

Cuevas-Mannion Construc**F.Y.I.**

A JOINT VENTURE

June 3, 1991

To: JSGFrom: CKReturn ☐Keep or toss ☒

Post-It™ F.Y.I. pad 7668

Mr. Saul Wolf, Architect
 Wolf & Berghen Associates
 533 - 28th Street
 San Francisco, CA 94131

RE: CSB 5th Floor
 Stomatology Laboratory Alterations
 Oral Aids Center
 Project No. 8060
 Contract No. R220
 File No. 3549

RECEIVED**JUN 04 1991**

Wolf & Berghen Associates

cc: Russ Allen
C. Kottler

Dear Saul:

Please be advised that on Friday, May 31st, F. W. Spencer replaced four (4) new traps at the new convectors to eliminate the possibility that the new traps were contributing to the noises at the convectors which have been reported by the occupants of the project. Mr. Sal Russo, Physical Plant Supervisor, and his representative, were present during this work which occurred between 5:00-6:00PM. After replacement of the traps, the steam was turned on and no noises occurred.

The following traps were replaced:

1. Room C540, between columns 25 and 32.
2. Room C540C.
3. Room C544. Observed that the convector was not sloping toward the trap. Slope correction performed.
4. Room C550 near column 9. Observed small amount of dirt in new trap which was replaced.

Very truly yours,

CUEVAS-MANNION CONSTRUCTION

Alan Ehni
 ALAN EHNI
 Project Manager

AE:sb

Enclosure

cc: MF
CF

47-90\WBA50

Dept. of Stomatology
 Administration
RECEIVED

JUN 6 1991

JORGE A. CUEVAS
 JOSEPH F. MANNION

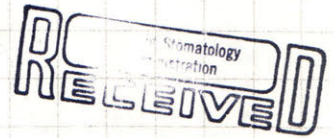
4177 17th St. San Francisco, CA 94114
 1641 Hawes St. San Francisco, CA 94124

(415) 626-1182
 (415) 822-3622

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675



4 JUNE 1991

C6B 5TH FLOOR STOMATOLOGY LAB
PROJECT 8060

JUN 6 1991

MEMO TO CUEVAS-MANNION, ALAN EHN

PHONE CALL FROM EMILY RAPAPORT WITH THE FOLLOWING COMPLAINTS:

1. LOOSE DOOR HANDLES & STRIKE PLATES ON THE FOLLOWING DOORS:

C550A - OUTSIDE
C550B - CORRIDOR SIDE
C540 - BOTH SIDES
C534A - " "
C534 - " "
2. SPENSER PLUMBING NEVER SHOWED UP TO CLEAN DRAIN FOR P2 # WEST (GREYISH POWDER THAT HAD TO BE SCRAPED OFF THE BOWL. PPD PLUMBERS MOVED THE BLOCKAGE DOWN TO THE 2ND FLOOR LEVEL. SINKS STILL CANNOT BE USED.
3. GAS LEAK IN TURRET OF C550 COULDN'T BE STOPPED BY TIGHTENING. PLUMBER CLAIMED IT'S THE MANUFACTURERS' PROBLEM (CHICAGO). VINCE RETTEW OF RV ASSOC. (DISTRIBUTOR) CALLED EMILY & TOLD HER IT COULD BE THAT THE PRESSURE IS TOO HIGH. THIS IS NONSENSE AS THE OTHERS DON'T LEAK. THE VALVE IS PROBABLY DEFECTIVE & NEEDS TO BE REPLACED BY THE CONTRACTOR IMMEDIATELY. THIS IS A FIRE HAZARD.

FAX CC: CUEVAS-MANNION, CRM, C. KOSTER

CC: C. KOSTER, STOMATOLOGY
FOR INFO
ONLY

SAN FRANCISCO: DEPARTMENT OF
CAPITAL RESOURCES MANAGEMENT
BOX 0894

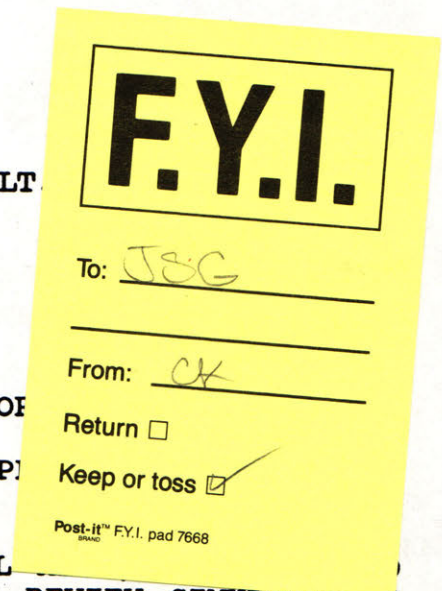
28 JUNE 90

PRECONSTRUCTION CONFERENCE

PROJECT: CSB 5TH FLOOR S/D STOMATOLOGY LAB ALT
PROJECT NO: 8060

AGENDA:

1. INTRODUCTIONS.
2. NOTICE TO PROCEED: WE INTEND TO ISSUE FOR
3. DISCUSS WEEKLY MEETINGS/ DAY AND TIME/ P
4. SUBMITTALS/ SUBSTITUTIONS:
 - A. G. C. IS TO SEND 2 COPIES OF ALL ELECTRICAL SUBMITTALS TO UCSF FOR REVIEW SIMULTANEOUS WITH A/E REVIEWS.
 - B. NO SUBSTITUTIONS WILL BE CONSIDERED AFTER 13 AUGUST 90 (35 DAYS AFTER N.T.P.)
5. COORDINATION WITH ADJACENT OCCUPIED AREAS:
 - A. COORDINATE WITH PROJECT MANAGER TO OBTAIN ACCESS TO ADJACENT SPACES.
 - B. PROVIDE AMPLE NOTICE WHEN ACCESS IS REQUIRED.
6. ASBESTOS:
 - A. REVIEW SECTION 01121 PROCEEDURES.
 - B. REFERENCED EH&S REPORT WILL BE FORWARDED TO CONTRACTOR.
7. DISCUSS UTILITY SHUTDOWNS/ ADVANCE NOTICE REQUIREMENTS:
 - A. SPEC CALLS FOR STANDARD 21 DAY ADVANCE NOTICE.
 - B. CONTRACTOR TO WORK DIRECTLY WITH CRAFTS THRU MEL ROCKETT.
8. COMMUNICATION:
 - A. SUBS THRU GENERAL CONTRACTOR.
 - B. CONSULTANTS THRU ARCHITECT.
 - C. USERS THRU PROJECT MANAGEMENT.
 - D. GENERAL CONTRACTOR TO DIRECT ALL COMMUNICATION TO THE ARCHITECT EXCEPT FOR ASBESTOS ISSUES, SHUTDOWN REQUESTS AND ACCESS REQUESTS TO ADJACENT SPACES.
 - E. DISCUSS CONTRACTOR'S INTERNAL ORGANIZATION REGARDING PAPERFLOW AND PHONE COMMUNICATION.
9. FIRE ALARM: DISCUSS AVOIDANCE OF FALSE ALARMS.



CC: C. KOSTER, STOMATOLOGY
FOR INFO
only

SAN FRANCISCO: DEPARTMENT OF
CAPITAL RESOURCES MANAGEMENT
BOX 0894

28 JUNE 90

PRECONSTRUCTION CONFERENCE

PROJECT: CSB 5TH FLOOR S/D STOMATOLOGY LAB ALT.
PROJECT NO: 8060

AGENDA:

1. INTRODUCTIONS.
2. NOTICE TO PROCEED: WE INTEND TO ISSUE FOR MONDAY, 9 JULY 90.
3. DISCUSS WEEKLY MEETINGS/ DAY AND TIME/ PLACE/ REPORTS.
4. SUBMITTALS/ SUBSTITUTIONS:
 - A. G. C. IS TO SEND 2 COPIES OF ALL MECH, PLUMBING AND ELECTRICAL SUBMITTALS TO UCSF FOR REVIEW SIMULTANEOUS WITH A/E REVIEWS.
 - B. NO SUBSTITUTIONS WILL BE CONSIDERED AFTER 13 AUGUST 90 (35 DAYS AFTER N.T.P.)
5. COORDINATION WITH ADJACENT OCCUPIED AREAS:
 - A. COORDINATE WITH PROJECT MANAGER TO OBTAIN ACCESS TO ADJACENT SPACES.
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 - C. USERS THRU PROJECT MANAGEMENT.
 - D. GENERAL CONTRACTOR TO DIRECT ALL COMUNICATION TO THE ARCHITECT EXCEPT FOR ASBESTOS ISSUES, SHUTDOWN REQUESTS AND ACCESS REQUESTS TO ADJACENT SPACES.
 - E. DISCUSS CONTRACTOR'S INTERNAL ORGANIZATION REGARDING PAPERFLOW AND PHONE COMUNICATION.
9. FIRE ALARM: DISCUSS AVOIDANCE OF FALSE ALARMS.

10. DEMOLITION:

- A. TAKE CARE TO AVOID DAMAGE TO EXISTING FIBEROPTIC RACEWAY ALONG CORRIDOR WALL.
- B. NOISE AND DUST CONTROL REQUIREMENTS WILL BE STRICTLY ENFORCED.
- C. TAKE CARE TO AVOID DISRUPTION TO UTILITY SERVICES THAT FEED THROUGH THE PROJECT AND MUST REMAIN ACTIVE.

11. ACCESS:

- A. CORRIDOR LOCKSETS WILL BE CHANGED TO UCSF "M" KEY BY TUESDAY 3 JUL 90. THE LOCKSHOP WILL CUT 4 SETS OF KEYS FOR CONTRACTOR'S USE. CONTRACTOR CAN PICK UP THESE KEYS AT ROOM AC58 ON "C" LEVEL OF THE ACC BUILDING ON 3 JUL 90.
- B. ACCESS TO OTHER AREAS TO BE ARRANGED THRU PROJECT MANAGEMENT.

12. ARCHITECT'S COMMENTS

13. CONTRACTOR'S COMMENTS

14. OTHER ISSUES ?

July 2, 1990

Saul Wolf
Wolf and Berghen Architects
533 28th Street
San Francisco, CA 94131

RE: CSB 5th Floor S/D Stomatology Lab Alt.
UCSF Project No. 8060
UCSF REVIEW OF MECHANICAL AND ELECTRICAL SUBMITTALS

Dear Saul:

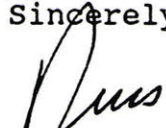
As discussed at the preconstruction conference, the submittal procedures for this project are to be as follows:

1. The general contractor is to submit 1 copy of all plumbing, electrical and mechanical submittals (including fume hoods and cold boxes) to the University for review at the same time as submittal to the architect.
2. If after 5 working days there has been no comment from the University, then the architect should issue his review without waiting further to hear from the University.
3. Submittals other than identified above do not require University review. The architect is to submit 2 copies of all approved submittals to the University for record purposes at the same time as submittals are returned to the contractor.

The University does not intend to delay the project nor usurp the responsibilities of the architect by our reviews. We will, of course, advise you if there seems to be a correction required, but the responsibility for submittal review remains with the architect.

Please advise if you should have any questions about these procedures.

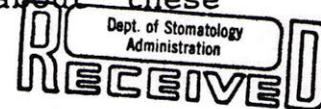
Sincerely,


Russ Akre
Project Manager

RA/ccc

cc: A. Ehni (Cuevas-Mannion Construction), J. Hughes (CRM)
C. Koster (Stomatology), J. Mavis/R. Barron/F.L. Ogden
(CRM)

wolf10/ra7



JUL 6 1990



125 YEARS

6-22-90

JSG,
Fyi. The cost
& funding breakdown
is for our info. I
did not send it to
Mavis or CAL.

Carolyn

June 22, 1990

TO: Jason C. Mavis

FROM: Carolyn Koster *ck*

RE: CSB 5th Floor Stomatology Lab Alterations
UCSF Project No. 8060; Plant Account No. 920870

Funding for this project is from two sources. \$487,673 is available immediately from a federal AIDS Infrastructure Alteration and Renovation grant. We are expecting to receive an additional award on this grant of \$50,000 at any time. The transfer of these funds to a Plant account is handled by Yi-Ann Chou in the Accounting Office. She is aware of your need for the funds and has already made the transfer.

The balance of \$246,577 will come from the School of Dentistry. I am forwarding your memo and the paperwork you sent me to Carol Littlejohn with a copy of this memo.

CK/arb

cc: Y. Chou
W. Halvorson
C. Littlejohn

Oral AIDS Research Lab Renovations
(CSB 5th Floor Stomatology Lab Alt.)
UCSF Project No. 8060; Plant Account No. [REDACTED]

Cost & Funding Breakdown

Estimated total project cost	\$904,750.00
Previously funded by School	(\$98,000.00)
To be funded by campus	(\$22,500.00)

	Amount Due	\$784,250.00
Funding Sources		
Grant: (441940-24861)		
Equipment Category (sub 4)		
Ultracentrifuge	\$53,463.00	

Alterations & Renovations Category	
Fixed equipment	\$49,680.00
A & R	\$449,993.00
To Lab Medicine	(\$12,000.00)

Available for construction now	\$487,673.00
Pending additional award	\$50,000.00

Total funding from grant		\$537,673.00

Amount needed from School of Dentistry		\$246,577.00

June 8, 1990

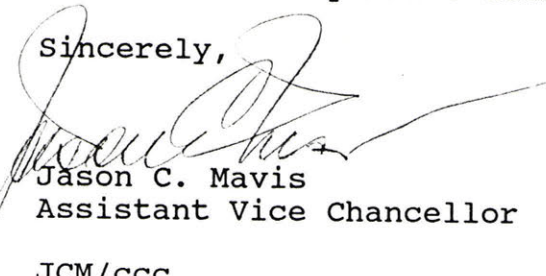
Carolyn Koster
Box 0422

RE: CSB 5th Floor Stomatology Lab Alt.
UCSF Project No. 8060; Plant Account No. [REDACTED]

The attached budget worksheet indicates an estimated total project cost of \$904,750. Currently \$98,000 has been funded; therefore, the balance of \$806,750 is needed to fund this project through completion. Of this amount, the Campus has agreed to fund \$22,500 for asbestos abatement. Therefore the balance needed is \$806,750 minus \$22,500 = \$784,250.

Please complete the enclosed Transfer of Funds and the bottom portion of the Project Authorization and Funding form and return it to the attention of Julie Lau at Box 0894. If you have any questions regarding the budget or any other aspects of the project, Russ Akre is the Project Manager and can be contacted at ext. 6-8082 to provide additional assistance.

Sincerely,



Jason C. Mavis
Assistant Vice Chancellor

JCM/cc
enc

cc: Remi Barron (CRM)
Eric Vermillion (CRM)
Julie Lau (CRM)
F. Leroy Ogden (CRM)
Russ Akre (CRM)

RECEIVED

JUN 15 1990

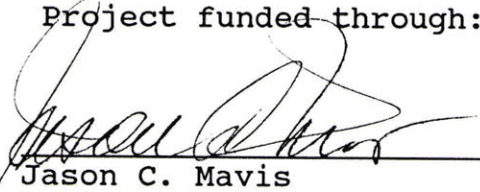
fund8060/cc1

CAPITAL RESOURCES MANAGEMENT
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO
3130 20th Street
San Francisco, CA 94143-0894
(415) 476-5343

DATE: June 8, 1990
PROJECT NO. 8060
PLANT ACCOUNT NO. [REDACTED]

PROJECT AUTHORIZATION AND FUNDING

- A. Project Title: CSB 5th Floor Stomatology Lab Alt.
- B. The project will commence when the appropriate funding has been authorized. If the authorizing department terminates the project, the appropriate costs to date will be paid by the project account and all remaining funds will be returned to the funding source.
- C. This Authorization will fund the project through the project phase indicated below, subject to possible changes in the program, scope of work or unforeseen conditions or circumstance. If this Authorization for funding is not for the complete project, a subsequent authorization for funds will be requested.
- D. Project funded through: completion

By: 
Jason C. Mavis
Assistant Vice Chancellor

Date: 6-11-90

The total expenditure of not-to-exceed \$904,750.00* is hereby authorized. Funding provided to date is \$98,000.00.

AMOUNT NEEDED TO PROCEED IS APPROVED FROM THE FOLLOWING ACCOUNT:

AMOUNT	DEPARTMENT NAME	LOC	ACCOUNT	FUND	SUB	OBJECT
--------	-----------------	-----	---------	------	-----	--------

Approved By (Authorized Signature)

Date and Telephone Ext.

cc Accounting
Julie Lau
Project Manager

* \$22,500 will be funded from other sources.

