings.
g) Fire protection lines will be schedule 10 pipe with victaulic fittings in compliance with NFPA requirements.
h) Heating water, chilled water and steam lines shall be schedule 40 black pipe with welded or victaulic fittings as applicable.
i) Steam condensate return lines will be schedule 80 black pipe with screwed or welded fittings as applicable.

Utilities

The chilled water will be produced in a centrifugal water cooled chiller containing RF-123 refrigerant. The condenser water will be cooled by a open cooling tower.

The steam service shall be from the campus central boiler plant. Steam shall be used to obtain the heating water through a shell and tube heat exchanger and also heat the domestic hot water.

To conserve water resources, the laboratory equipment condenser cooling service will be produced in a shell and tube heat exchanger with the heat being rejected to the chilled water system. This cooling loop will be a closed system and will serve only selected laboratories.

Compressed air shall be produced from a rotary, oil lubricated air compressor with ASME storage tank to supply a 100 psi distribution system. A continuously operating refrigerated air dryer will reduce the dew point of the compressed air supply to 45 degrees F.

Gas will be distributed through the building at 7" WC pressure and supplied from the campus main.

Vacuum shall be produced by a liquid ring type pump operating at 20" HG vacuum. The system will be provided with a service liquid partial recirculation system to conserve water resources. This system allows the service liquid to be discharged from the pump to a separate tank where the heat can be dissipated by radiation. A mixture of return liquid is blended with the cool make-up liquid and returned to the pump. An ASME code constructed tank will be provided for storage.

Distilled water shall be produced from a reverse-osmosis machine. The resultant distilled water shall be stored in an FDA approved fiberglass tank located in the mechanical penthouse. The distribution will pressurized to 20 psi to allow for the use of point of use polishers in the laboratories to obtain CAP Type II water.

Domestic water shall be provided from the campus main. The service will be divided into a potable water system for the non-lab areas and a non-potable water system for the laboratory areas and will be protected by double check type backflow preventors. The fire protection main will be protected by a double check type backflow preventor.

Domestic non-potable hot water will be produced in an instantaneous, steam fired heater. Domestic potable water will be produced in a separate steam fired heater.

Electrical

The electrical service to the facility will be fed from the campus 4160 volt distribution system which is routed through the steam tunnels. Our building will connect to the existing system in the tunnel and feed the switchgear through 5 KV, EPR insulated, armored power cable. The connection will be made radially through a high voltage disconnect switch located in the tunnel.

A power center will be located in the first floor mechanical room to supply 480Y/277 volt power for all large motors, mechanical equipment and lighting. A separate power center will be provide for the computer room equipment to isolate these loads from transients, harmonics and surges which will be present in the main building service.

A 480 volt delta connected to 208Y/120 volt step down transformer will be provided for each of the power centers to supply power to outlets and small equipment throughout the facility.

Lighting throughout the facility, unless special requirements dictate otherwise, will be 2 x 4 fluorescent grid mounted troffers with prismatic lenses. Computer room and computer teaching classrooms will be provided with lighting systems designed to minimize the reflected glare from the VDT screens. Special attention will be given to eliminating or minimizing shadows at laboratory benches. Laboratories will be illuminated to 75 footcandles maintained in accordance with IES recommendations. The offices will be illuminated to 60 footcandles maintained in accordance with IES recommendations. Classrooms will be illuminated to 60 footcandles maintained in accordance with IES recommendations and will be provided with dual illumination levels to accommodate A/V presentations. In addition, illumination of the chalkboards will be carefully considered to insure proper vertical illumination of the surface.

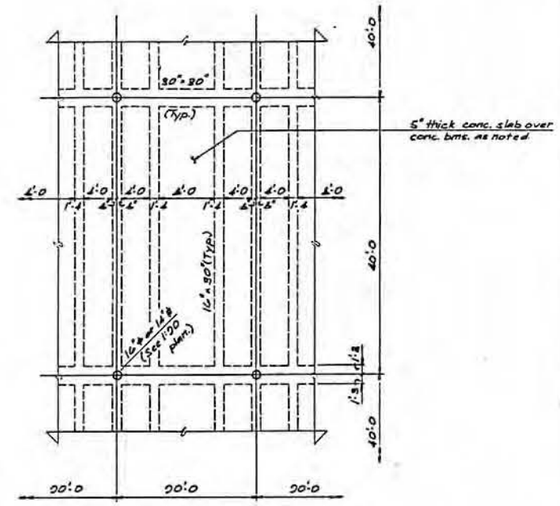
All fluorescent lighting fixtures will be provided with Octron 35 K lamps with a minimum CRI of 75 and compatible solid-state electronic ballasts. Octron lamps and solid-state electronic ballasts yield 98% of the relative light output with 65% of the input wattage required by energy saving magnetic ballasts and F40 lamps. This lighting system yields a significant reduction in total connected lighting loads as well as reduced air conditioning tonnage.