PROJECT BUDGET WORKSHEET

CAPITAL RESOURCES MANAGEMENT		Project Title:	CSB 5th Floor S/D Stomatology Lab Alt.	
Box 0894		Project No.:	8060	Project Mgr.: Russ Akre
		Plant Acct. No.:	(12/4/90)	Funded By:

PROJECT COST BUDGET:

		Budget #1	Budget #1A	Budget #2
		(Estimate)	(Estimate)	(Bid)
1.	CONSTRUCTION:	Total		
a.	General Construction	\$523,900	\$639,500	* \$621,000
b.	Campus Construction (Shutdowns)	16,500	13,500	13,500
c.	Construction Contingency (10% of a + b)	54,050	65,300	63,500
d.	Asbestos Construction	22,500	22,500	** 22,500
e.	Asbestos Contingency (lump sum)			
f.	Other			
Total Construction:		\$616,950	\$740,800	\$720,500
2.	EXTERNAL UTILITIES:			
3.	GROUPS 2 & 3 EQUIPMENT:			
4.	LANDSCAPING & SITE DEVELOPMENT:			
5.	DESIGN SERVICES:			
a.	Design Consultants	94,150	94,150	94,150
b.	Design Consultants/Additional Services			
c.	Construction Administration			
d.	Design Review			
e.	Inspection (OSHDP)	5,000	5,000	0
f.	Soils			
Total Design Services:		\$99,150	\$99,150	\$94,150
6.	PROJECT MANAGEMENT:			
a.	Capital Resources Management Fee	60,050	72,750	68,500
b.	CRM Design Assistance			
c.	UA&P Project Planning Guide (PPG)	2,500	2,500	2,500
d.	Other Campus			
e.	Other			
Total Project Management:		\$62,550	\$75,250	\$71,000
7.	SURVEYS, TESTS, PRINTING & ADVERTISING:			
a.	Site & Topo Surveys			
b.	Testing	2,500	2,500	2,500
c.	Printing	6,000	6,000	6,000
d.	Advertising	1,500	1,500	1,500
e.	State Fees (handicapped)	1,000	300	300
f.	Other			
Total Surveys, Tests, Printing & Adv.:		\$11,000	\$10,300	\$10,300
8.	SPECIAL ITEMS			
a.	EIR			
b.	Other			
Total Special Items:		\$0	\$0	\$0
9.	PROJECT CONTINGENCY	\$8,600	\$9,250	\$8,800
GRAND TOTAL:		\$798,250	\$934,750	\$904,750

REMARKS:

- * Bid result including Alternates 1 thru 4.
- ** To be funded by campus sources.

Prepared By: _____

Approved by: _____

Date: 6-11-90

Project Manager

Jason C. Mavis

Assistant Vice Chancellor

cc Julie Lau, Project Manager, Accounting

CHECKLIST FOR PROJECT BUDGET WORKSHEET

1.b. Campus Construction

CAPITAL RESOURCES MANAGEMENT	Project Title:	CSB 5th Floor S/D Stomatology Lab Alt.		
Box 0894	Project No.:	8060	Project Mgr.:	Russ Akre

1.b Campus Construction:

a. Security Systems	N.I.C.
b. Fire Alarm Hook-Up	
c. Shutdowns	12,000
d. Telephone Wiring	
e. Computer Cabling	
f. Air Balancing	
g. Keying	1,000
h. Signage	500
i. Moving	
Total:	\$13,500

NOTE: Items with no costs noted are either not needed by the project or are arranged for by the department.

CAPITAL PROJECT MANAGEMENT
3130-20th Street
San Francisco, CA 94143-0892
415/476-5343
FAX: 415/476-0693

University of California, San Francisco... A Health Sciences Campus



Project: CSB 5th Fl. Stomatology Lab Alt.

UC Project No.: 8060 Date: 1/26/90

Subject: Budget Worksheet

To: Carol Littlejohn
School of Dentistry

copy to	no.	encl.
C. Koster	1	1
J. Greenspan	1	1
G. Nelson	1	-

☒ enclosed herewith ☐ under separate cover ☐ by messenger ☐ handed to you

we are sending you:

- | | |
|--|--|
| ☒ for your use | ☐ as per your request |
| ☐ for your information | ☐ reviewed as noted |
| ☐ for your resubmittal | ☐ for your review and comment |
| ☐ for your appropriate action | ☐ for |

the following: 1 copy of the Project Budget Worksheet dated January 26, 1990, based on the Architect's latest estimate also dated January 26, 1990, copy attached.

By: Russ Akre, Project Manager

transmittal

CHECKLIST FOR PROJECT BUDGET WORKSHEET

1.b. Campus Construction

CAPITAL PROJECT MANAGEMENT
Box 0892

Project Title:

CSB 5th Floor S/D Stomatology Lab Alt.

Project No.:

8060

Project Mgr.: Russ Akre

1.b Campus Construction:

a. Security Systems

b. Fire Alarm Hook-Up

c. Shutdowns

12,000

d. Telephone Wiring

e. Computer Cabling

f. Air Balancing

g. Keying

1,000

h. Signage

500

i. Moving

Total:

\$13,500

NOTE: Items with no costs noted are either not needed by the project or are arranged for by the department.

FOR INFORMATION ONLY

PROJECT BUDGET WORKSHEET

CAPITAL PROJECT MANAGEMENT	Project Title:	CSB 5th Floor S/D Stomatology Lab Alt.		
Box 0892	Project No.:	8060	Project Mgr.:	Russ Akre
	Plant Acct. No.:		Funded By:	

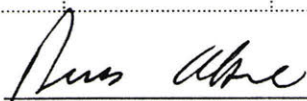
PROJECT COST BUDGET:

	Budget #1B	Budget #1C	Budget #1D
	(Estimate)	(Estimate)	(Estimate)
1. CONSTRUCTION:			
a. General Construction	\$502,500	\$523,900	\$639,500 *
b. Campus Construction	16,500	16,500	13,500
c. Construction Contingency (10% of a + b)	52,000	54,050	65,300
d. Asbestos Construction	22,500	22,500	22,500
e. Asbestos Contingency (lump sum)			
f. Other			
Total Construction:	\$593,500	\$616,950	\$740,800
2. EXTERNAL UTILITIES:			
3. GROUPS 2 & 3 EQUIPMENT:			
4. LANDSCAPING & SITE DEVELOPMENT:			
5. DESIGN SERVICES:			
a. Design Consultants	93,000	94,150	94,150
b. Design Consultants/Additional Services			
c. Construction Administration			
d. Design Review			
e. Inspection	5,000	5,000	5,000
f. Soils			
Total Design Services:	\$98,000	\$99,150	\$99,150
6. PROJECT MANAGEMENT:			
a. Capital Project Management Fee	57,500	60,050	72,750
b. CPM Design Assistance			
c. RMPS Project Planning Guide (PPG)	2,500	2,500	2,500
d. Other Campus			
e. Other			
Total Project Management:	\$60,000	\$62,550	\$75,250
7. SURVEYS, TESTS, PRINTING & ADVERTISING:			
a. Site & Topo Surveys			
b. Testing	2,500	2,500	2,500
c. Printing	6,000	6,000	6,000
d. Advertising	1,500	1,500	1,500
e. State Fees (handicapped)	1,000	1,000	300
f. Other			
Total Surveys, Tests, Printing & Adv.:	\$11,000	\$11,000	\$10,300
8. SPECIAL ITEMS			
a. EIR			
b. Other			
Total Special Items:	\$0	\$0	\$0
9. PROJECT CONTINGENCY	\$8,500	\$8,600	\$9,250
GRAND TOTAL:	\$771,000	\$798,250	\$934,750

REMARKS:

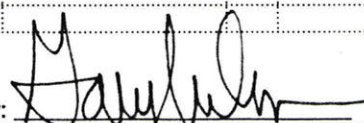
* Architect's estimate of 1/26/90.

Prepared By:



Project Manager

Approved by:



Gary Nelson, Director

Date:

1-26-90

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

RA
#8060

26 JANUARY 1990

CSB 5TH FLOOR STONATOLOGIST ALTERATIONS
ORAL AIDS CENTER
PROJECT NO. 8060

MEMO ON COST REDUCTIONS

THE FOLLOWING POSSIBLE CHANGES, BEING INVESTIGATED NOW, COULD LEAD TO COST REDUCTIONS:

1. KEEP EXISTING RADIATORS AT WINDOWS. HVAC SAVINGS OF \$12,000
2. FUME HOOD EXHAUST DUCTS 22 GA. STAINLESS IN LIEU OF WELDED 16 GA. STAINLESS. HVAC SAVINGS OF \$14,000.
3. ELECTRICAL RISERS DON'T HAVE TO GO TO BASEMENT. ELECTRICAL SAVINGS OF \$8,000.

REVISED CONSTRUCTION COST ESTIMATE ATTACHED.

CC: CPM, DOWNEY, J. GREENSPAN, C. LITTLEJOHN
(PAX)

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

CONSTRUCTION COST ESTIMATE FORM - REVISED

PROJECT: STOMATOLOGY ORAL AIDS CENTER

Page: 1 of 2

LOCATION: CSB 5TH FLOOR

Date: 1/26/90

STAGE: WORKING DRAWINGS

Job No: 8060

2,861 G.S.F.

IV	TRADE	UNITS	UNIT PRICE	QUANTITY	EXTENSION	REMARKS
2	DEMOLITION			\$	9,600	
7	CAULKING & SEALANTS				500	
8	DOORS, FRAMES, GLAZING & HARDWARE				17,400	
9	DRYWALL				28,100	
	PLASTER PATCHING				2,000	
	ACOUSTICAL CEILINGS				8,500	
	PAINTING				9,400	
	RESILIENT FLOORING & CARPETING				11,400	
10	MISCELLANEOUS SPECIALTIES				7,200	
12	CASEWORK & TOPS				65,000	
13	COLD ROOM				13,000	
	ARCHITECTURAL TRADES SUBTOTAL					172,100
15	HEATING, VENTILATING & AIR CONDITIONING				159,400	
	PLUMBING				69,900	
	FIRE SPRINKLERS				21,600	
16	ELECTRICAL				85,000	
	ALL TRADES SUBTOTAL			\$	508,000	

415/ 821.6503 or 415/824.1675

[illegible]

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

26 JANUARY 1990

CSB 5TH FLOOR STOMATOLOGIT ALTERATIONS
ORAL AIDS CENTER
PROJECT NO. 8060

MEMO ON COST REDUCTIONS

THE FOLLOWING POSSIBLE CHANGES, BEING INVESTIGATED NOW, COULD LEAD TO COST REDUCTIONS:

1. KEEP EXISTING RADIATORS AT WINDOWS. HVAC SAVINGS OF \$12,000
2. FUME HOOD EXHAUST DUCTS 22 GA. STAINLESS IN LIEU OF WELDED 16 GA. STAINLESS. HVAC SAVINGS OF \$14,000.
3. ELECTRICAL RISERS DON'T HAVE TO GO TO BASEMENT. ELECTRICAL SAVINGS OF \$8,000.

REVISED CONSTRUCTION COST ESTIMATE ATTACHED.

CC: CPM, DOWNEY, J. GREENSPAN, C. LITTLEJOHN
(FAX)

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

CONSTRUCTION COST ESTIMATE FORM - REVISED

PROJECT: STOMATOLOGY ORAL AIDS CENTER

Page: 1 of 2

LOCATION: CSB 5TH FLOOR

Date: 1/26/90

STAGE: WORKING DRAWINGS

Job No: 8060

2,861 G.S.F.

DIV	TRADE	UNITS	UNIT PRICE	QUANTITY	EXTENSION	REMARKS
2	DEMOLITION			\$	9,600	
7	CAULKING & SEALANTS				500	
8	DOORS, FRAMES, GLAZING & HARDWARE				17,400	
9	DRYWALL				28,100	
	PLASTER PATCHING				2,000	
	ACOUSTICAL CEILING				8,500	
	PAINTING				9,400	
	RESILIENT FLOORING & CARPETING				11,400	
10	MISCELLANEOUS SPECIALTIES				7,200	
12	CASEWORK & TOPS				65,000	
13	COLD ROOM				13,000	
	ARCHITECTURAL TRADES SUBTOTAL					172,100
15	HEATING, VENTILATING & AIR CONDITIONING				159,400	
	PLUMBING				69,900	
	FIRE SPRINKLERS				21,600	
16	ELECTRICAL				85,000	
	ALL TRADES SUBTOTAL			\$	508,000	

415/ 821-6503 or 415/824-1675

Job No: **8060**

[illegible]

OR INFORMATION ONLY

PROJECT BUDGET WORK

FOR INFORMATION ONLY

CAPITAL PROJECT MANAGEMENT	Project Title:	CSB 5th Floor S/D Stomatology Lab Alt.	
Box 0892	Project No.:	8060	Project Mgr.: Russ Akre
	Plant Acct. No.:		Funded By:

PROJECT COST BUDGET:

	Budget #1A	Budget #1B	Budget #1C
	(Estimate)	(Estimate)	(Estimate)
1. CONSTRUCTION:			
a. General Construction	\$500,000	\$502,500	\$523,900 *
b. Campus Construction	16,500	16,500	16,500
c. Construction Contingency (10% of a + b)	51,500	52,000	54,050
d. Asbestos Construction	22,500	22,500	22,500
e. Asbestos Contingency (lump sum)			
f. Other			
Total Construction:	\$590,500	\$593,500	\$616,950
2. EXTERNAL UTILITIES:			
3. GROUPS 2 & 3 EQUIPMENT:			
4. LANDSCAPING & SITE DEVELOPMENT:			
5. DESIGN SERVICES:			
a. Design Consultants	85,000	93,000	94,150 **
b. Design Consultants/Additional Services			
c. Construction Administration			
d. Design Review			
e. Inspection	5,000	5,000	5,000
f. Soils			
Total Design Services:	\$90,000	\$98,000	\$99,150
6. PROJECT MANAGEMENT:			
a. Capital Project Management Fee	57,500	57,500	60,050
b. CPM Design Assistance			
c. RMPS Project Planning Guide (PPG)	2,500	2,500	2,500
d. Other Campus			
e. Other			
Total Project Management:	\$60,000	\$60,000	\$62,550
7. SURVEYS, TESTS, PRINTING & ADVERTISING:			
a. Site & Topo Surveys			
b. Testing	2,500	2,500	2,500
c. Printing	6,000	6,000	6,000
d. Advertising	1,500	1,500	1,500
e. State Fees (handicapped)	1,000	1,000	1,000
f. Other			
Total Surveys, Tests, Printing & Adv.:	\$11,000	\$11,000	\$11,000
8. SPECIAL ITEMS			
a. EIR			
b. Other			
Total Special Items:	\$0	\$0	\$0
9. PROJECT CONTINGENCY	\$8,000	\$8,500	\$8,600
GRAND TOTAL:	\$759,500	\$771,000	\$798,250

REMARKS:

* Architect's estimate of 10/26/89, including program changes. Estimate has no bid contingency.

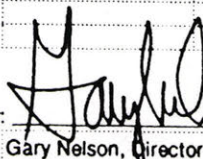
** Architect's fee including program changes.

Prepared By:



Project Manager

Approved by:



Gary Nelson, Director

Date:

11/27/89

cc G. Nelson, J. Lau, Project Manager, Accounting, J. Greenspan, C. Koster

1/23/90
Over/90
Over/90689,200
16,500
70,050
22,500

793,250

94,150

5,000

99,150

77,700

2,500

80,200

2,500

6,000

1,500

1,200

11,200

9,550

993,350

Wolf & Berghen Associates

Saul Wolf Architect • Carol Berghen Associate

RECEIVED
U. C. S. F.

JAN 16 1990

14 January 1990

Russ Akre, Project Manager
Capital Project Management
University of California
San Francisco, CA 94143-0892

CAPITAL PROJECT MANAGEMENT

CC: ~~E-KOSTER~~
VIA FAX #
476-4204

Re: CSB 5th Floor Alterations, Stomatology Department
Project No. 8060

Dear Russ,

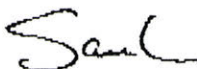
Enclosed is an updated construction cost estimate dated 1/14/90. You will notice that the total is substantially higher than the last estimate on 10/26/89, due to increases in the mechanical and electrical work. A copy of Downey & Associates estimate of 1/12/90 is also enclosed and it includes comments on some major cost items that were not anticipated because they are usually available building services.

Our estimate shows how these costs affect the overall work. If we stay with the existing Johnson controls system we would save a total of \$6,300. The change was made in the specifications to satisfy PPD current requirements for Honeywell although the performance is comparable.

Downey & Associates Memo of 1/12/90 is also enclosed. This is the request for information we discussed earlier. We will need the answers to these questions before we can put the job out to bid. Please forward to PPD.

I expect that we will have to meet with John Greenspan to discuss the ramifications of the increase in the estimate. I will wait to hear from you on that and I and my consultants will be available.

Sincerely,



Saul Wolf

cc: Downey & Associates

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

CONSTRUCTION COST ESTIMATE FORM

PROJECT: SPHATOLGY ORAL AIDS CENTERPage: 1 of 3LOCATION: CSB 5TH FLOORDate: 1/14/90STAGE: WORKING DRAWINGSJob No: 80602,861 G.S.F.

IV	TRADE	UNITS	UNIT PRICE	QUANTITY	EXTENSION	REMARKS
2	DEMOLITION			\$	9,600	
7	CAULKING & SEALANTS				500	
8	DOORS, FRAMES, HARDWARE, GLAZING				17,400	
9	DETWALL				28,100	
	PLASTER PATCHING				2,000	
	ACOUSTICAL CEILINGS				8,500	
	PAINTING				9,400	
	RESILIENT FLOORING & CARPETING				11,400	
10	MISCELLANEOUS SPECIALTIES				7,200	
12	CASEWORK & TOPS				66,500	
13	COLD ROOM				13,000	
	ARCHITECTURAL TRADES SUBTOTAL					173,600
15	HVAC				185,400	
	PLUMBING				69,900	
	FIRE SPRINKLERS				21,600	
16	ELECTRICAL				93,000	
	TRADES SUBTOTAL			\$	543,500	

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

CONSTRUCTION COST ESTIMATE FORM

PROJECT:

Page: 3 of 3

LOCATION:

Date: 1/14/90

STAGE:

Job No: 8060

ANALYSIS OF ESTIMATE

IV	TRADE	UNITS	UNIT PRICE	QUANTITY	EXTENSION	REMARKS
	ITEMS NOT DIRECTLY ATTRIBUTABLE TO PROJECT					
	1. STEAM SERVICE			6,300		
	2. PLUMBING LATERALS			12,600		
	3. POWER AT ROOFTOP			25,200		
	4. CHASSING CONTROLS			6,300		
	5. OVERSIZED CHILLER			17,000		
				<u>67,400</u>		
	CONSTRUCTION TOTAL (P.2)			684,200		
	INDIRECT COSTS			<u><67,400></u>		
				616,800		
	LAST ESTIMATE (10/26/84)			<u>523,900</u>		
	OVER RUN (MECHANICAL & ELECTRICAL)			92,900		
	% OVER RUN : $92,900 / 523,900$			18%		

DOWNEY & ASSOCIATES

Consulting Engineers

2390 El Camino Real, Palo Alto, CA 94306

(415) 858-1616

12th January, 1990.

Wolf and Berghen Associates
533 - 28th Street
San Francisco
California 94131.

Reference: Oral Aids Center, 5th Floor CSB, U.C.S.F.

CONSTRUCTION COST ESTIMATE

Mechanical	=	\$185,400.00.
Plumbing	=	\$ 69,900.00
Fire Sprinklers	=	\$ 21,625.00
Electrical	=	\$ 93,050.00

NOTE:

1. The mechanical estimate includes provision of a new chiller of nominal 20 tons capacity, pumps, and mains piping etc. at a cost estimated at \$27,000.00. Approximately one half of the chiller capacity is being used by this project.
2. An existing steam to hot water heat exchanger which was installed within the last four years is being replaced in the same location with a larger one. The existing controls are Johnson, and if UCSF are agreeable that they be re-used and supplemented with more Johnson controls the savings could amount to \$5,000.00 i.e. the estimate for mechanical work could be decreased by a like amount.

Page 2 of 2

3. Included in the mechanical estimate is a sum of \$5,000.00 for provision of steam service to the autoclave. This could be less or more depending on the availability of the steam service and its location relative to the autoclave.
4. The plumbing estimate includes \$10,000.00 for acid waste and vent laterals to be connected to acid waste and vent stacks. In a building equipped for acid waste these laterals would normally be available. We do not know if, or where, the risers are located, so the estimate is, of necessity, a guesstimate with regard to acid waste and vent.
4. The electrical estimate includes a sum of \$20,000.00 for providing power at the rooftop for the chiller, pumps, and fume hood fans. Normally this is a building utility service available, but in this case the service is not available and our estimate includes bringing it up from the ground floor vault, and providing a 200 amp panel.

DOWNEY & ASSOCIATES

Consulting Engineers

2390 El Camino Real, Palo Alto, CA 94306 (415) 858-1616

12th January, 1990.

Mr Saul Wolf
Wolf and Berghen Associates
533 - 28th Street
San Francisco
California 94131.

RECEIVED

JAN 15 1990

Reference: Oral Aids Center, CSB 5th Floor.

Wolf & Berghen Associates

MEMORANDUM

The following information is required in order to complete the Electrical and Mechanical work, referenced project:

ITEM 1. Electrical power is required for the following roof-mounted equipment.

- a. Chiller: 43 FLA at 3-phase 480 volts.
- b. Pumps (two), each: 2.6 FLA at 3-phase 480 volts.
- c. Fume Hood Exhaust Fans (two), each: 2.6 FLA, 3-phase, 480 volts.

See mechanical roof plan for precise locations.

ITEM 2. Steam Service. The Autoclave requires 70 pounds/hr of steam at a pressure not less than 50 psig nor more than 80psig. Where is the service available in the vicinity of the autoclave? The alternative, in the absence of available steam, is to have the autoclave generate it's own steam (electrically). The electrical service needed to generate the steam is 3-phase, 208volt or 480 volt, approximately 23KW. Generating the steam electrically is not desirable, because of the heavy electrical load.

Page 2 of 2.

ITEM 3. We will have acid waste and vent requirements under this project. We need directions to available acid waste and vent services in the project area.

Sincerely,

Harry W. Velleno
Downey & Associates.

HWV/dh

OR INFORMATION ONLY

PROJECT BUDGET WORK

FOR INFORMATION ONLY

CAPITAL PROJECT MANAGEMENT	Project Title:	CSB 5th Floor S/D Stomatology Lab Alt.
Box 0892	Project No.:	8060
	Plant Acct. No.:	
	Project Mgr.:	Russ Akre
	Funded By:	

PROJECT COST BUDGET:

	Budget #1A	Budget #1B	Budget #1C
	(Estimate)	(Estimate)	(Estimate)
1. CONSTRUCTION:			
a. General Construction	\$500,000	\$502,500	\$523,900
b. Campus Construction	16,500	16,500	16,500
c. Construction Contingency (10% of a + b)	51,500	52,000	54,050
d. Asbestos Construction	22,500	22,500	22,500
e. Asbestos Contingency (lump sum)			
f. Other			
Total Construction:	\$590,500	\$593,500	\$616,950
2. EXTERNAL UTILITIES:			
3. GROUPS 2 & 3 EQUIPMENT:			
4. LANDSCAPING & SITE DEVELOPMENT:			
5. DESIGN SERVICES:			
a. Design Consultants	85,000	93,000	94,150
b. Design Consultants/Additional Services			
c. Construction Administration			
d. Design Review			
e. Inspection	5,000	5,000	5,000
f. Soils			
Total Design Services:	\$90,000	\$98,000	\$99,150
6. PROJECT MANAGEMENT:			
a. Capital Project Management Fee	57,500	57,500	60,050
b. CPM Design Assistance			
c. RMPS Project Planning Guide (PPG)	2,500	2,500	2,500
d. Other Campus			
e. Other			
Total Project Management:	\$60,000	\$60,000	\$62,550
7. SURVEYS, TESTS, PRINTING & ADVERTISING:			
a. Site & Topo Surveys			
b. Testing	2,500	2,500	2,500
c. Printing	6,000	6,000	6,000
d. Advertising	1,500	1,500	1,500
e. State Fees (handicapped)	1,000	1,000	1,000
f. Other			
Total Surveys, Tests, Printing & Adv.:	\$11,000	\$11,000	\$11,000
8. SPECIAL ITEMS			
a. EIR			
b. Other			
Total Special Items:	\$0	\$0	\$0
9. PROJECT CONTINGENCY	\$8,000	\$8,500	\$8,600
GRAND TOTAL:	\$759,500	\$771,000	\$798,250

REMARKS:

- * Architect's estimate of 10/26/89, including program changes. Estimate has no bid contingency.
- ** Architect's fee including program changes.

Prepared By:

Project Manager

Approved by:

Gary Nelson, Director

Date:

11/27/89

cc G. Nelson, J. Lau, Project Manager, Accounting, J. Greenspan, C. Koster

1/23/91
Meeting

689,200
16,500
70,050
22,500

793,250

94,150

5,000

99,150

77,700

2,500

80,200

2,500

6,000

1,500

1,200

11,200

9,550

993,350

Wolf & Berghen Associates

Saul Wolf Architect • Carol Berghen Associates

RECEIVED
U. C. S. F.

JAN 16 1990

14 January 1990

Russ Akre, Project Manager
Capital Project Management
University of California
San Francisco, CA 94143-0892

CAPITAL PROJECT MANAGEMENT

CC: ~~G-KOSTER~~
VIA FAX #
476-4204

Re: CSB 5th Floor Alterations, Stomatology Department
Project No. 8060

Dear Russ,

Enclosed is an updated construction cost estimate dated 1/14/90. You will notice that the total is substantially higher than the last estimate on 10/26/89, due to increases in the mechanical and electrical work. A copy of Downey & Associates estimate of 1/12/90 is also enclosed and it includes comments on some major cost items that were not anticipated because they are usually available building services.

Our estimate shows how these costs affect the overall work. If we stay with the existing Johnson controls system we would save a total of \$6,300. The change was made in the specifications to satisfy PPD current requirements for Honeywell although the performance is comparable.

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I expect that we will have to meet with John Greenspan to discuss the ramifications of the increase in the estimate. I will wait to hear from you on that and I and my consultants will be available.

Sincerely,



Saul Wolf

cc: Downey & Associates

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

CONSTRUCTION COST ESTIMATE FORM

PROJECT: ODONATOLOGY ORAL AIDS CENTER

Page: 1 of 3

LOCATION: CSB 5TH FLOOR

Date: 1/14/90

STAGE: WORKING DRAWINGS

Job No: 8060

2,861 G.S.F.

IV	TRADE	UNITS	UNIT PRICE	QUANTITY	EXTENSION	REMARKS
2	DEMOLITION			#	9,600	
7	CAULKING & SEALANTS				500	
8	DOORS, FRAMES, HARDWARE, GLAZING				17,400	
9	DETWALL				28,100	
	PLASTER PATCHING				2,000	
	ACOUSTICAL CEILINGS				8,500	
	PAINTING				9,400	
	RESILIENT FLOORING & CARPETING				11,400	
10	MISCELLANEOUS SPECIALTIES				7,200	
12	CASEWORK & TOPS				66,500	
13	COLD ROOM				13,000	
	ARCHITECTURAL TRADES SUBTOTAL					173,600
15	HVAC				185,400	
	PLUMBING				69,900	
	FIRE SPRINKLERS				21,600	
16	ELECTRICAL				93,000	
	TRADES SUBTOTAL			#	543,500	

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

CONSTRUCTION COST ESTIMATE FORM

PROJECT:

Page: 2 of 3

LOCATION:

Date: 1/14/20

STAGE:

Job No: 2060

	TRADE	UNITS	UNIT PRICE	QUANTITY	EXTENSION	
	TRADES SUBTOTAL			\$	543,500	
	GENERAL CONDITIONS @ 10%				54,300	
					597,800	
	OVERHEAD & PROFIT @ 10%				59,800	
					657,600	
	INSURANCE @ 2%				13,200	
					670,800	
	BOND @ 2%				13,400	
#	CONSTRUCTION TOTAL			\$	684,200	
* SEE NOTES, P. 3						

Wolf & Berghen Associates

333 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

CONSTRUCTION COST ESTIMATE FORM

PROJECT:

Page: 3 of 3

LOCATION:

Date: 1/14/90

STAGE:

Job No: 8060

ANALYSIS OF ESTIMATE

IV	TRADE	UNITS	UNIT PRICE	QUANTITY	EXTENSION	REMARKS
	ITEMS NOT DIRECTLY ATTRIBUTABLE TO PROJECT					
	1. STEAM SERVICE			6,300		
	2. PLUMBING LATERALS			12,600		
	3. POWER AT ROOFTOP			25,200		
	4. CHANGING CONTROLS			6,300		
	5. OVERSIZED CHILLER			17,000		
				<u>67,400</u>		
	CONSTRUCTION TOTAL (P.2)			684,200		
	INDIRECT COSTS			<u>67,400</u>		
				616,800		
	LAST ESTIMATE (10/26/89)			<u>523,900</u>		
	OVER RUN (MECHANICAL & ELECTRICAL)			92,900		
	% OVER RUN : 92,900 / 523,900			18%		

DOWNEY & ASSOCIATES

Consulting Engineers

2390 El Camino Real, Palo Alto, CA 94306

(415) 858-1616

12th January, 1990.

Wolf and Berghen Associates
533 - 28th Street
San Francisco
California 94131.

Reference: Oral Aids Center, 5th Floor CSB, U.C.S.F.

CONSTRUCTION COST ESTIMATE

Mechanical	=	\$185,400.00.
Plumbing	=	\$ 69,900.00
Fire Sprinklers	=	\$ 21,625.00
Electrical	=	\$ 93,050.00

NOTE:

1. The mechanical estimate includes provision of a new chiller of nominal 20 tons capacity, pumps, and mains piping etc. at a cost estimated at \$27,000.00. Approximately one half of the chiller capacity is being used by this project.
2. An existing steam to hot water heat exchanger which was installed within the last four years is being replaced in the same location with a larger one. The existing controls are Johnson, and if UCSF are agreeable that they be re-used and supplemented with more Johnson controls the savings could amount to \$5,000.00 i.e. the estimate for mechanical work could be decreased by a like amount.

Page 2 of 2

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DOWNNEY & ASSOCIATES

Consulting Engineers

2390 El Camino Real, Palo Alto, CA 94306

(415) 858-1616

12th January, 1990.

Mr Saul Wolf
Wolf and Berghen Associates
533 - 28th Street
San Francisco
California 94131.

RECEIVED

JAN 15 1990

Wolf & Berghen Associates

Reference: Oral Aids Center, CSB 5th Floor.

MEMORANDUM

The following information is required in order to complete the Electrical and Mechanical work, referenced project:

- ITEM 1. Electrical power is required for the following roof-mounted equipment.
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See mechanical roof plan for precise locations.

- ITEM 2. Steam Service. The Autoclave requires 70 pounds/hr of steam at a pressure not less than 50 psig nor more than 80psig. Where is the service available in the vicinity of the autoclave? The alternative, in the absence of available steam, is to have the autoclave generate it's own steam (electrically). The electrical service needed to generate the steam is 3-phase, 208volt or 480 volt, approximately 23KW. Generating the steam electrically is not desirable, because of the heavy electrical load.

Page 2 of 2.

ITEM 3. We will have acid waste and vent requirements under this project. We need directions to available acid waste and vent services in the project area.

Sincerely,

Harry W. Velleno
Downey & Associates.

HWV/dh

PROJECT NO. 8060
CONTRACT NO.
FILE NO.

CONSTRUCTION DOCUMENTS
FOR
CSB 5TH FLOOR
STOMATOLOGY LABORATORY ALTERATIONS
ORAL AIDS CENTER

UNIVERSITY OF CALIFORNIA
SAN FRANCISCO CAMPUS
SAN FRANCISCO, CALIFORNIA

WOLF & BERGHEN ASSOCIATES
533-28TH STREET
SAN FRANCISCO, CALIFORNIA 94131
(415) 824-1675

JANUARY 1990

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BIDDER QUALIFICATIONS

BASIS FOR AWARD

1. *The General Contractor is required to have the following experience:*
 - a. *Successful completion of at least two Medical Research Laboratory facilities of \$500,000 each or greater, construction cost.*
 - b. *This work shall have been done within the last 5 years.*
 - c. *Provide evidence of these requirements when requested by Owner.*
2. *The following subcontractors shall be required to have the same experience as the General Contractor:*
 - a. *Gypsum Drywall*
 - b. *Casework*
 - c. *Mechanical*
 - d. *Plumbing*
 - e. *Fire Protection*
 - f. *Electrical.*
3. *These requirements are necessary because this project involves complex laboratory utility work, specialized laboratory casework, and the need to work in a sensitive, functioning laboratory environment.*

END OF BIDDER QUALIFICATIONS

PROJECT NO. 8060

PROJECT DIRECTORY

PROJECT NAME: CSB 5TH FLOOR
STOMATOLOGY LABORATORY ALTERATIONS
ORAL AIDS CENTER

**UCSF PROJECT
NUMBER:** 8060

LOCATION: UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

OWNER: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

**UCSF PROJECT
MANAGER:** Russ Akre
Capital Project Management
University of California
3130 - 20th Street
San Francisco, CA 94143-0892
Phone: 415/476-8082
FAX: 415/476-0693

**OWNER'S
REPRESENTATIVE:
(Architect)** Saul Wolf
Wolf & Berghen Associates
533-28th Street
San Francisco, CA 94131
Phone: 415/824-1675
FAX: 415/821-4340

**OWNER'S
REPRESENTATIVE'S
CONSULTANTS:** Mechanical & Electrical Engineers
Downey & Associates
2390 El Camino Real
Palo Alto, CA 94306
Phone: 415/858-1616
FAX: 415/493-5809

All bidding inquiries shall be directed to the UCSF Project Manager. All technical inquiries shall be directed to the Owner's Representative.

PROJECT NO. 8060

CERTIFICATION AND SEAL

NAME OF PROJECT: CSB 5TH FLOOR
STOMATOLOGY LABORATORY ALTERATIONS
ORAL AIDS CENTER

BIDDING DOCUMENTS PREPARED BY:

SAUL WOLF
WOLF & BERGHEN ASSOCIATES
533-28TH STREET
SAN FRANCISCO, CA 94131

SIGNED:

Saul Wolf
SAUL WOLF

DATE:

JANUARY 1990

CERTIFICATION:



CSB 5TH FLOOR
STOMATOLOGY LABORATORY ALTERATIONS
ORAL AIDS CENTER
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

LIST OF DRAWINGS

LIST OF DRAWINGS - ALL DATED JANUARY 1990

ARCHITECTURAL

- A1 Titles; Schedules
- A2 Demolition Plans, 5th Floor
- A3 Floor Plan, 5th Floor
- A4 Reflected Ceiling Plan, 5th Floor
- A5 Interior Elevations, 5th Floor
- A6 Interior Elevations, 5th Floor
- A7 Interior Elevations, 5th Floor
- A8 Interior Elevations, 5th Floor; Casework Schedule
- A9 Casework Details, 5th Floor
- A10 Plans and Details, 6th and 7th Floors

MECHANICAL

- M1 Mechanical: Legend, Details, Equipment Schedules
- M2 Mechanical: Floor Plan - New Conditions
- M3 Mechanical: Floor Plan - Demolition
- M4 Mechanical: Floor Plan, Part 6th & 7th Floor Plans,
Chilled Water System Pipping Diagram
- M5 Mechanical: 5th Floor Piping Plan & Details
- M6 Mechanical: Heating Hot Water System Piping
Diagram, Control Diagram & Details

PLUMBING

- P1 Plumbing: Legend, Details, Equipment Schedules
- P2 Plumbing: Floor Plan - New Conditions; Part 7th
Floor Plan
- P3 Plumbing: Floor Plan - Demolition

FIRE SPRINKLER

- FS1 Fire Sprinkler Floor Plan

ELECTRICAL

- E1 Electrical: Legend, Floor Plan, Panel Schedules
- E2 Electrical: Floor Plan - Power & Signal, New
Conditions
- E3 Electrical: Floor Plan - Lighting, New Conditions
- E4 Electrical: Floor Plan - Power and Signal, Demolition
- E5 Electrical: Floor Plan - Lighting, Demolition

END OF LIST OF DRAWINGS

PROJECT NO. 8060
CONTRACT NO.
FILE NO.