All laboratories will be provided with dedicated 208Y/120 volt electrical panelboards to serve each space. This will allow for modifications and additions to individual labs without disrupting adjacent spaces.

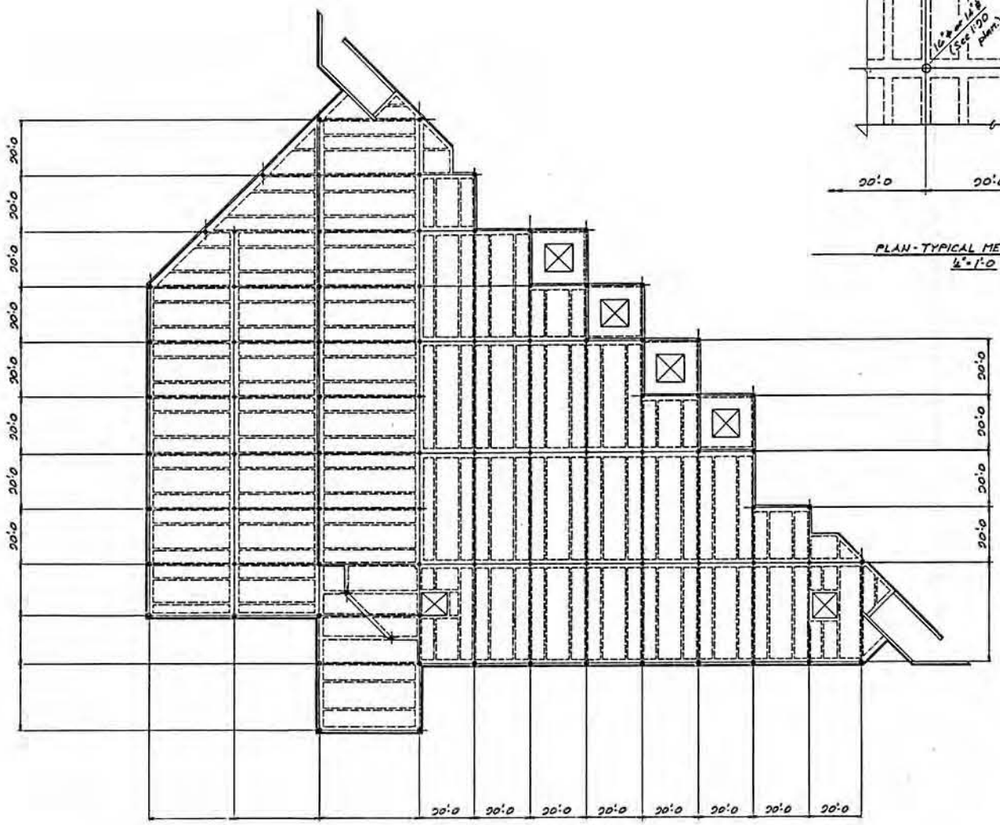
All motors, except elevators, larger than 7.5 HP will be provided with power factor correction capacitors sized to provide minimum 95% power factor.

The computer room area equipment will be fed through an uninterruptable power supply (UPS) to insure "clean" power. Battery backup of 15 minutes will be provided to allow for orderly shutdown of the computer system during times of utility power outages. In addition, surge protection will be provided to protect the computer equipment and UPS from voltage transients and spikes.

The entire facility will be provided with cable trays located above the corridor ceilings to allow for telecommunications, data, and video cabling. Individual outlets will be provided where required with conduits providing access to the cable tray system.