SPECIFICATIONS
FOR
CSB 5TH FLOOR
STOMATOLOGY LABORATORY ALTERATIONS
ORAL AIDS CENTER

UNIVERSITY OF CALIFORNIA
SAN FRANCISCO CAMPUS
SAN FRANCISCO, CALIFORNIA

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JANUARY 1990

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SECTION 01100 - SPECIAL REQUIREMENTS

PART I - GENERAL

1.1 LOCATION

The work is located on the fifth, sixth and seventh floors of the Clinical Sciences Building of the University of California, San Francisco.

1.2 DEFINITION

1.2.1 The designated University Representative or Owner's Representative is the Architect whose name appears on these documents.

1.2.2 "Provide" means furnish and install, complete.

1.3 DOCUMENTS

1.3.1 Data shown on drawings are as accurate as could be obtained. Verify existing conditions and dimensions at the site prior to fabrication.

1.3.2 Keep one copy of all contract documents, including shop and setting drawings, specifications, addenda and Change Orders, complete and in good order, at the job site and available to the Architect.

1.4 PROGRESS SCHEDULES

1.4.1 A pre-construction conference with the Architect and University staff members will be held before any work begins, to review procedures to ensure smooth progress of work.

1.4.2 At the contract conference the Contractor shall submit a complete schedule and plan of operations for the Architect's approval. The contract schedule shall include the following items:

1.4.2.1 Preparation of equipment and material submittals for review.

1.4.2.2 Architect review of each submittal.

1.4.2.3 Delivery lead times for equipment and materials.

1.4.2.4 The contract schedule may be in the form of a bar chart or other system by which are shown predicted starting and completion dates for the various work units or trades, together with such other information relevant to job progress and completion as may be requested.

1.4.2.5 The contract schedule shall be revised as required to keep current and resubmitted to the Architect.

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SECTION 01100-2
SPECIAL REQUIREMENTS

- 1.4.3 During the progress of the work the Contractor, the Architect and the Owner shall meet together at regular intervals to be established by the Architect to review work progress and any other items affecting the work. The Contractor shall require his subcontractors to attend as required by the Architect.
- 1.4.4 Submit written request for Architect's review of interruptions in advance of needed dates as follows:
 - 1.4.4.1 Service shutdowns: 21 working days.
 - 1.4.4.2 Noisy activities such as core drilling, concrete cutting, and rotohammer work: 7 working days. Such work shall be scheduled on weekends or evenings.
 - 1.4.4.3 Work affecting occupied areas adjacent to contract areas: 3 working days.
- 1.4.5 In case University must delay the date of an interruption through no fault of the Contractor, a time extension will be granted.
- 1.4.6 Service shutdowns and similar operations of utilities shall be performed only by University personnel. The Contractor shall be responsible for contacting the University Project Manager to apply for and coordinate the necessary shutdowns.
- 1.4.7 Should work during overtime hours be required by the University (other than overtime work specified herein), the difference between straight time and overtime rates plus Contractor's fees will be paid by Change Order provided prior University approval has been obtained for overtime work.
- 1.4.8 Expedite the project by verifying that all trades place orders in time to receive delivery of equipment and materials at the dates scheduled. Work shall be performed with sufficient competent craftsmen to finish each operation as scheduled. Notify each trade in advance of the time it is needed on the job to meet this requirement.
- 1.4.9 At any time during the progress of the work, the Architect shall have the authority, within reason, to require the Contractor to attend conferences for coordination of the work and for coordination with other Contractors who may have separate contracts on the site.
- 1.5 ACCESS
 - 1.5.1 Confine operations to the construction areas shown on drawings except where cutting and patching of mechanical

- 1.7.7 Provide temporary fire extinguishers during construction operations.
- 1.7.8 Control dust by placing temporary barriers at openings into contract work area. At corridors and other fire rated areas use 5/8" Type "X" drywall. Provide minimum 3' X 5' carpet scraps at all doors from project work area to public corridors. Transport all debris in closed containers. Remove from the site on a daily basis.
- 1.7.9 Protect all openings exposed to weather with watertight covering.
- 1.7.10 Security measures for equipment, tools, and materials are Contractor's responsibility.
- 1.8 REGULATIONS AND STANDARDS
 - 1.8.1 Conform to all applicable laws, rules and regulations of the State of California and the United States Government, latest published edition at the time of bidding.
 - 1.8.2 Work performed pursuant to this contract shall conform to the following codes:
 - 1.8.2.1 State of California Administrative Code (CAC) Titles 8, 19, 22 and 24.
 - 1.8.2.2 Occupational Safety and Health Act (OSHA).
 - 1.8.2.3 Uniform Building Code, 1988 Edition.
 - 1.8.3 Industry Standards referred to in specifications shall have full force as if printed herein, and shall be of latest edition.
- 1.9 PERMITS

Local building permit need not be obtained, nor is the construction subject to local building code requirements unless the contract documents reference such requirements for specific portions of the work.
- 1.10 SUPERVISION AND COORDINATION

The presence of the Architect or any of his designated representatives at the job site shall not relieve the Contractor from his responsibility to control and supervise the performance of the work, and the manner in which it is safely accomplished.
- 1.11 SUBSTITUTION OF MATERIALS AND EQUIPMENT

or electrical connections may extend into other areas. Protect the work area and keep out unauthorized persons. Maintain free access to the site for authorized persons. Store all materials within the contract area.

- 1.5.2 Access to the job site on campus roads and parking lots shall be arranged between Contractor and University. Contractor's entrance to the building will be limited to locations designated by the University.
- 1.6 TEMPORARY UTILITIES
 - 1.6.1 Provide an area in the Limit of Work with electric lighting, job telephone and power. Remove temporary utilities upon completion of the project.
 - 1.6.2 Water, heat, and power may be taken without charge from building systems within the limits of existing installations.
 - 1.6.3 Existing toilet facilities are available to Contractor providing cooperation is maintained in keeping premises clean.
 - 1.6.4 Do not damage existing utilities serving other areas. Re-establish any services to other areas which are interrupted by work of the contract.
 - 1.6.5 Project signs will not be permitted.
- 1.7 PROTECTION
 - 1.7.1 Whenever unforeseen conditions are uncovered, cease all work in the area, notify the Architect and proceed only after receiving instructions.
 - 1.7.2 Temporary construction shall conform to all requirements of State Division of Industrial Safety and OSHA, and shall be sized, and supported adequately for intended use and imposed loads.
 - 1.7.3 Powder actuated fasteners are not allowed.
 - 1.7.4 Electrical equipment shall conform to Underwriters Laboratories standards.
 - 1.7.5 Protect existing building surfaces and sitework not to be removed. Replace or patch any such items damaged by contract work to match adjacent surfaces.
 - 1.7.6 Hazardous or flammable substances shall be used and stored in conformity with fire regulations, and shall be removed from University premises for disposal.

- 1.11.1 Whether or not materials and equipment specified are followed by the words "or equal", if the Contractor desires to use any brand or item other than that specified, it shall request substitution within thirty-five (35) days after the date set forth in the Notice to Proceed. If a request for substitution occurs after such thirty-five (35) day period, the substitution may be reviewed at the discretion of the Owner's Representative; and the costs of such review, as approved by the Owner, shall be borne by the Contractor and will be deducted from the Contract Sum. The Owner's Representative will determine whether the proposed substitution is of the same quality, appearance, and utility to that specified and will accept or deny the request for substitution. The decision of the Owner's Representative will be final.
- 1.11.2 Requests for substitutions will only be considered if the Contractor submits the following:
 - 1.11.2.1 Complete technical data including drawings, performance specifications, samples, and test reports of the article proposed for substitution; and any additional information required by the Owner's Representative.
 - 1.11.2.2 Data described in Subparagraph 1.11.2.1 for the specified item for which substitution is proposed.
 - 1.11.2.3 Complete breakdown of costs, which shall include additional costs and savings generated by the proposed substitution and shall indicate the amount, if any, to be deducted from the Contract Sum if the proposed substitution is accepted.
 - 1.11.2.4 Statement by the Contractor that the proposed substitution is in full compliance with the requirements of the Contract Documents and Applicable Code Requirements.
 - 1.11.2.5 List of other trades, if any, which may be affected by the substitution.
 - 1.11.2.6 If the proposed substitution requires that portions of the Project be redesigned or construction be removed in order to accommodate the substituted item, submit design and engineering calculations prepared by a properly licensed design professional. The Contractor shall bear all costs resulting from the substitution.
- 1.11.3 When materials are specified by first manufacturer's name and product number, second manufacturer's name, or equal, the second manufacturer's product shall be submitted in accordance with the requirements for substitute items.

- 1.12 SUBMITTALS
 - 1.12.1 Submittals shall be made within 35 calendar days after date of commencement specified in Notice to Proceed.
 - 1.12.2 Copies required: Submit 8 copies minimum. Two finally reviewed copies will be retained by the University, 1 by the Architect and 1 by the mechanical and electrical engineer. For casework shop drawings submit one set of prints and one set of sepia drawings, no larger than 22" X 34".
 - 1.12.3 Shop drawings shall show all pertinent data for proper fabrication and installation of the items specified.
 - 1.12.4 Submit two samples of each material for which sample submittal is specified.
 - 1.12.5 Submittals shall be labelled with the name and section number of the trade as indexed herein and shall have the University Project Number and File Number on them.
- 1.13 WORKMANSHIP
 - 1.13.1 Finished work shall be plumb, level, well anchored, smooth, uniform, with no unsightly or hazardous protrusions, burrs or sharp edges, and shall have provision for expansion and contraction.
 - 1.13.2 Finish surfaces shall be free from bubbles, streaks, peeling, pits, dents, cracks, stains, chips or excess sealant. Operating hardware and other moving devices shall be adjusted to operate freely and smoothly.
 - 1.13.3 Wherever cutting of existing surfaces is required, perform that work to minimize damage to surrounding surfaces. Restore all surfaces to match adjoining undisturbed areas.
 - 1.13.4 Particular attention is directed to CAC Title 24, Division T-17, Table T-17-23-J in regard to construction and anchoring to resist seismic forces.
 - 1.13.5 Utility work, particularly where exposed, such as conduit piping and ductwork shall be installed parallel to the building lines. It shall be laid out and grouped logically and neatly joined.
- 1.14 FINAL ACCEPTANCE
 - 1.14.1 Periodically broom clean the work area free of dust, shavings and litter. Remove debris daily in covered containers. If contract work creates unsatisfactory

conditions in adjacent areas, immediately clean those areas. The Architect at any time may require Contractor to make a general clean up of areas affected by work performed under this contract. Final cleaning shall include complete janitorial cleaning, waxing and polishing of all surfaces, including replacement of any items damaged or scratched by cleaning process, and removal of all paint splatters, spots, stains, sealant or other foreign matter. Wash interior and exterior of all windows in the project area. Wax for VCT and sheet vinyl shall be as per manufacturer's recommendations. Cleaning solution for plastic laminate shall be as per manufacturer's recommendations.

- 1.14.2 Furnish written notice to University that the work is ready for final inspection. Architect thereupon will inspect site with Contractor and will make a list of any deficiencies. When deficiencies have been corrected, University will accept the completed project.

1.15 AS BUILT DRAWINGS

- 1.15.1 Maintain on site at all times in an approved location and in a clean dry legible condition, one set of Contract documents and submittals. These documents shall be used to record as-built conditions on a day to day basis, shall be kept current and shall be subject to inspection at any time.

- 1.15.2 On completion of the work as-built documents shall be certified by the Contractor to represent the true as-built conditions and shall be turned over to the Architect before requesting filing of Notice of Completion.

1.16 GUARANTEES, BONDS AND MAINTENANCE CONTRACTS

- 1.16.1 Guarantees from Subcontractors shall not limit the Contractor's warranties and guarantees to the Owner. Whenever possible, the Contractor shall cause warranties of Subcontractors to be made directly to the Owner. If such warranties are made to the Contractor, the Contractor shall assign such warranties to the Owner prior to final payment.

- 1.16.2 Form of Guarantee:

Submit the following written guarantee, typed on the Subcontractor's letterhead, when required by a Specification SECTION:

DATE: _____ Project Name: _____
Project No.: _____
Project Location: _____

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SECTION 01100-9
SPECIAL REQUIREMENTS

CONTRACTOR

Signed _____ Title _____
Typed Name _____
Name of Firm _____

END OF SECTION 01100

SECTION 02100 - DEMOLITION

PART I - GENERAL

1.1 SCOPE

1.1.1 Furnish all labor and equipment as required to demolish and remove off-site all miscellaneous items and related appurtenances as shown on the drawings or specified herein.

1.1.2 Coordinate work with work of other SECTIONS and perform each type of work with due consideration for continuing building operations. Notify Architect when utilities are found which are not shown and where conditions are different from those shown which will affect the work. Receive instructions before continuing.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Electrical demolition work, under Section 16010.

1.2.2 Mechanical and plumbing demolition work, under Division 15.

1.3 GENERAL REQUIREMENTS

1.3.1 Shoring, staging and scaffolding shall comply with applicable portions of California Administrative Code, Title 8, Construction Safety Orders, Article 31: Demolition.

1.3.2 Drill with rotary tools only.

1.3.3 Carefully take out removed work in small sections.

1.3.4 Schedule and coordinate demolition and reconstruction procedures to allow installation of new work prior to removal of existing construction whenever possible.

1.3.5 Carefully remove, protect and store away from damage existing materials and equipment to be reused as indicated.

1.3.6 Promptly remove all debris and excess materials of any kind resulting from the progress of the work from the building. Transport any materials that may shed debris through the building in closed containers.

Stockpile debris and remove in the evenings or weekends so as not to cause dust in public areas during the working day.

1.4 HAZARDOUS MATERIALS PROCEDURES

Except as otherwise specified, in the event the Contractor encounters on the site material reasonably

believed to be asbestos, polychlorinated biphenyl (PCB), or other hazardous material which have not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and the Owner's Representative in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner and Contractor if in fact the material is PCB, or other hazardous material and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos, PCB, or other hazardous material, or when such materials have been rendered harmless.

Follow OSHA regulation CFR 1910.134.

1.5 CONCRETE CUTTING

Concrete cutting of new openings shall be done with water-cooled concrete saws in clean cuts to the lines shown on the drawings. Do not overcut the corners. Small tools shall be used for the final cutting in such a way as to minimize vibration.

1.6 CUTTING AND PATCHING OF EXISTING FINISH WORK

1.6.1 Where cutting or patching of existing finish work will be required for installation of new work, including mechanical and electrical utilities or services, accomplish such cutting in a manner to minimize damage to surrounding surfaces. Cutting for a particular trade is included as part of the work of that trade. Patching shall be done by the trade skilled in that particular patching application (i.e. plaster patching done by plasterers, paint patching by painters, etc.) Materials required to match existing work and not otherwise specified shall be equal to the existing work. Workmanship and installation shall be comparable to adjacent work.

1.6.2 Repair all surfaces and items which become exposed, defaced, or otherwise unfinished as a result of demolition. Make such repairs with materials equal in quality, utility, and appearance to existing at no additional cost to Owner.

1.7 OWNERSHIP OF ITEMS AND MATERIALS FOUND

1.7.1 Except as noted on the drawings all items or materials shown removed become the property of the Contractor.

1.8 MISCELLANEOUS DEMOLITION

1.8.1 Remove all miscellaneous abandoned hardware, brackets, accessories, anchors and like items.

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SECTION 02100-3
DEMOLITION

- 1.8.2 Remove obsolete signs and other graphic materials left on the walls.
- 1.8.3 Remove ceilings including suspensions.
- 1.8.4 Remove window treatments and hardware.
- 1.8.5 Remove finish flooring and bases.
- 1.8.6 Remove casework and window stools.
- 1.8.7 Remove radiators and plumbing fixtures, including piping.

END OF SECTION 02100

SECTION 06200 - CARPENTRY

PART I - GENERAL

1.1 SCOPE

Provide all labor, materials and equipment required for all carpentry work and patching as shown on drawings and specified herein.

1.1.1 Laying out of lines and casework.

1.1.2 Installing miscellaneous specialties.

1.1.3 Installing wood doors and hollow metal frames.

1.1.4 Installing finish hardware.

1.1.5 Temporary barricades, protection and barriers.

1.1.6 Providing rough hardware.

1.2 RELATED WORK IN OTHER SECTIONS

1.2.1 Gypsum drywall including backing, under Section 09200.

1.2.2 Casework, under Section 12300.

1.2.3 Furnishing metal door frames, under Section 08100.

1.2.4 Furnishing finish hardware, under Section 08700.

1.2.5 Furnishing wood doors, under Section 08200.

1.2.6 Furnishing miscellaneous specialities, under Section 10500.

PART 2 - PRODUCTS

2.1 ANCHORS AND CONNECTIONS

2.1.1 All anchoring and connecting of work under this section shall be detailed by the Contractor for size and spacing in accordance with current construction practices for appearance and safety.

PART 3 - EXECUTION

3.1 INSTALLATION OF DOORS, FRAMES AND HARDWARE

3.1.1 Doors and frames shall be protected at this site after delivery and installed in the work of this section.

3.1.2 The Contractor shall be responsible for arranging his work schedule, securing delivery of doors, frames, and

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SECTION 06200-2
CARPENTRY

hardware, and protecting same from injury and dampness until acceptance of the work.

3.1.3 Metal frames shall be anchored as described in Section 08100.

3.1.4 Doors, frames and hardware shall be neatly and accurately fitted and secured in place and shall be adjusted to operate perfectly.

3.2 PARTITIONS AND CASEWORK

Location of partitions, openings and casework shall be field verified and approved by the Architect prior to installation.

3.3 INSTALLATION OF BUILDING SPECIALTIES

3.3.1 At drywall partitions anchor to backing with sheet metal screws.

3.3.2 At plaster walls use togglebolts to metal lath.

3.3.3 At masonry and concrete use expansion bolts.

END OF SECTION 06200

SECTION 07900 - CAULKING AND SEALANTS

PART I - GENERAL

1.1 SCOPE

Provide caulking and sealant work as shown including, but not limited to, the following:

1.1.1 Joints between dis-similar materials.

1.1.2 Juncture of countertops and walls.

1.1.3 Exposed penetrations through finishes.

1.1.4 Improper seals in existing fire rated assemblies.

1.2 WORK INCLUDED OTHER SECTIONS

Caulking and sealant for mechanical and electrical work, under Divisions 15 and 16.

1.3 SUBMITTALS

Manufacturer's data on caulking and sealants.

PART 2 - PRODUCTS

2.1 CAULKING

Silicone, fast set, mildew resistant for use in exposed joints with minimal movement: Tremco, Pecora or equal. Joint size limitation of 1/4" square minimum to 3/4" wide by 1/2" deep maximum. Match adjacent wall surfaces at interior.

2.2 BACKING

Closed cell neoprene or polyethylene joint backing sized as recommended by Caulking and Sealants manufacturer.

2.3 PRIMERS, SOLVENTS AND CLEANING MATERIALS

Non-staining and non-injurious to exposed surfaces of types recommended by approved manufacturer.

2.4 FIRE WALL AND SLAB PENETRATIONS

2.4.1 Pipe penetrations and holes less than 1-1/2" diameter: 3M Company No. CP-25, Bio-Fire Protection Systems Limited "Bio-therm" or equal non-asbestos packing. Packing shall be approved by the California State Fire Marshal.

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SECTION 07900-2
CAULKING AND SEALANTS

- 2.4.2 Holes in concrete slabs 1-1/2" diameter or greater: drypack with concrete to full depth of slab, using an epoxy bonding agent. LPL Epoxy Bonder or equal (no known equal).

PART 3 - EXECUTION

- 3.1 Concealed existing improperly sealed floor, ceiling slab, or corridor wall penetrations discovered within the project area shall be brought to the attention of the Architect. The Architect will either issue a change order to the Contractor or notify the University Project Manager for in-house corrections.

END OF SECTION 07900

SECTION 08100 - HOLLOW METAL DOOR FRAMES

PART I - GENERAL

1.1 SCOPE

Work under this section includes the furnishing of hollow metal door frames as shown on drawings and as specified herein.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Installing of doors and frames, under Section 06200.

1.2.2 Finish hardware, under Section 08700.

1.2.3 Glass and glazing, under Section 08800.

1.3 SUBMITTALS

Shop drawings of frames.

PART 2 - PRODUCTS

2.1 HOLLOW METAL

Conform to Commercial Standards CS-242, American Standards Association Specifications #A-115 and A-123.1.

2.2 STEEL SHEETS

Cold rolled or hot rolled, full pickled and oiled conforming to Federal Spec. QQ-S-698. Sheets may be electrolytic zinc and phosphetized. Frames shall be formed from 16 GA sheets.

2.3 PRIME COAT

Surfaces shall be cleaned, chemically treated, and given a factory dip coat or spray coat of rust inhibitive metallic oxide primer. Exposed surfaces shall then be filled and ground smooth followed by a second coat of primer. Each primer coat shall be baked separately or oven dried in accordance with manufacturer's standard practice.

2.4 UNIT PRESSED METAL FRAMES

2.4.1 Interior: 16 gauge, knocked down. Double return on back bend for erection after wall is in place. Furnish with U.L. labels for door frames as scheduled on drawings.

2.4.2 Each jamb with 16 gauge wall anchors of type suitable for adjacent construction. Anchor shall bear directly on the studs.

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SECTION 08100-2
HOLLOW METAL DOOR FRAMES

- 2.4.3 Prepare door frames for mortised hardware. Reinforce for all finish hardware at points of bearing and fastening for all surface, mortised and concealed items, using steel plate or sheet plate per manufacturer's standard system.
- 2.4.4 Fastenings: Phillips OHSM screws where necessarily exposed; set in holes factory punched and countersunk.

END OF SECTION 08100

SECTION 08200 - WOOD DOORS

PART I - GENERAL

1.1 SCOPE

Furnish wood doors as shown on drawings and as specified herein.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Installation of doors, under Section 06200.

1.2.2 Cold room door and frames, under Section 13450.

1.2.3 Hardware, under Section 08700.

1.2.4 Painting, under Section 09900.

1.2.5 Vision lights and metal vision frames, under Section 08800.

1.3 SUBMITTALS

1.3.1 Manufacturer's data for doors.

1.3.2 Door schedule.

PART 2 - PRODUCTS

2.1 FLUSH DOORS

2.1.1 Grade: meet ANSI/NWMA I.S. 1.2-81 Series standards for Premium Grade. Face veneers shall be select white birch, rotary cut, for transparent finish.

2.1.2 Protection: deliver to job dry and with top and bottom edges protected with wood strips.

2.1.3 Solid Core Doors, Non-rated; particle board core construction.

2.1.4 Solid Core Doors, Rated: mineral core construction. Furnish with 3/4 hour U.L. labels as scheduled on the drawings.

2.1.5 Matching solid birch flush stops at non-rated doors with vision panels.

END OF SECTION 08200

SECTION 08700 - FINISH HARDWARE

PART I - GENERAL

1.1 SCOPE

Furnish all finish hardware as scheduled on the drawings and specified herein.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Providing rough hardware under Section 06200.

1.2.2 Installation of Finish Hardware under Section 06200.

1.2.3 Casework hardware, under Section 12300.

1.2.4 Miscellaneous Specialties, under Section 10500.

1.3 SCHEDULES

This specification describes the quality, utility and appearance that is required but does not intend to mention each particular item. The Contractor shall schedule the entire project so that the items specified will function properly. Schedule shall list all items proposed for each opening, as well as miscellaneous items. Schedule shall be submitted to the Architect for approval.

PART 2 - PRODUCTS

2.1 FINISH

No. 612, Satin bronze, clear coated.

2.2 FASTENING DEVICES

Inconspicuous, of suitable type to anchor the hardware in place for heavy duty. Fasteners shall provide against shock and tampering. Finish of fastener shall match contiguous material of hardware items. Metal shall be compatible with that of hardware. Where practicable, fastenings shall finish flush with adjoining surfaces.

2.3 HINGES

2.3.1 Full mortise, plain bearing at doors without closers and ball bearings at doors with closers. Hager 1279 and BB 1279, Stanley 179 and FB 179 or equal.

2.3.2 Doors 3'0" or narrower: 4-1/2" X 4-1/2"
Doors wider than 3'0": 5" X 4-1/2"

- 2.4 LOCKSETS AND LATCHSETS
 - 2.4.1 Mortise Locks: Heavy duty mortise type with lever handles on both sides: Schlage L9000 Series, Style 03 with Type "A" wrought rose, to match campus standard.
 - 2.4.2 Card Locks: Schlage Intellis No. TL8485, Option 5 to match campus standard. Provide alkaline batteries.
- 2.5 KEYING

Provide Schlage 6 pin tumbler cylinders, No. 1248 keyway at mortise locks. Furnish 3 cut keys at mortise locks and 3 cards at card locks. All keying will be done by the University.
- 2.6 DOOR STOPS

Bronze. Floor-mounted: Glynn-Johnson FB13, Builders Brass F803, or equal. Wall mounted: Glynn-Johnson GJWB-11, Builders Brass or equal. Carpet risers at carpeted areas.
- 2.7 DOOR CLOSERS
 - 2.7.1 LCN Smoothee 4010N or 4110N Series, Norton or equal.
 - 2.7.2 Special arms or other features as necessary to meet specified requirements or installation conditions.
 - 2.7.3 Exposed part factory spray painted.
 - 2.7.4 Locate on room sides of doors.
 - 2.7.5 Size closer per manufacturer's standards as applicable to closer type, door size, location and function required. Fire rated doors shall have maximum 15 pound opening force: non-rated doors maximum 5 pound opening force.
- 2.8 DOOR SILENCERS

Glynn-Johnson #64, Builders Brass or equal. Three (3) per door. Omit at fire doors.
- 2.9 GASKETING

Install on all fire doors. Meet the following standards: ASTM E-152-NPTA-252; UBC-432 UL-10(B); ASTM E-283. Silicone rubber compression bond with pressure sensitive adhesive for installation on door frames. Install at tops and jambs; Pemko S88D, Zero or equal.

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SECTION 08700-3
FINISH HARDWARE

- 2.10 WEATHERSTRIPPING
- Pemko No. 312DR extruded bronze anodized aluminum with closed cell neoprene, Zero or equal.
- 2.11 AUTOMATIC DOOR BOTTOM
- Mortise type, medium duty. Pemko No. 411AR, Zero or equal.
- 2.13 HARDWARE GROUPS
- 2.13.1 Group A: Wood Door in Hollow Metal Frame
3/4 Hour U.L. rated assembly
- 1-1/2 pair butts, 5" X 4-1/2"
1 card lockset
1 closer
1 doorstop
gasketing
- 2.13.2 Group B: Wood Door in Hollow Metal Frame
- 1-1/2 pair butts, 4-1/2" X 4-1/2" Office Function
1 lockset (L9050)
1 doorstop
1 set weatherstripping
1 automatic door bottom
3 door silencers
- 2.13.3 Group C: Wood Door in Hollow Metal Frame
- 1-1/2 pair butts, 4-1/2" X 4-1/2"
1 latchset (L9010)
1 doorstop
3 door silencers
- 2.13.4 Group D: Wood Door in Hollow Metal Frame
- 1-1/2 pair butts, 5" X 4-1/2"
1 latchset
1 doorstop
3 door silencers
1 closer
- 2.13.5 Group E: Wood Door in Hollow Metal Frame
- 1-1/2 pair butts, 5" X 4-1/2"
1 latchset (L9010)
1 doorstop
3 door silencers

END OF SECTION 08700

SECTION 08800 - GLASS AND GLAZING

PART I - GENERAL

- 1.1 SCOPE
 - 1.1.1 Vision frames and vision lights.
 - 1.1.2 Recondition existing windows.
 - 1.1.3 Installation of wood vision light stops.
- 1.2 WORK INCLUDED UNDER OTHER SECTIONS
 - 1.2.1 Furnishing of wood doors, under Section 08200, including wood stops for non-rated vision lights.
 - 1.2.2 Glass for casework, under Section 12300.
- 1.3 STANDARDS
 - 1.3.1 All glass shall conform to Federal Specification DD-G-451c.
 - 1.3.2 Glazing work, setting and clearance shall be in accordance with latest standards of the Flat Glass Jobbers Association.
- 1.4 SUBMITTALS
 - Shop drawings on door and frames with complete constructed details.

PART 2 - PRODUCTS

- 2.1 DOOR VISION LIGHTS
 - 2.1.1 Fire-rated doors: Clear, polished, wire glass, 1/4" thick with embedded diamond pattern straight-wire welded mesh at rated doors. Libbey-Owens-Ford, PPG Industries or equal.
 - 2.1.2 Non-rated doors: Clear 1/4" thick acoustical laminated safety glass, consisting of two layers of .017 float glass and a 0.03" vinyl interlayer. Globe-Amerada "Acoustapane 36", Monsanto or equal.
- 2.2 VISION FRAMES
 - Vision frames for rated doors shall be 18 gauge cold rolled steel with square stops, rated for a one hour U.L. label. Anemostat Products FGS75, K.N. Crowder or equal. Submit manufacturer's data for Architect's approval.

2.3 GLAZING COMPOUNDS

Door Vision Lights: Tremco 440 tape, Miracle or equal.

PART 3 - EXECUTION

3.1 STORAGE

Glass shall be stored in a safe location and protected until installation. Each light of glass shall be factory labelled. Labels shall be left in place until acceptance by the Architect.

3.2 ERECTION

3.2.1 Door and frames shall be installed in existing openings prepared by the Contractor. They shall be set plumb, square, level and in exact alignment with surrounding work. They shall be securely anchored and ready for operation.

3.2.2 All joints between new and existing work shall be fully caulked.

3.2.3 After erection and glazing the Contractor shall check and adjust all operating hardware.

3.3 RECONDITIONING OF EXISTING WINDOWS

Restore to smoothly operating conditions. Provide all parts including, but not limited to, operating hardware, latches and handles. Lubricate moving parts whenever applicable. Replace missing sash and missing or damaged trim and hardware.

END OF SECTION 08800

SECTION 09200 - GYPSUM DRYWALL

PART I - GENERAL

1.1 SCOPE

Provide all labor, materials and equipment required for drywall metal framing, gypsum board and gypsum board finishing as indicated on the drawings and herein specified. Provide plaster patching of existing surfaces as required. Provide drywall access panels.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Laying out of lines, under Section 06200.

1.2.2 Acoustical Treatment, under Section 09500.

1.2.3 Painting, under Section 09900.

1.2.4 Hollow Metal Door Frames, under Section 08100.

1.3 STANDARDS

1.3.1 Fabrication: AISI Cold-Formed Steel Design Manual, 1983 Edition.

1.3.2 Tolerances.

1.3.2.1 Locations of partitions and openings: $\pm 1/8$ inch.

1.3.2.2 Level or plumb: $1/8$ " in 10 feet.

1.4 SUBMITTALS

Manufacturer's data on all materials, including gypsum board, framing, fasteners, hangers, adhesives and like items.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Materials shall be standard types and components of manufacturers regularly producing items of the types required; U.S. Gypsum Co., Kaiser Gypsum Co., Penn Metal Co., or equal. All materials shall be new, delivered to building in original, unbroken packages bearing manufacturer's labels.

2.2 FRAMING (Except Shaftwall)

2.2.1 Drywall Studs: 3-5/8" and 1-1/2" wide, channel type from 16 and 25 gauge galvanized steel strip conforming

to ASTM A 245, Grade C; webs punched at 24" centers in patterns designed to positively engage bracing channels. Studs shall be 25 gauge except where otherwise specified or noted.

- 2.2.2 Partition and Furring Accessories: include standard 1-1/2" flange type partition runner tracks, hat shaped furring channels and other items necessary to provide complete, rigid and well secured installations.
- 2.2.3 Partition Bracing Channels: cold rolled steel, solid channel type, factory painted; 3/4" X 1/2" X 16 gauge.
- 2.2.4 Backing for casework, shelving and miscellaneous specialties: 16 gauge X 4" wide galvanized sheet metal.
- 2.2.5 Drywall Ceiling Suspension: 8 gauge hanger wires, 1-1/2" cold rolled furring channels and 25 gauge hat channels.
- 2.3 FASTENINGS (Except Shaftwall)
 - 2.3.1 Screws: self-drilling, self-tapping type; corrosion-resistant oxidized. Type "S" Bugle head screws for attachment of gypsum wallboard to 20-25 ga. metal stud. Type S-12 Bugle head screws for attachment of metal to metal framing and gypsum wallboard to metal framing heavier than 20 ga. Minimum length 1".
 - 2.3.2 Use 1/4" diameter X 1-1/2" embedment expansion bolts to anchor tracks to floor and ceiling slabs and concrete walls. Powder driven fasteners are not allowed.
- 2.4 GYPSUM BOARD (Except Shaftwall)

ASTM C36 type X core, 5/8" thick. 48" minimum sheet width. Long edges tapered, rounded and paper wrapped, short edges square cut. Single lengths for full wall height without intermediate cross joints whenever possible.
- 2.5 ACCESSORIES
 - 2.5.1 Edge trim wherever gypsum board abuts other surfaces: fabricated of .015 inch thick galvanized steel.
 - 2.5.2 Corner Beads: Metal, at all outside corners.
 - 2.5.3 Reinforcing tape, joint cement and taping compound shall be standard types conforming to ASTM C475 and as produced or recommended by manufacturer of gypsum wallboard.
 - 2.5.4 Drywall Adhesive: DAP 2000, Miracle DSA 20 or equal.

2.6 ACCESS PANEL

Flush door for drywall. 14 gauge door and 16 gauge frame. Screwdriver operated lock. Prime coat. Karp Type KDW, Milcor or equal. Sizes as shown on the drawings.

2.7 SHAFTWALL

2.7.1 Manufacturers: U.S. Gypsum Co., Domtar or equal Two-Hour Cavity Shaftwall (Nonload-Bearing), conforming to U.L. Designation U438. U.S. Gypsum designations are used as a design standard but equal U.L. approved systems may be proposed.

2.7.2 Materials

2.7.2.1 Liner Board: 1" USG Gypsum Liner Panels, beveled edge, 24" wide, lengths as required.

2.7.2.2 Faceboards: 5/8" thick, 48" wide, Sheetrock Brand Firecode "C" Gypsum Panels, lengths as required.

2.7.2.3 Fasteners: USG Screws: 1", 1-5/8", 2-1/4", Type S bugle head.

2.7.2.4 USG Steel C-H Studs, 212CH25 hot-dipped galvanized, lengths as required.

2.7.2.5 USG Steel J-Runners, 212JR24, hot-dipped galvanized, for USG Steel C-H Studs.

PART 3 - EXECUTION

3.1 METAL STUD PARTITIONS (Except Shaftwall)

3.1.1 Provide continuous track at top and bottom of stud partitions. Extend tops of studs to bottom of concrete slab. Architect will inspect and approve track layout prior to installation.