PLAN - TYPICAL MEMBER SIZES
4" = 1'-0



SECOND FLOOR/LOW ROOF FRAMING PLAN
1" = 20'

PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS

Schematic Design Review

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CONSULTING ENGINEERS
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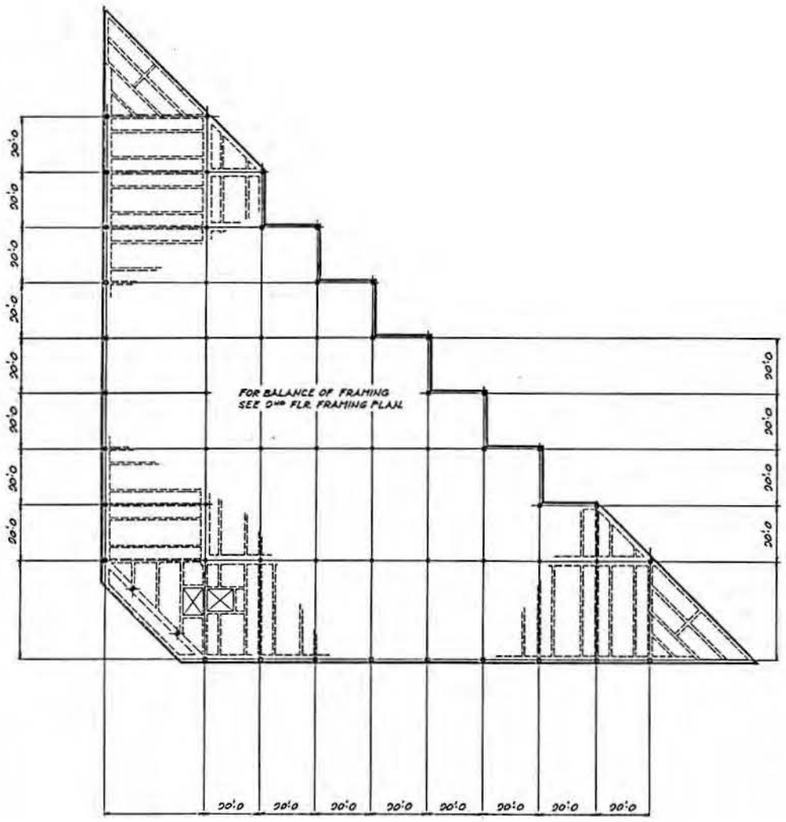
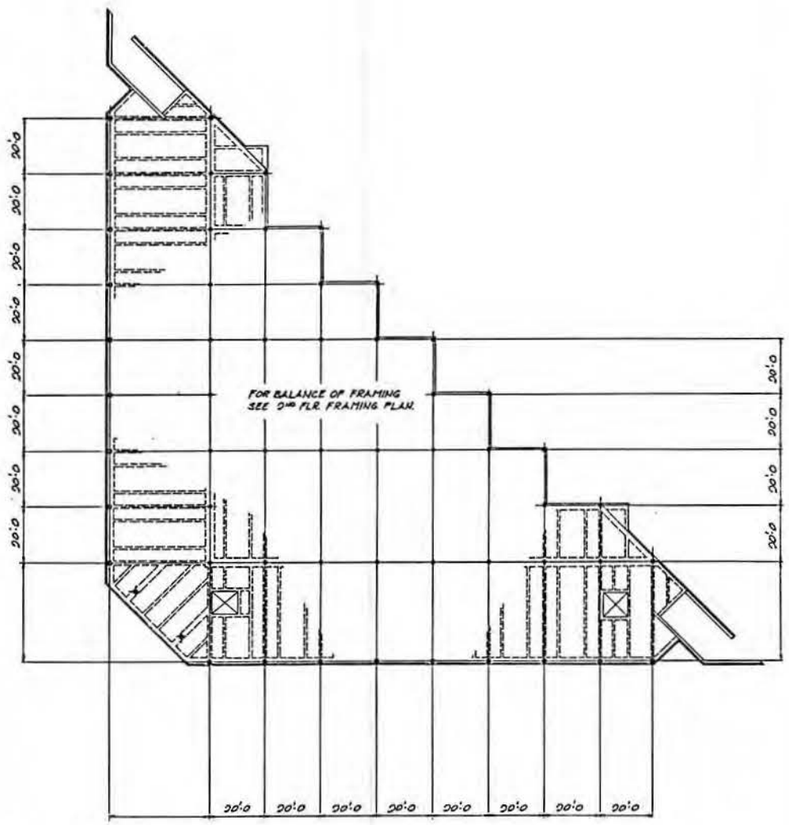


ROOF FRAMING PLAN
1"=20'



THIRD FLOOR FRAMING PLAN
1"=20'

PHYSICAL SCIENCE BUILDING • FORT HAYS STATE UNIVERSITY
HAYS, KANSAS

Schematic Design Review

Horst, Terrill & Karst ARCHITECTS, P.A.

FINNEY & TURNIPSEED, P...
CONSULTING ENGINEERS
BUILDINGS AND RELATED STRUCTURES

Date
MAY 12, 199...

Revised Date

Sheet Contents

Project Number
CCR A-8703/SB-HTK 9105.01

Sheet Number
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COST ESTIMATE

A JOINT VENTURE
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PRELIMINARY ESTIMATE OF COST
New Physical Science Building
Fort Hays State University
Hays, Kansas

May 12, 1992

Costs are based on receiving Bids in February 1993. Any deviation from this schedule may vary costs at the rate of 4% per year.

BUILDING CONSTRUCTION (84,987 SF x $101.50/SF)			**$8,626,200**
General Construction			**$5,176,400**
1)	Foundation ($4.25/SF)	$361,200	
2)	Structure ($10.46/SF)	888,700	
3)	Building Envelope	1,929,200	
	a) Roof System ($4.48/SF x 23,553 SF)	$105,600	
	b) Exterior Walls	1,441,900	
	• 4" Cut Stone Installed ($17/SF x 49,400 SF)	$839,800	
	• LWC Blk. Backup ($6/SF x 37,000 SF)	222,000	
	• Vapor Retarder & Water Repellant ($.94/SF x 49,400 SF)	46,400	
	• 1 1/2" Wall Insulation ($1.24/SF x 49,400 SF)	61,300	
	• Glass Window Wall ($20 x 9,900 SF)	198,000	
	• Windows ($40 SF x 1,860 SF)	74,400	
	c) Entrance Doors ($1,200 x 13)	15,600	
	d) Entrance Canopies ($60/SF x 1,600 SF)	96,000	
	e) Mechanical Penthouse ($22.02/SF x 12,800 SF)	281,800	
4)	Partitions @ $5.35/SF	454,500	
5)	Interior Finishes @ $8.37/SF	711,100	
6)	Specialties @ $2.64/SF	224,500	
7)	Contractor OH&P @ 13% x $4,580,900	595,500	
Mechanical & Electrical Construction			**3,449,800**
1)	HVAC System ($19/SF)	1,614,600	
2)	Plumbing ($7.80/SF)	662,900	
3)	Electrical ($12.61/SF)	1,071,800	
4)	Contractor's Coord. & Misc. OH&P @ 5% x $3,349,300	100,500	

EQUIPMENT		**1,149,800**
Fixed Scientific Casework	900,000	
Fume Hoods	169,800	
1) 5' Glass (12 dbl @ $5,936)	71,200	
2) 8' Wall Units (18 @ $4,749)	85,500	
3) 6" Wall Units (1 @ $2,500)	2,500	
4) 4' Wall Units (5' @ 2,117)	10,600	
Accessible Computer Floor in Main Frame Room ($15/SF)	48,000	
Elevators (2)	80,000	
SITE DEVELOPMENT		**374,000**
Site Demolition	28,000	
Grading (6,000 CY x $8/CY)	48,000	
4" Concrete Entrance Plaza ($3/SF x 34,500 SF)	103,500	
4" Concrete Sidewalks ($2.50/SF x 3,520 SF)	8,800	
Landscaping	35,000	
Sprinkler System (40,000 SF x $.50/SF)	20,000	
5" Asphalt Paving ($1.14/SF x 83,900 SF)	95,700	
Concrete Curb & Gutter ($10 x 2,500 LF)	25,000	
Utility Tunnel Extension ($500/LF x 20 LF)	10,000	

TOTAL PROJECT CONSTRUCTION COST • PHYSICAL SCIENCE BUILDING $10,150,000

TOTAL CONSTRUCTION COST • TENNIS COURT RELOCATION $250,000

TOTAL CONSTRUCTION COST • BOTH PROJECTS $10,400,000

ITEMS TO BE BID AS ALTERNATES TO THE BASE BID

1) Lobby Furniture And Interior Landscaping ..... ADD. $50,000

2) 8" Asphalt Paving In Lieu Of 5" Asphalt ..... ADD. $47,900
   - ($1.71/SF - $1.14/SF = $.57/SF x 83,900 SF)