3.1.2 Secure to subfloor with fastenings spaced not more than 6" from ends of each piece and not over 24" on center in between; two minimum per piece.

3.1.3 Space studs 16" on center.

3.1.4 Use in lengths equal to distance between track webs, less 1/2 inch. Set plumb; full bearing in bottom track and fasten through flanges on each side. Float top of stud in track and hold in position by screwing each track flange on one side of each stud flange (4 screws per stud).

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SECTION 09200-4
GYPSUM DRYWALL

- 3.1.5 Provide studs for terminal ends of partitions; doubled at door jambs and where freestanding; multiple studs for corners and returns.
- 3.1.6 Frame openings with 16 gauge full-height studs each jamb.
- 3.1.7 Partition bracing: Provide channels at midheight. Engage and secure bracing to each stud, including all jambs, corners and terminal tends.
- 3.1.8 Metal Backing: Provide in stud partitions for support of casework, shelving, building specialties and like items requiring wall support. Anchor to each stud with 2 #12 self tapping screws, Three studs, minimum. Extend to stud beyond end point of item to be supported.
- 3.1.9 Screw together 16 gauge studs at opening jambs, ends and corners, and where called for on drawings.
- 3.2 GYPSUM WALLBOARD (Except Shaftwall)
 - 3.2.1 Install all drywall materials in accordance with manufacturer's instructions and ANSI-A9.1 except where more restrictive procedures are herein specified.
 - 3.2.2 At new partitions provide single layer installation of 5/8" drywall secured by single fastener method using 1" long, No. 6 screws. Extend drywall 3" above ceilings except where otherwise noted.
 - 3.2.2.1 Install with long edges vertical and in single sheet lengths without intermediate cross joints where possible.
 - 3.2.2.2 Secure each sheet to bearings with fasteners spaced 8" o.c. at perimeter and 12" o.c. at intermediate bearings. Stagger joints on opposite wall surfaces.
 - 3.2.2.3 At floors set bottom edges of wallboard uniformly spaced not less than 1/4" nor more than 1/2" clear of floor or curb surfaces.
 - 3.2.2.4 At piping, conduit, outlets and other penetrations through wallboard, provide diecut or sawn cutouts. Punching is not permitted. Cut wallboard edges shall not be more than 1/4" clear of surfaces of the penetrating items.
 - 3.2.3 Adhesive Applied Wallboard (5th Floor only)
 - 3.2.3.1 Remove all loose paint, plaster and other materials that could interfere with adhesion. Roughen the surfaces to remove gloss.

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SECTION 09200-5
GYPSUM DRYWALL

- 3.2.3.2 Apply 3/8" diameter drywall adhesive beads to back of drywall at 2" o.c. Attach to backing with fasteners at 24" o.c. Maintain firm contact by bracing until adhesive sets up.
- 3.2.4 DRYWALL CEILINGS
 - 3.2.4.1 Anchor hanger wires to ceiling with 1/4" expansion bolts at 4'-0" on center each way. Maximum distance from walls is 6".
 - 3.2.4.2 Tie hanger wires to 1-1/2" cold rolled furring channels at 4'-0" o.c.
 - 3.2.4.3 Fasten hat channels at right angles to furring channels at 16" o.c. Fasten with clips.
 - 3.2.4.4 Apply drywall at right angles to hat channels and screw at 12" on center.
- 3.3 SHAFTWALL
 - 3.3.1 Position steel runners at floor and ceiling slabs with the short leg toward finish side of wall. Securely attach runners to structural supports with 1/4" X 1-1/2" expansion bolts at both ends and max. 24" o.c.
 - 3.3.2 Cut liner panels 1" less than floor-to-ceiling height and erect vertically between J-Runners. Where shaft walls exceed max. available panel height, position liner panel end joints within upper and lower third points of wall. Stagger joints top and bottom in adjacent panels and reinforce end joints with horizontal C-H stud or 1" H-Spline. Screw attach studs to runners on walls.
 - 3.3.3 Use steel C-H studs 3/8" to not more than 1/2" less than floor-to-ceiling height, and install between liner panels with liner inserted in the groove. Install full-length steel E-studs or J-Runners vertically at T-intersections and corners.
 - 3.3.4 For double-layer finish, erect 5/8" Sheetrock Brand Firecode "C" Panel vertically one side of studs. Fasten base layer to studs with 1" Type S Screws 24" o.c. Caulk perimeter of base layer.
 - 3.3.5 Apply 5/8" Sheetrock Brand Firecode "C" Gypsum Panel face layer vertically over base layer with joints staggered and attached with 1-5/8" Type S Screws staggered from those in base, spaced 12" o.c. and driven into studs and runners.
 - 3.3.6 For triple-layer finish, erect base layer vertically one side of studs, mid-layer horizontally with joints

staggered and face layer vertically with joints staggered. Attach gypsum panels or base to studs with 1" Type S Screws 24" o.c. for base layer, 1-5/8" Type S Screws 24" o.c. for mid-layer and 2-1/4" Type S Screws 16" o.c. for face layer. Attach face layer to J-Runners with 2-1/4" Type S Screws 12" o.c.

3.4 ACCESSORIES

3.4.1 Install accessories and secure to true, straight lines. Accurately align intermediate joints. At terminal ends, extend fully butt intersecting surface. Secure at 16" centers and near ends, staggered at 8" centers for double wing type accessories.

3.4.2 Casing Bead: Where caulked joints are indicated, set edge of casing bead uniformly spaced 1/8" minimum, 3/16" maximum clear of adjacent finished surface. Elsewhere, set trim edge neatly abutting the adjacent interacting surface.

3.5 GYPSUM WALLBOARD FINISHING

3.5.1 At all exposed gypsum board joints, prepare and apply joint treatment materials in accordance with approved manufacturer's directions.

3.5.2 Finish shall be 3 coats minimum, feathered smooth and sanded for smooth finish. Let each coat dry out 24 hours minimum before applying succeeding coat.

3.6 PLASTER PATCHING (CORRIDOR)

3.6.1 At existing plaster walls to remain exposed remove damaged and loose plaster. Patch lath and furring. Fill all voids with new gypsum plaster flush with existing surfaces.

3.6.2 Remove loose paint and other materials that would interfere with adhesion of new materials. Wash walls.

3.6.3 Apply a bond coat of Larson's "Plasterweld" or equal (no known equal) to walls.

3.6.4 Skim surfaces with drywall compound for a smooth finish. Feather onto adjacent areas not being refinished.

END OF SECTION 09200

SECTION 09500 - ACOUSTICAL TREATMENT

PART I - GENERAL

1.1 SCOPE

- 1.1.1 Provide suspended acoustical ceilings including lay-in panels and suspension systems.

1.2 WORK INCLUDED IN OTHER SECTIONS

- 1.2.1 Heating and ventilating work, under Section 15500.
- 1.2.2 Light fixtures and their suspension, under Section 16550.
- 1.2.3 Suspended drywall ceilings, under Section 09200.

1.3 SUBMITTALS

Submit samples and manufacturer's data on tile and suspension system.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANELS

Class A incombustible mineral fiber lay-in units; 5/8" thick; 24" X 48" nominal; factory finished with washable white, non-bridging paint. NRC shall be 0.60 - 0.70. Light reflectance 70% minimum. Panels shall be Armstrong Cork Co. 734 Designer Minaboard, Conwed or equal. Flame spread rating not to exceed 25.

2.2 SUSPENSION SYSTEM

Acoustical Materials Association Mounting No. 7 exposed grid system with main tee runners and cross tees. Framing shall be electrogalvanized steel with a white baked enamel finish on exposed surfaces. The completed system shall readily permit the removal of the members without disturbing the balance of the system. Chicago Metallic 1800 Series, Donn or equal.

PART 3 - EXECUTION

3.1 STANDARDS

Install ceiling according to ASTM C636, "Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels".

3.2 SUSPENSION

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SECTION 09500-2
ACOUSTICAL TREATMENT

- 3.2.1 Hang grid from structure above with 12 gauge galvanized steel wires at 4' O.C. along main T-bars except that light fixtures shall be supported at each corner. Anchors for wires shall be drilled 1-1/2" into the concrete structure. They shall be 1/4" diameter expansion sleeve anchors with tie wire heads: Red-Head, Wej-it or equal.
- 3.2.2 Where ceiling space is obstructed by work of other trades install trapezes to span around them. Do not anchor to studs, ducts, pipes, conduit or their suspensions.
- 3.2.3 Install seismic splay braces on ceilings at 12' o.c. Brace shall consist of a vertical rigid steel tube and four typical wires connected to a main runner, radiating up and out at 45 degrees in four directions and anchored to slab as for vertical wires.

END OF SECTION 09500

SECTION 09650 - RESILIENT FLOORING

PART I - GENERAL

1.1 SCOPE

1.1.1 Sheet vinyl with integral coved base.

1.1.2 Vinyl composition tile.

1.1.3 Rubber base, including on casework.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Demolition of existing flooring, under Section 02100.

1.2.2 Carpeting, under Section 09680.

1.3 SAMPLES

Submit samples of flooring and base and manufacturer's data.

PART 2 - PRODUCTS

2.1 VINYL COMPOSITION TILE

2.1.1 12" x 12" x 1/8" thick, conforming to Federal Specification SS-T-312, Type IV. Tarkett "Expressions" Armstrong or equal. Pattern and color as selected by the Architect.

2.1.2 Match existing corridor tile where necessary at new corridor wall openings.

2.2 TOP SET BASE

2.2.1 Premolded, coved, 4 and 6 inches high, 1/8" thick, standard rubber, as manufactured by Burke Rubber Co., Flexco or equal. Provide pre-formed external corners on walls, casework and base shoes for legs of casework. Color as selected by the Architect.

2.2.2 Premolded 4" high, 1/8" thick, standard rubber carpet base. Burke, Flexco or equal. Color as selected by the Architect.

2.3 SHEET VINYL

2.3.1 Width: 6' rolls.

2.3.2 Gauge: .080: minimum overall; .050" minimum vinyl wear layer.

2.3.3 Load Capacity: 100 psi minimum.

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SECTION 09650-2
RESILIENT FLOORING

- 2.3.4 Federal Specification L-F-475: meet requirements for Grade A, Type II.
- 2.3.5 Manufacturers: Tarkett "Optima", Armstrong "Medentech" or equal. Color as selected by the Architect.
- 2.4 SHEET VINYL ACCESSORIES
 - 2.4.1 Reducing Strips: Johnsonite, Mercer or equal, 1/8" X 1-1/4" vinyl. Color as selected by the Architect.
 - 2.4.2 Vinyl Cap Strip: Mercer #39, Johnsonite or equal.
 - 2.4.3 Vinyl Cove Stick: Mercer #70, Johnsonite or equal.
- 2.5 ADHESIVES AND PRIMERS

As recommended by the manufacturer of the flooring.
- 2.6 LEVELLING COMPOUNDS

Latex mastic underlayment. Duratex, Armstrong S-180 or equal.
- 2.7 DELIVERY

Materials shall be delivered to job site in original sealed containers with manufacturer's brand and identification number clearly marked thereon.

PART 3 - EXECUTION

- 3.1 PREPARATION OF SURFACES
 - 3.1.1 Clean existing surfaces of everything that will interfere with adhesion.
 - 3.1.2 Patch cracks and other imperfections. Level depressions and holes where existing work has been removed with levelling compounds as recommended by the flooring manufacturer for the subfloors involved.
- 3.2 INSTALLATION OF RESILIENT FLOORING, GENERAL
 - 3.2.1 Store materials in warm enclosed spaces in building at least 72 hours before installation and at a minimum temperature of 70 degrees F.

Maintain required room temperature before and immediately after installation.
 - 3.2.2. Resilient flooring shall be installed on new metal floor and on existing concrete. Prepare surfaces to

receive resilient flooring. Grind uneven surfaces smooth and fill all remaining cracks, joints and depressions with levelling compounds. Remove all foreign, loose, and excess material to avoid telegraphing through resilient flooring. Work on smooth, dry and clean surfaces. Check and correct all alignments, including any differences in elevation between adjoining rooms, depressions, existing slopes to drain, etc. to a level surface.

- 3.2.3 Existing flooring shall be primed with material recommended by the adhesive manufacturer for each type of floor surface encountered. Use minimum quantity of primer to develop complete coverage. Allow primer to dry thoroughly before applying adhesive.

3.3 INSTALLATION OF VINYL COMPOSITION TILE

- 3.3.1 Place each tile in full bed of adhesive. Tile and base joints shall be tightly butted and flush across the surfaces, tile cross-joints meeting at a point. All units shall be free from stains, chips, cracks or other irregularities.

3.4 INSTALLATION OF TOPSET BASE

Install base in unbroken standard lengths, cemented solidly to walls. Miter internal corners and make a tight fit with premolded external corners. Set with wall and floor joints firmly closed; joints tightly butted and flush, inside corners accurately mitered, top edge of base level. Set premolded outside corners and base shoes with contact cement. Install underneath all equipment that does not have a resilient base. At casework where bases exceed 4" due to out of level floors use 6" base. Scribe top of rubber base to joint between cabinet base of cabinet.

3.5 INSTALLATION OF SHEET VINYL

- 3.5.1 Lay flooring to provide as few seams as possible. Match edges for pattern.
- 3.5.2 Seams may be heat welded or chemical welded. Use adhesive to secure edges of sheets to subfloor as per manufacturer's recommendation.
- 3.5.3 Integral cove base 4" high shall be a continuation of flooring sheets coved on fillet strips to 3/4" radius using adhesives recommended by manufacturer for each wall surface. All interior and exterior corners shall be carefully mitred for tight fit. Finish top with cove cap securely fastened to wall and cabinets.

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SECTION 09650-4
RESILIENT FLOORING

- 3.5.4 Edge Trim: Install at all exposed edges of flooring where no threshold is provided. Set to straight lines. Securely fasten to subfloors.
- 3.6 COMPLETION
- 3.6.1 Remove unwanted debris resulting from this work. Clean floors, base and adjacent surfaces free from smears, splatters and stains as the work progresses and leave ready for final cleaning.
- 3.6.2 Leave one box of tiles and large scraps of sheet vinyl at the site.

END OF SECTION 09650

SECTION 09680 - CARPETING

PART I - GENERAL

1.1 SCOPE

Provide all carpet and pad as shown on the drawings and specified herein.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Demolition of existing flooring, under Section 02100.

1.2.2 Resilient flooring, under Section 09650.

1.3 SUBMITTALS

1.3.1 Samples and manufacturer's data on the carpet and accessories.

1.3.2 Manufacturer's maintenance instructions for commercial installation of carpeting. These instructions shall include recommendations for commercial cleaning, spot cleaning, vacuum cleaning, and recommended type of furniture casters and glides for use with this particular carpeting.

PART 2 - PRODUCTS

2.1 CARPETS

2.1.1 Face Yarn: 100% Antron Nylon, solution dyed.

2.1.2 Yarn Weight: 30 oz./sq. yd. minimum

2.1.3 Backing: Synthetic primary and jute secondary.

2.1.4 Width: 12 feet.

2.1.5 Pile Height: 3/16" minimum.

2.1.6 Stitches/inch: 8.17 minimum.

2.1.7 Construction: Tufted loop step-over.

2.1.8 Gage: 1/8 inch.

2.1.9 Flammability:

ASTM E-648: Class 1

ASTM E-662: Smoke density 450 or less

DOC-FF1-70: Passes Methenamine Pill Test

ASTM E-84: Flame Spread 20

Fuel Contribution 20

Smoke Density 50

N.F.P.A. Class A

ASTM E-684: Meets or exceeds flooring Radiant Panel
Test of 0.25 watts/cm².

2.1.10 Manufacturers: Wellco Camerom II, Bentley Stonegate or
equal. Color as selected by the Architect.

2.2 PAD

Hair and jute pad weighing 40 oz/s.y. General Felt,
Recticel or equal.

2.3 EDGE TRIM

Aluminum J-trim at exposed edges.

PART 3 - EXECUTION

3.1 PREPARATION OF SUBFLOORS

Contractor shall thoroughly inspect and clean subfloor
surfaces and any defects shall be corrected prior to
installing carpet.

3.2 INSTALLATION

3.2.1 Carpeting shall be installed by the manufacturer's
authorized representative in accordance with the
manufacturer's specifications.

3.2.2 Carpeting shall be installed wall-to-wall in all
locations. Carpeting shall be cut and fitted tightly to
walls, obstructions, corners, pipes and fittings.
Pattern shall be aligned at carpet joints.

3.3 CARPET REMNANTS

Carpet remnants, usable scrap, and overage of 3 square
yards or larger in size shall be packaged, identified,
and delivered to the Owner's representative.

END OF SECTION 09680

SECTION 09900 - PAINTING

PART I - GENERAL

- 1.1 SCOPE

Provide all labor, materials and equipment necessary for the application of all paint products as shown on drawings and as specified herein. All new work and patched existing work shall be painted.
- 1.2 WORK INCLUDED UNDER OTHER SECTIONS
 - 1.2.1 Drywall finishing, under Section 09200.
 - 1.2.2 Casework finishing, under Section 12300.
- 1.3 SURFACES NOT TO BE PAINTED
 - 1.3.1 Flooring and base.
 - 1.3.2 Plumbing and electrical fixtures and trim.
 - 1.3.3 Factory finished items, except where only shop primed or scheduled to be painted. Paint electrical panels.
 - 1.3.4 Acoustical tile and grid.
 - 1.3.5 Finish hardware.
 - 1.3.6 Glass.
 - 1.3.7 U.L. Labels.
- 1.4 SUBMITTALS
 - 1.4.1 Colors: The Architect will prepare a color schedule with samples for guidance of the Contractor and reverses the right to select, allocate and vary colors on different substances throughout the project area, subject to the limitation that no more than 10% of deep colors will be selected.
 - 1.4.2 List of Materials: Submit a list in triplicate of all materials proposed for use, together with manufacturer's specifications.
 - 1.4.3 Samples: Before beginning work prepare for approval 4 samples of each color finish required. Such approved samples shall constitute standards for color and finish for acceptance or rejection of completed work.
- 1.5 STANDARDS

Paints shall meet the Bay Area Air Quality

Management District Regulation 8 (organic compounds),
Rule 3 (Architectural Coatings).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Materials are specified by brand names to establish a standard of quality, utility and appearance and a general description of product. The term "Paint" as used herein includes enamels, paints, stains, varnishes, emulsions, lacquers and sealer. The following Fuller-O'Brien products and numbers constitute the standards for the primers and finish coats of the paint system specified, but comparable products of Dunn-Edwards or equal may be proposed.

All materials in any one system shall be the product of one manufacturer. Major areas only are scheduled, but all miscellaneous items and areas within the room or space shall be treated with a suitable system.

2.2 PAINT TYPES

<u>Product Descriptions</u>	<u>Fuller-O'Brien No.</u>
Primer, Ferrous Metals	621-05
Primer, Shop Primed Ferrous Metals	621-04
Primer, Galvanized Metal	621-05
Primer, Drywall and Plaster	220-20 ProTech
Acrylic Latex Semi-Gloss Enamel	236-XX
Alkyd Semi-Gloss Enamel	206-XX
Clear Lacquer Sanding Sealer	250-04
Clear Gloss Lacquer	251-01
2 Component Epoxy, Satin	317-XX

2.3 PAINT SYSTEMS

2.3.1 Semi-Gloss Finish on Existing Drywall & Plaster

Prime Coat: 220-06 if existing finish is oil base.
220-20 if existing finish is acrylic.

2 Finish Coats: Acrylic Latex Semi-Gloss Enamel

- 2.3.2 Semi-Gloss Finish on New Drywall
Prime Coat: Primer, Drywall and Plaster
2 Finish Coats: Acrylic Latex Semi-Gloss Enamel
- 2.3.3 Semi-Gloss Finish on Metal Door Frames
Prime Coat: Primer, Shop Primed Ferrous Metal
2 Finish Coats: Alkyd Semi-Gloss Enamel
- 2.3.4 Lacquer Finish on Wood Doors
Prime Coat: Clear Lacquer Sanding Sealer
Second Coat: Clear Gloss Lacquer
Finish Coat: Clear Semi-Gloss Lacquer

Sand lightly between coats; fine steel wool (00) finish and surfaces.
- 2.3.5 Epoxy Finish on Drywall and Metal (P2* East & West)
Prime Coat: Primer, Drywall and Plaster
 Primer, Shop Primed Ferrous Metal
2 Finish Coats: Mira-Plate Epoxy
- 2.4 MATERIALS FOR GENERAL USE:
- 2.4.1 Shellac: Type I, bleached, No. 4, cut with pure grain alcohol, conforming to Federal Specification TT-V-916 or ASTM D207-55.
- 2.4.2 Thinner: As recommended by each manufacturer for his respective product.
- 2.4.3 Linseed Oil: Pure first quality conforming to Federal Specification TT-0-364 or ASTM D260-61.
- 2.4.4 Putty: Pure linseed oil putty of standard manufacture, with 25% white lead and sufficient varnish to prevent the possibility of shrinkage. Color shall match the final finish of adjoining surfaces.

PART 3 - EXECUTION

3.1 DELIVERY AND STORAGE

All painting materials shall be delivered to the site in the manufacturer's original containers with labels intact and unbroken. They shall be opened, mixed and

kept in a well ventilated storage place which shall be kept clean and neat within the "PROJECT WORK AREA". Oily rags shall be disposed of each day and all other necessary precautions shall be taken to avoid danger of fire.

3.2 SCAFFOLDING, DROP CLOTHS, AND PROTECTION OF WORK

Furnish, maintain and remove scaffolding, ladders and drop cloths required for this work. Protect existing surfaces subject to damage during painting. Clean and repair all damage of paint spills.

3.3 FIRE MARSHAL NOTIFICATION

The Contractor shall contact the Campus Fire Marshal (476-2608) prior to applying flammable paints and shall give evidence to the Architect that he has done so.

3.4 PREPARATION OF SURFACES

3.4.1 No painting shall be started until the surfaces to be painted are clean and free of dirt, rust and any other substances which might interfere with the adhesion of the painting system.

3.4.2 Holes, cracks, and other imperfections in surfaces to be painted shall be suitably primed and patched with a compound recommended by the manufacturer of the paint to be applied to these surfaces and all areas to be painted shall be brought to true, even surfaces.

3.4.3 Unprimed ferrous metal surfaces to be painted shall be primed. Bolts, welds, and places where existing primer has been damaged shall be wirebrushed to remove loose paint, rust and scale and then given one coat of Ferrous Metal Primer.

3.5 WORKMANSHIP AND APPLICATION

3.5.1 Painting shall be done by skilled and experienced persons in accordance with the manufacturer's directions. Materials shall be thinned only for proper workability. Material shall be evenly brushed or rolled on without runs or sagging and free from drops, ridges, laps and brush marks. Insure that all coats are thoroughly dry before applying succeeding coats. Sand surfaces as necessary to produce a smooth finish.

3.5.2 Painting shall include all exposed surfaces of every member. Parts to be painted, inaccessible after installation, shall be painted before installation. Priming shall include all sides, edges and cut ends. Prime concealed drywall and plaster.

- 3.5.3 Putty, caulking, or spackle shall be applied after surface is primed and primer is dry.
- 3.5.4 Completed painted surfaces shall be free of blistering, running, peeling, scaling, streaks and stains.
- 3.5.5 Hardware, hardware accessories, plates, lighting fixtures, and similar items in place shall be removed prior to painting and replaced upon completion of each space.
- 3.5.6 Exposed conduits, pipes, ducts, grilles, registers, vents, access panels, and items of similar nature shall be finished to match adjacent wall and ceiling surfaces unless otherwise directed. Paint visible surfaces behind vents, registers, or grilles flat black. Do not paint concealed conduits, piping and ducts.
- 3.5.7 Do not paint over Underwriters' Labels or sprinkler heads.
- 3.6 PERMANENCE

At the end of the guarantee period, colors of all surfaces shall be free of serious fading and variations shall be uniform. All materials shall have their original adherence and there shall be no evidence of blisters, running, peeling, scaling, chalking, streaks or stains. Washing with alkali-free soap and water shall remove surface dirt without producing any deteriorating effects.
- 3.7 SURPLUS PAINT

Leave surplus paint at the job site. Maximum one gallon each type.

END OF SECTION 09900

SECTION 10500 - MISCELLANEOUS SPECIALTIES

PART I - GENERAL

1.1 SCOPE

1.1.1 Furnish all miscellaneous specialties shown on drawings and specified herein.

1.1.2 Furnish and install epoxy items specified herein.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Fume hood work surfaces, under Section 15500.

1.2.2 Installation of specialty items, under Section 06200 (except epoxy items).

1.3 SUBMITTALS

Manufacturer's data on all items and finish samples.

PART 2 - PRODUCTS

2.1 PAPER TOWEL DISPENSERS

Type 300 stainless steel, surface mounted for single fold towels. Bobrick B-526, Bradley or equal. Lock on face of door.

2.2 HOOKSTRIPS

Stainless steel back and hooks at 12" o.c. $\pm$ Bobrick B232, Parker or equal.

2.3 SOAP DISPENSER

Foot operated base, lavatory mounted, 16 oz. capacity. Bobrick B124, Parker or equal.

2.4 MARKER BOARDS

Porcelain enamel on 24 gauge stretcher level steel. Backing 7/16" foil backed particle board. C10 trim and CRC-4B anodized aluminum chalk tray. Nelson Adams, Claridge or equal. Color white. 4 markers of assorted colors and one eraser per board.

2.5 TANK RACKS

Cast aluminum bracket with heavy duty nylon web strap and nickel plated spring catch buckle. Lab Safety No. M8447 (1-800-356-0783), MG Industries No. 65000475 or equal.

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UNIVERSITY OF CALIFORNIA, SAN FRANCISCO SECTION 10500-2
MISCELLANEOUS SPECIALTIES

- 2.6 PORTABLE EYE WASHER
 - 2.6.1 Self contained eyewash unit shall provide a steady 15 minute water flow of 0.4 gallons per minute. Unit shall meet ANSI 2358.1-1981 self contained eyewash requirements.
 - 2.6.2 Manufacturers: Lab Safety No. E-7855, HAWS No. 7604 or equal.
- 2.7 FLAMMABLE STORAGE CABINET
 - 2.7.1 Undercounter type, 35-1/4" high X 35" wide X 22" deep. One adjustable shelf. Unvented. 24 gallon capacity.
 - 2.7.2 Made of 18 gauge cold rolled steel, double walled with 1-1/2" airspace. Sill raised 2" above bottom of cabinet. Self closing doors.
 - 2.7.3 Color white. Face labelled "FLAMMABLE, KEEP FIRE AWAY".
 - 2.7.4 Meet NFPA and OSHA Standards. Provide labels or certificates so attesting.
 - 2.7.5 Manufacturers: Lab Safety No. E2456, Fisher or equal.
- 2.8 EPOXY TOPS AND BACKSPLASHES

1-1/4" thick cast modified black epoxy resin. 12" high backsplash. Durcon, Western Specialties (San Jose), Prime Industries Inc. or equal.
- 2.9 EPOXY SINKS

Molded solid black cast modified epoxy resin. One piece with coved corners, minimum 5/8" thick. Slope bottom to drain to 1-1/2" outlet. Durcon, Prime Industries Inc. or equal. Sizes as noted on the drawings.
- 2.10 PEGBOARD AND SHELF
 - 2.10.1 1" thick epoxy resin. Pegs shall be white polypropylene 3/8" X 6-1/8". Base of peg shall have a stud on back which shall insert into pegboard and be held by friction. Pegs shall be replaceable. Holes for studs shall not penetrate board.
 - 2.10.2 Drip trough: Type 316 welded stainless steel trough with 3/8" drain nipple for slip on hose connection.
 - 2.10.3 Shelf brackets: Stainless steel barstock with stainless steel fasteners.

PART 3 - EXECUTION

- 3.1 INSTALLATION OF EPOXY TOPS AND SINKS
 - 3.1.1 Tops: Fasten to cabinets with epoxy cement. Cement splashes to tops. Tops shall be one piece.
 - 3.1.2 Sinks: Install to underside of epoxy top, anchored as shown on drawings. Fill joints between sink and top with black silicone to produce a leakproof joint. Support sink with Unistrut P1000, Superstrut or equal channels with angles and bolts.
 - 3.1.3 Cutouts for epoxy sinks and fittings shall be made in the factory.

END OF SECTION 10500

SECTION 12200 - VENETIAN BLINDS

PART I - GENERAL

1.1 SCOPE

Furnish and install all labor, materials and equipment necessary for the complete installation of venetian blinds.

PART 2 - PRODUCTS

1.1 GENERAL

The blinds shall have one inch wide horizontal slats, supported by braided ladders. All hardware shall be enclosed in a metal head. All operating hardware shall be machine clinched to head to assure perfect alignment. It shall be possible to tilt the slats to any horizontal angle by turning the transparent wand.

1.2 SLAT SUPPORTS

Braided polyester yarn, the vertical component of which shall be not less than .045 inch diameter, nor greater than .068 inch diameter for maximum strength and flexibility with minimum stretch. Braiding shall be accurate to hold slats equally spaced parallel straight and to assure proper tilt control and adequate overlap of slats. There shall be 28 rungs per 2 feet of ladder equally spaced at .788 inch intervals. Distance between ladders shall not exceed 21 inches. The horizontal component or rungs shall consist of not less than four cables interbraided with the vertical components.

1.3 SLATS

Virgin aluminum alloyed for maximum strength, flexibility and resistance to internal and external corrosion. The slats shall be 25 mm wide (.984 inch) plus .003 inch or minus .000 inch. They shall be .008 inch thick before painting. After painting thickness shall be .009 inch.

1.4 HEAD

.025 inch thick Tomized steel "U" shaped. The bottom rail shall be .031 inch thick, Tomized steel. Both head and bottom rail shall have a plastic type coating cured at high temperature and shall be formed after coating.

1.5 LIFT CORD

Adequate diameter braided of high strength synthetic fibers.

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SECTION 12200-2
VENETIAN BLINDS

1.6 COLOR

A solid one, selected by the Architect from the manufacturer's standard range. Submit samples for selection.

1.7 MANUFACTURERS

Hunter Douglas, Levolor "Riviera" or equal. Color as selected by the Architect.

PART 3 - EXECUTION

The Contractor shall be responsible for field dimensions to assure a close fit. Install within window openings.

END OF SECTION 12200

SECTION 12300 - CASEWORK

PART I - GENERAL

- 1.1 SCOPE
 - 1.1.1 Wood cabinets.
 - 1.1.2 Plastic laminate counter tops and window stools.
 - 1.1.3 Reagent racks and shelving.
 - 1.1.4 Finishing of casework.
- 1.2 WORK INCLUDED IN OTHER SECTIONS
 - 1.2.1 Service cocks and lines, traps, drains and waste lines, under Section 15400.
 - 1.2.2 Piping and connections to plumbing fixtures, under Section 15400.
 - 1.2.3 Electrical devices and conduit, under Section 16100.
 - 1.2.4 Backing in stud walls, under Section 09200.
 - 1.2.5 Rubber base, under Section 09650.
 - 1.2.6 Fume hoods and fume hood work surfaces, under Section 15500.
 - 1.2.7 Epoxy sinks, tops, pegboard, backsplashes and supports, under Section 10500.
- 1.3 QUALITY ASSURANCE
 - 1.3.1 All casework and laminated plastic work shall be manufactured in accordance with the standards established in the 1988 edition of the Manual of Millwork of the Woodwork Institute of California in the grade or grades specified or as shown on the drawings.
 - 1.3.2 Certification: All work specified under this section shall be manufactured in accordance with standards established in the Manual of Millwork of the Woodwork Institute of California, 1988 Edition, in the grade or grades hereinafter specified. If the manufacturer is not a W.I.C. licensee, the Contractor shall furnish to the Architect, prior to installation, a Certificate of Inspection by the W.I.C. indicating that the work meets the requirements of the W.I.C. specified. If the manufacturer is the W.I.C. Licensee each unit shall bear the W.I.C. Certified Compliance grade stamp indicating the grade specified, and by the completion of the job W.I.C. Compliance Certificates shall have been issued

certifying that the products furnished fully meet the requirements for the grade specified. The foregoing shall not be construed to limit the power and authority of the Architect to reject any work which does not meet the specifications.

- 1.3.3 The shop in which the casework is fabricated shall be located within a 100 mile radius of UCSF and shall have a minimum of five years in business making casework of this type. This will make possible same day delivery of spare parts or modification of units that will be required on this project.

1.4 SUBMITTALS

- 1.4.1 Finished samples of laminated plastic and wood for color selection.

- 1.4.2 Shop drawings of all casework and countertops. Show layout and construction details of typical elements. Show joints on tops.

- 1.4.3 Catalog data on hardware.

- 1.4.4 Manufacturer's data on wood finishes.

1.5 PRODUCT HANDLING

Delivery: Do not deliver casework until area is in proper condition and arrangements are made to handle properly and store at jobsite.

PART 2 - PRODUCTS

2.1 CASEWORK

- 2.1.1 Species: Red oak lumber and plywood for transparent finish.
- 2.1.2 WIC Grade: Custom. Cabinets may be modular per W.I.C. Section 25 or conventional per Section 14.
- 2.1.3 Design: Cabinets and cases shall be of the size and configuration shown on the drawings.
- 2.1.4 Construction:
- 2.1.4.1 Units shall be mortised, tenoned, glued and screwed construction, making each unit rigid and self-supporting. The minimum divider thickness between cabinets shall be 3/4".
- 2.1.4.2 Units shall be flush front construction. Drawers and hinged doors shall be square edge, flush overlay. Interior of units shall be flush. Exposed plywood

edges of shelves, drawers and door fronts shall have 1/4" thick hardwood edge bands. (No edge band tapes.)

- 2.1.4.3 Doors: swinging, minimum 3/4" thick.
- 2.1.4.4 Legs: solid 2-1/2" square.
- 2.1.4.5 Shelving: 1 X solid stock, or 3/4" plywood, with 3/4" raised OSHA lips on all shelves.
- 2.1.4.6 Drawer bottoms: hardwood plywood.
- 2.1.4.7 Freestanding end panels: 1-1/4" hardwood plywood with hardwood edge banding.
- 2.1.4.8 Corrosive cabinet liner: 1/4" thick mineral board without asbestos. Partek Co. "Minerit" or equal (no known equal). Cover all surfaces of cabinet interior, including body, doors and shelves.
- 2.1.5 Casework Finishing:
 - 2.1.5.1 Transparent lacquered finish on interior and exterior of cabinets, shelving and supports. Fuller-O'Brien, Dunn-Edwards or equal. Fuller-O'Brien numbers are given below as a standard.
 - 2.1.5.2 Shop Application:
 - First Coat: Fuller 250-04 lacquer sanding sealer.
 - Second Coat: Fuller 354-00, Gloss.
 - Third Coat: Fuller 354-01, Semi-Gloss.