3) Plaza Walk Extension Past Library ..... ADD. $33,000
   - ($3/SF x 11,000 SF)

4) Plaza Upgrade To Concrete Brick Pavers On Sand & Gravel Between 5' Grid Strips Including The Library Extension ..... ADD. $60,800
   - ($5.70/SF - $3/SF = $2.70/SF x 22.500 SF)

5) Masonry Screen Walls At Existing Library Condensing Unit & Dock ..... ADD. $16,200

6) Plaza Lights & Stone Post Standards ($1,000/ea. x 30) ..... ADD. $30,000

PROJECT DESCRIPTION

Project Location: 180 miles from Wichita, Kansas

General Project Description: Laboratory Building

Total Area of Building: 84,987 SF Ground Floor Area: 34,264 SF

Number of Floors: 3 Average Floor to Floor Height: 15.0 Ft.

Average Height from Grade to First Floor Level: 2 Feet

Average Parapet Height (Roof Top to Top of Exterior Wall): 3 Feet

Average Building Perimeter: 969 Feet

Owner Type: Governmental Construction Quality: Average

Given Site Area: 3.526 acres = 153,600 Square Feet

Required Site Area: 2.346 acres = 102,193 Square Feet

Topographic Characteristic of Site: Flat

Special Building Features:	Cost
Lobby Furniture & Inter. Landscaping	$50,000
Glass Fume Hoods (12 dbl @ $5,936)	$71,200
Other Fume Hoods (18 - 8'; 1 - 6';5 -4')	$95,500
Accessible Floor - Main Frame Room	$48,000
Mechanical Penthouse & Entrance Canopies	$377,000

Site and Special Outside Work:	Area (Sq. Ft.)	Cost
121 site parking spaces	52,600	$122,338
Landscape allowance	15,329	$35,000
Plaza, Sidewalks & Site Demolition	0	$140,300
Grading	0	$48,000
Service Drive, Street Mod., Parking & Tunnel Ext	0	$130,700
Landscaping & Sprinkler System	0	$68,200
Masonry Screen Walls @ Exist. M/E Units	0	$16,200

Time Schedule:

1/ 1/93 Bid date
2/ 1/93 Ground breaking
2/ 1/94 Move in date (12 Months construction time)

Note: Dates are based on timely commencement of design work, and normal weather during construction with no strikes or other delaying problems.

PRELIMINARY STATEMENT OF PROBABLE COST

Total Area of Building: 84,987 sq. ft.

Building System	$/Surf. Area	System Cost	Cost per SF
Foundation	$10.54 *	361,221.00	4.25
Structure		888,710.00	10.46
Roof System	$4.48 *	105,607.00	1.24
Exterior Walls	$23.62 *	1,144,392.00	13.47
Partitions		454,489.00	5.35
Interior Finishes		711,084.00	8.37
Specialties		224,474.00	2.64
Building Equipment		399,535.00	4.70
Heat, Vent, Air Cond.		1,614,605.00	19.00
Plumbing		662,912.00	7.80
Electrical		1,071,825.00	12.61
Elevators (2)		116,366.00	1.37
Special Building Features		641,700.00	7.55
Gen. Contractor's Overhead	10.00%	839,692.00	9.88
Gen. Contractor's Profit	3.00%	277,098.00	3.26
Total Building Cost:		$9,513,710.00	$111.94/SF
Site and Special Outside Work (See page 1)		560,738.00	
Total Project Construction:		$10,074,448.00	$118.54/SF

* Cost per square foot of actual surface area, not total building area.

The above Total Building Cost includes Materials, Labor,and Contractors Overhead and Profit but does not include such things as Land Cost, Architectural & Engineering Fees, Legal Fees, Soil Test Engineering, Site Survey, or any special feature not listed in the cost breakdown.

Also, the above costs do not include costs for renovation, remodeling or demolition of the existing construction on the site.

Construction COST - Initial Estimate (COSTIE)
DATA FILE LISTING

FILE NAME: FHSU-10.CED MAY 8, 1992

1. DATE OF CONTACT: 4/13/92
CLIENT NAME AND TITLE: Eric King, Director
NAME TO BE USED AT START OF LETTER: Eric
COMPANY NAME: Fort Hays State University
MAILING ADDRESS: Brooks Building
CITY, STATE, ZIP: Fort Hays State University; Hays, Kansas
TELEPHONE:
PROJECT TITLE: Physical Science Building
PROJECT LOCATION: Fort Hays State University
BRIEF PROJECT DESCRIPTION: Laboratory Building

2. BUILDING SIZE IS SPECIFIED BY: ACTUAL SIZE
BUILDING TYPE AND SIZE INFORMATION

Laboratory Building	73,011 Sq. Ft.	=	73,011 SF =	86% OF BLDG
Computer Center	11,976 Sq. Ft.	=	11,976 SF =	14% OF BLDG
TOTAL BUILDING AREA:	84,987 Square Feet		(SIZE FACTOR = 0.98)	

3. NUMBER OF SWIMMING POOLS: 0 NUMBER OF TENNIS COURTS: 0
TOPOGRAPHIC CHARACTERISTIC: Flat (TOPOGRAPHY FACTOR = 1.00)
SPECIAL IN-BUILDING FEATURES:

Lobby Furniture & Inter. Landscaping	LUMP SUM COST	$50,000
Glass Fume Hoods (12 dbl @ $5,936)	LUMP SUM COST	$71,200
Other Fume Hoods (18 - 8'; 1 - 6';5 -4	LUMP SUM COST	$95,500
Accessible Floor - Main Frame Room	LUMP SUM COST	$48,000
Mechanical Penthouse & Entrance Canopi	LUMP SUM COST	$377,000

SPECIAL OUTSIDE FEATURES:

Plaza, Sidewalks & Site Demol	LUMP SUM COST	$140,300	0 s.f.
Grading	LUMP SUM COST	$48,000	0 s.f.
Service Drive, Street Mod., P	LUMP SUM COST	$130,700	0 s.f.
Landscaping & Sprinkler Syste	LUMP SUM COST	$68,200	0 s.f.
Masonry Screen Walls @ Exist.	LUMP SUM COST	$16,200	0 s.f.

4. DATE OF CONSTRUCTION START: 2/ 1/93 (INFLATION FACTOR = 1.0271)
CLOSEST MAJOR CITY: Wichita, Kansas (FACTOR = 1.0100)
DISTANCE FROM MAJOR CITY: 180 Miles (FACTOR = 1.1800)
OWNER TYPE: Governmental (OWNER FACTOR = 1.0800)
CONSTRUCTION QUALITY: Average (QUALITY FACTOR = 1.0000)
AVERAGE HEIGHT FROM GRADE TO FIRST FLOOR LEVEL: 2 ft.
AVERAGE PARAPET HEIGHT (ROOF TOP TO TOP OF WALL): 3 ft.
ESTIMATE PREPARED BY: Gary Karst

5. FLOORS: 3 (FACTOR = 1.03) AVG FLOOR-FLOOR HEIGHT: 15.0 Feet
INTERNAL GARAGE PARKING: 0 Square Feet 0 Parking Spaces
EXTERNAL GARAGE PARKING: 0 Square Feet 0 Parking Spaces
SITE AREA USED BY EXTERNAL GARAGE PARKING: 0 Square Feet
SITE PARKING AREA: 52,600 Square Feet 121 Parking Spaces
SITE AREA: 153,600 Square Feet EXISTING CONSTRUCTION: Yes
NUM. OF ELEVATORS: 2 ROOF AREA: 23,553 Sq Ft
CONSTRUCTION TIME: 12 Months FOUNDATION AREA: 34,264 Sq Ft
BLDG. BASE AREA: 34,264 Sq Ft AVG BLDG PERIMETER: 969 Feet
LANDSCAPE ALLOWANCE: $35,000

6. BUILDING SYSTEM COSTS

	UNFACTORED BASE COSTS	FACTORED COSTS
1. Foundation	$ 7.90/SF of foundation area	$10.54/SF
2. Structure	$ 7.84/SF of building	$10.46/SF
3. Roof System	$ 3.36/SF of roof area	$4.48/SF
4. Exterior Walls	$ 17.70/SF of exterior wall area	$23.62/SF
5. Partitions	$ 4.01/SF of building	$5.35/SF
6. Interior Finishes	$ 6.27/SF of building	$8.37/SF
7. Specialties	$ 1.98/SF of building	$2.64/SF

8. Building Equipment	$ 3.52/SF	of building	$4.70/SF
9. Heat, Vent, Air Cond.	$ 14.24/SF	of building	$19.00/SF
10. Plumbing	$ 5.85/SF	of building	$7.80/SF
11. Electrical	$ 9.45/SF	of building	$12.61/SF

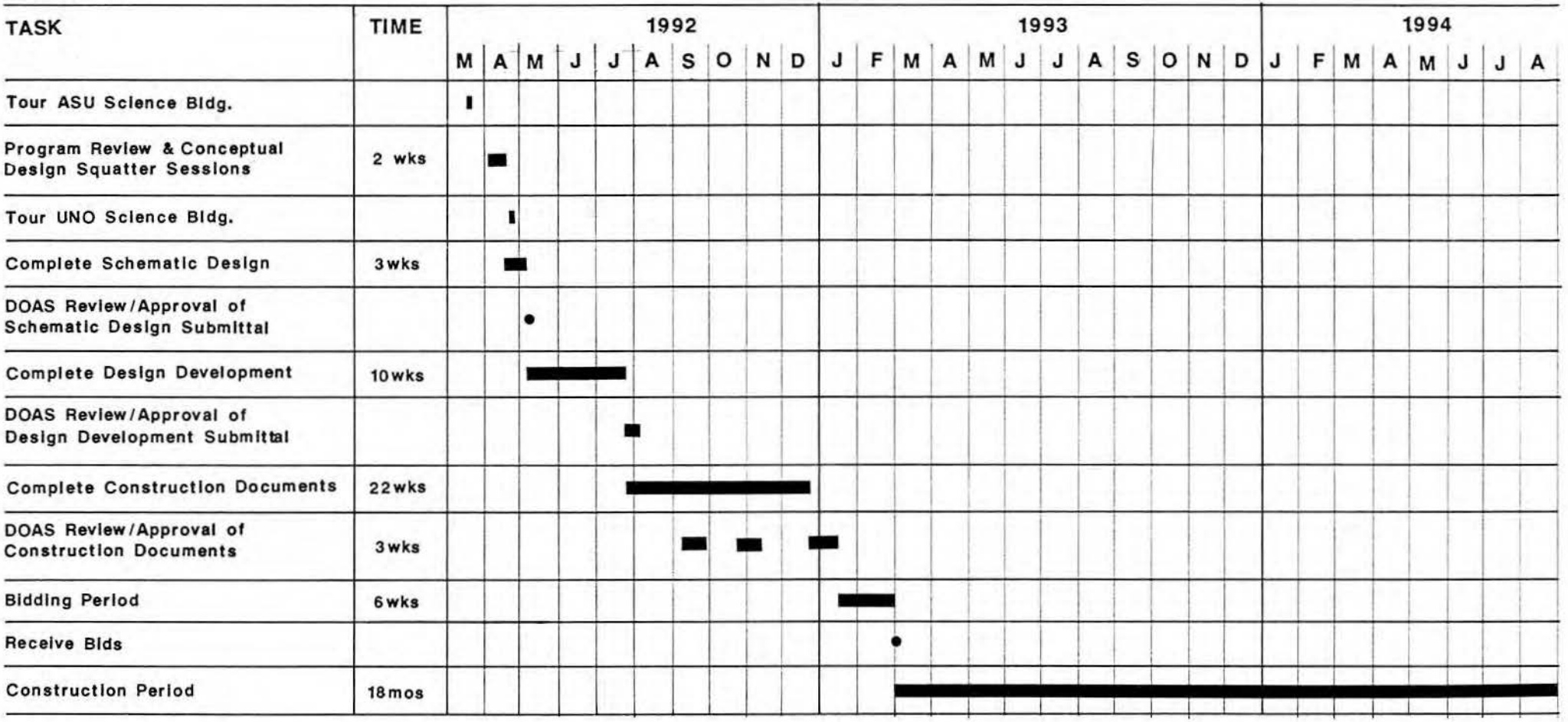
GEN. CONTRACTOR'S OVERHEAD: 10.00% GEN. CONTRACTOR'S PROFIT: 3.00%

WORK EFFORT TIME LINE

WORK EFFORT TIME LINE • PHYSICAL SCIENCE BUILDING

Fort Hays State University, Hays Kansas

MAY 12, 1992



SB+HTR

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