Sand lightly between coats; fine steel wool (00) finish surfaces.
- 2.2 CASEWORK HARDWARE
 - 2.2.1 Legs and freestanding end panels shall have stainless steel 2" X 2" X 1/8" X 2" long floor clips, let in to face to be concealed by base.
 - 2.2.2 Hinges: All steel concealed casework type for flush overlay doors: 175 degree opening; self closing from 10 degrees. Blum Model 90 Series with minimum 120 degree opening, Haeffele or equal.
 - 2.2.3 Drawer and door pulls: 4" solid brass wire pulls, Builders Brass No. 9054, Stanley or equal. No. 612 Satin bronze, clear coated finish.
 - 2.2.4 Casters: Swivel type with 2-1/2 diameter hard rubber wheels, one locking wheel. Capacity 175 lbs per caster. Top plate for direct screw application to cabinet. E.B. Bradley No. 2619, Bassick or equal.

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SECTION 12300-4
CASEWORK

- 2.2.5 Drawer slides: Full extension slides, side mounted, 100 pound capacity. Accuride C3017, Grant or equal. Include rubber stops to hold drawer fronts 1/32" from frames. File drawers shall have 150 pound capacity, Accuride 4437, Grant or equal.
- 2.2.6 Adjustable shelf hardware: K&V No. 255ZC & No. 256ZC, Grant 120 or equal. Let-in to supports. Zinc finish acceptable where standards are concealed.
- 2.2.7 Exposed screws for mounting cabinets shall be oval head with finish washers.
- 2.2.8 File Drawer Locks: 6 pin cylinder and deadbolt; round cylinder only exposed; No. 612 Finish. Schlage cabinet lock 46-002, to match Campus standard. Keyable to door locks. Keying will be done by the University. Provide catches for inactive leaves.
- 2.2.9 File drawers shall be sized for letter size hanging file folders. Provide 1/8" X 1" aluminum bars screwed to drawer sides to support folders.
- 2.4 PLASTIC LAMINATE COUNTERTOPS
 - 2.3.1 Type: Laminated plastic on 1-1/8" thick, 45 pound density particle board with self edge and square butt joints at splashes. Balance sheet on concealed surfaces. Balance sheet shall be consistent throughout project. Use 3/4" particle board at window stools.
 - 2.4.2 Grade: W.I.C. Custom Grade.
 - 2.4.3 Laminate manufacturer: Wilsonart "Chemsurf", Formica, Laboratory Grade or equal. Color as selected by Architect.
 - 2.4.4 Furnish touch up kit from laminate manufacturer.

PART 3 - EXECUTION

3.1 CASEWORK INSTALLATION

Install plumb, level, true, and straight, with no distortions. Shim as required with concealed shims. Where casework abuts other finished work, scribe and apply filler strips for accurate fit with fasteners concealed.

- 3.1.1 Base Cabinets: Adjust sub-tops within 1/16" of a single plane. Fasten each individual cabinet to floor at toespace with fasteners spaced 24" o.c. minimum two per cabinet. Screw continuous cabinets together into

one integral unit with joints flush, tight and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16".

- 3.1.2 Wall Cabinets: Securely fasten to backing with sheet metal screws or to metal lath with toggle bolts. Anchor, adjust, and align wall cabinets as specified for base cabinets. Backing in stud walls to support wall-mounted work will be done by trade involved but responsibility for accurate location in part of this work.
- 3.1.3 Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.
- 3.2 INSTALLATION OF PLASTIC LAMINATE TOPS
 - 3.2.1 Field Jointing: Make in the same manner as factory jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Locate field joints as shown on accepted shop drawings, factory-prepared so there is no jobsite processing of top and edge surfaces.
 - 3.2.2 Fastenings: Use concealed clamping devices for field joints, located within 6" of front, at back edges, and at intervals not exceeding 24". Tighten in accordance with manufacturer's instructions to exert a constant heavy clamping pressure at joints. Secure tops to cabinets with Z-type fasteners or equivalent, using 2 or more fasteners at each front, end and back.
 - 3.2.3 After installation, carefully dress joints smooth, remove any surface scratches, and clean and polish entire surface.
 - 3.2.4 Holes and cutouts as required for plumbing, mechanical and electrical work shall be field cut. Seal edges of cutouts with shellac or other suitable sealer prior to installing fixtures.
 - 3.2.5 Provide scribe moldings for closure at junctures of walls with top, curb, and splash as recommended by manufacturer for materials involved. See Section 07900 for sealant specification.

END OF SECTION 12300

SECTION 13450 - COLD ROOM

PART I - GENERAL

1.1 SCOPE

Provide a prefabricated and self contained cold room with refrigeration and miscellaneous components.

1.2 WORK INCLUDED UNDER OTHER SECTIONS

1.2.1 Electrical service to and disconnect switch for refrigeration system, under Section 16400.

1.2.2 Lighting, under Section 16500.

1.2.3 Convenience outlets and connection of room to disconnect switch, under Section 16400.

1.2.4 Casework, under Section 12300.

1.2.5 Resilient flooring, under Section 09650.

1.2.6 Plumbing fixtures and connections, under Section 15400.

1.3 SUBMITTALS

1.3.1 Shop drawings on room showing all components.

1.3.2 Wiring diagrams and description of electrical and mechanical components.

1.3.3 Two sets of complete operating and maintenance instructions, with list of materials and parts, for each piece of equipment furnished under this specification, bound in a durable rigid cover, typed and indexed for easy reference. Include all pertinent information for proper identification and maintenance of equipment.

1.3.4 Written guarantee as per Section 01100 that the refrigeration equipment will operate to maintain design conditions and be free from defects in workmanship and materials for a period of 5 years from the date of acceptance of the project or the equipment shall be replaced at no additional cost.

PART 2 - PRODUCTS

2.1 PREFABRICATED ROOMS

2.1.1 Manufacturers: Nor-Lake Enviroline Walk-in Cooler, Cold Storage Manuf. or equal. Nor-Lake component numbers are specified as a design standard but equal components may be proposed.

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SECTION 13450-2
COLD ROOM

- 2.1.2 Construct room of prefabricated modular sectional panels consisting of 4" thick walls, ceiling, and floors mechanically locked in place from the interior and including insulated doors. The panels shall be constructed of metal pans with foamed-in-place urethane. Panel joints shall be ship-gasketed systems and shall be vapor-proof when assembled. Floor, wall, and ceiling panels shall be U.L. 25 flame-spread-rated and shall conform to Factory Mutual Class 1 building type. Floor loading capacity shall be 600 psf, uniformly distributed load. Provide 16 gauge steel backing inside wall panels to support wall cabinets.
- 2.1.3 Exterior faces of wall and ceiling panels shall be of .040 embossed aluminum. Interior faces of wall and ceiling panels shall be 20 gauge smooth painted zinc coated, steel, color as selected by the Architect. Floor shall be 14 gauge smooth galvanized steel.
- 2.1.4 Door assembly shall match wall-panel construction. Door shall be 36" w X 78" h and shall have the following characteristics:
 - 2.1.4.1 Thermoplastic gasket with magnetic core at head and jambs.
 - 2.1.4.2 Adjustable double-wiper gasket at sill.
 - 2.1.4.3 Observation window, multiple-glazed, heated.
 - 2.1.4.4 Satin-finish aluminum hardware, including spring loaded hinges, latch and safety-release handle.
- 2.1.5 Anti-sweat built-in heater protection.
- 2.1.6 Flush thermometer. Chart recorder: Honeywell AR100, 10" recorder, Trerice or equal.
- 2.1.7 Provide minimum conduit penetrations into the insulated room, preferably only one. PVC conduit and receptacles shall be used inside the insulated room.
- 2.2 REFRIGERATION SYSTEM
 - 2.2.1 Room design temperature: 40 degrees Fahrenheit, +2 degrees Fahrenheit.
 - 2.2.2 Completely self contained with condensing unit mounted on top of the room and forced-air evaporator mounted in the interior beneath.
 - 2.2.3 Condensing Unit: Semi-hermetic type with water cooled condensor. 1-1/2 horsepower. Available capacity at

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SECTION 13450-3
COLD ROOM

10,800 BTU/hour at 40 degrees Fahrenheit ambient temperature. Copelametic Model No. D7WB-0150-TAC, Tecumseh or equal.

- 2.2.4 Electrical Characteristics: 208 volt, 3 phase; 60 Hz.
- 2.2.5 Condensing unit shall be fitted with a water regulating valve modulated on the basis of head pressure, with automatic reset.
- 2.2.6 Evaporator shall be designed so that cool air is discharged parallel to the ceiling. Air circulation motor, multifin and tube-type coil, heat exchanger, thermostatic expansion valve, distributor, filter-drier, solenoid valve and temperature control shall be assembled within a protective housing. Pan shall drain from the end with 1/2" copper pipe to floor drain in adjacent space. Bohn Model ADT 104, Russell or equal.

PART 3 - EXECUTION

- 3.1 COLD BOX
 - 3.1.1 Install entire assembly in strict accordance with the manufacturer's printed instructions and approved shop drawings.
 - 3.1.2 System shall be completely factory assembled and tested prior to shipment from factory.
- 3.2 ELECTRICAL CONNECTIONS AND WIRING UNDER THIS SECTION
 - 3.2.1 All controls and wiring between evaporator and condensing unit.
 - 3.2.2 Thermostat and recorder controls.
 - 3.2.3 All wiring and conduit for the refrigeration system including controls.

END OF SECTION 13450

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SECTION 15050 - GENERAL PROVISIONS.

SECTION 15050-1
GENERAL PROVISIONS

PART 1 - GENERAL

1.01 SCOPE OF WORK

All labor, materials and equipment required and necessary to furnish and install complete systems as outlined on the Drawings, in the Specifications, or otherwise reasonably inferred, including necessary demolition.

1.02 STATEMENT OF WORK

Work under this Division shall include but not be limited to the following:

- (1) Section 15250; Insulation.
- (2) Section 15300; Fire Protection System.
- (3) Section 15400; Plumbing.
- (3) Section 15500; Heating, Ventilation and Air Conditioning
- (4) Section 15750; Liquid Heat Transfer.
- (5) Section 15950; HVAC Controls.
- (5) Section 15990; Balancing and Adjusting.

1.03 RELATED WORK IN OTHER DIVISIONS

- A. Line voltage electrical work.
- B. Painting.

1.04 CODES AND STANDARDS

- A. Work under this Division shall be in compliance with all relevant sections of the California Administrative Code, including Titles 8, 17, 19, and 24, the Uniform Building Code 1988, the Uniform Mechanical Code 1988, the Uniform Plumbing Code 1988, and the National Electrical Code 1987.
- B. Standards governing the work of this Division shall include those most current and published by:
 - 1. The Sheetmetal and Air Conditioning Contractors National Association (SMACNA).
 - 2. The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
 - 3. The American National Standards Institute (ANSI).

4. The American Society of Mechanical Engineers (ASME).
5. The National Fire Protection Association (NFPA).
6. The American Society of Testing Materials (ASTM).
7. The International Association of Plumbing and Mechanical Officials Installation Standards (IAPMO).
8. The American Welding Society (AWS).

1.05 INTENT

It is the intent of the specifications and drawings to call for finished work tested and ready for operation. Whenever the word "provide" is used it shall mean "furnish and install complete and ready for use". Minor details not usually shown or specified, but necessary for the proper installation and operation, shall be included in the work the same as if herein specified or shown.

1.06 DRAWINGS

Drawings indicate general arrangement and location of equipment and materials and this arrangement shall be followed as closely as possible. When laying-out work Contractor shall check the Drawings of other trades for conflicts. Should it be necessary to deviate from the arrangement indicated to meet site conditions such deviations shall be made without added cost to the Contract and without additional cost to the Owner. Whereas the Drawings are as accurate as reasonably possible it is nonetheless incumbent on the Contractor to carefully examine the site prior to submitting his bid. No allowance will be made for conditions not reflected in the Drawings but which would be reasonably obvious in a competently conducted site examination prior to bid.

- A. Drawings are diagrammatic and not to be scaled. The architectural drawings and details shall be examined for exact location of fixtures and equipment. Where they are not definitely located, this information shall be obtained from the Architect.
- B. The Contractor shall follow drawings in laying out work and check drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions at all points. Where headroom or space conditions appear inadequate, Architect shall be notified before proceeding with the installation.

- C. The Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with the work of other trades or for proper execution of the work.
- D. The Contractor shall maintain on site at all times a set of Contract Documents for the specific purpose of recording, on a day by day basis, the as-built conditions. The record drawings shall be kept current at all times and shall be subject to inspection by the Architect without notice. On completion of the work the record drawings shall be certified in writing by the Contractor to accurately represent the as-built conditions, and shall be turned over to the Architect in a clean, dry, legible condition.

1.07 SUBMITTALS

- A. The Contractor shall submit for review detailed shop drawings of all equipment required to complete the project, and no equipment may be delivered to the job site or installed until the Contractor has in his possession the reviewed shop drawings for the particular equipment bearing the architect's stamped notation. The shop drawings shall be complete as described herein. The Contractor shall furnish the number of copies required by the General and Special Requirements of the Contract. See Section 01100.
- B. The Contractor shall submit detailed, dimensioned drawings or cuts, showing construction, size, arrangement, operating clearances, performance characteristics and capacity. Each item of equipment proposed shall be a standard catalog product of an established manufacturer and of equal quality, finish, and durability to that specified.

1.08 MATERIALS

All materials and apparatus required for the work, unless otherwise stated, shall be new, of first-class quality, and shall be furnished, delivered, erected, connected and finished in every detail, and shall be so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of material is given, a first-class standard article as approved by the Architect shall be furnished.

1.09 MANUFACTURERS DIRECTIONS

Where manufacturers directions cover points not covered on the Drawings or in the Specifications, such directions shall be considered part of the Specifications as fully as if repeated herein unless they are obviously contradicted by the design intent, in which case the matter shall be brought to the attention of the Architect and he will make a ruling.

1.10 CUTTING AND CORING.

- A. Cutting and coring required by the work of this Section shall be the responsibility of this Section.
- B. Patching of finishes required by the work of this Section shall be the responsibility of another Section.
- C. Unless specifically detailed on the Architectural Drawings, cutting or drilling of structural members is not permitted.
- D. Cutting and repairing shall conform to the Uniform Building Code and the California Administrative Code..
- E. All abandoned penetrations of floors and fire-rated walls shall be filled with 3 M's #CP-25, Bio-Fire Protection Systems Ltd "Bio-Therm", or equal non-asbestos packing. "

1.11 DEMOLITION

Specifically it shall include all work, shown or otherwise, necessary to complete the project. All dead-end lines within the project area which is to be demolished shall be cut back and valved and capped within six inches of the mains.

1.12 SEISMIC BRACING

Seismic bracing of piped and ducted systems shall be in accordance with SMACNA recommendations, specifically "Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems", as approved by the State Architect application No. R001, October 13th 1982.

1.13 SCAFFOLDING, RIGGING AND HOISTING

The Contractor shall furnish all scaffolding, rigging, and hoisting and other services necessary for delivery into the premises of any equipment or apparatus furnished. He shall remove same from premises when no longer required.

1.14 QUIETNESS OF OPERATION

The Contractor shall replace, repair or otherwise correct the installation of any equipment producing objectionable noise due to faulty manufacture, installation or adjustment, as determined by the Architect.

1.15 ELECTRICAL CO-ORDINATION

Unless otherwise specifically indicated, coordination between the electrical and mechanical work shall conform to the following:

- A. All motors furnished under this Section shall be Reliance TEFC-XT-XE, to match existing.
- B. Disconnection devices will be provided under Division 16, when not otherwise specified to be furnished with the equipment.
- C. All wiring except low voltage control wiring will be provided under Division 16, Electrical.

1.16 ACCESSIBILITY

Locate all equipment which must be serviced, operated, or maintained in fully accessible positions. Such equipment shall include but not be limited to, valves, traps, clean-outs, motors, controllers, switchgear, and drain points; furnish access doors if necessary for proper access. Minor deviations from drawings may be made, with the Architect's approval, in order to provide proper access..

1.17 MAINTENANCE AND OPERATING INSTRUCTIONS

- A. Not less than 10 days prior to application for final inspection the Contractor shall submit to the Architect three prime quality copies of Operating and Maintenance Instructions, for all systems, bound in durable 3-ring binders.
- B. Instructions shall include all information necessary to properly service, clean, adjust and maintain equipment/ systems, and shall include time intervals that all maintenance tasks should be performed.
- C. Equipment operating and maintenance instructions shall be as furnished by the equipment manufacturer. Where the information is not clear, is incomplete, or does not exist, the contractor shall provide whatever additional information that may be necessary.

- D. The Owner will maintain the system in accordance with the written instructions provided. Maintenance in accordance with these instructions shall in no way affect guarantees or warranties.

PART 2 - PRODUCTS

2.01 PIPING

Piping shall be as specified under the appropriate Section of these specifications.

2.02 PIPE TRIM

A. General:

Valves, strainers and miscellaneous pipe trim installed in systems for which copper piping is specified shall have cast bronze bodies with threaded connections.

B. Valves:

1. No solder joint valves will be permitted.
2. Hot and cold water, compressed air, natural gas, and vacuum shut-off valves shall be Nibco #T-590 ball valve, Crane, or equal.
3. Steam shut-off valves shall be Nibco #T-131, Crane, or equal.
4. Globe valves shall be Nibco #T-235, Crane or equal.

C Unions:

1. Malleable iron or steel, shall be ground joint, brass seat pattern, working pressure, 150 psig; Stockham, Grinnell or equal.
2. Copper shall be 150 psi ground joint, wrought copper with sweat connections, or 150 psi solder joint companion flanges.
3. Between dissimilar metals brass nipples or couplings shall be used; no dielectric unions will be permitted.

D. Strainers:

Shall be C.M. Bailey No. 100B-15, with stainless steel basket, Hoffman, or equal.

2.03 PIPE HANGERS, SUPPORTS, BRACES AND MISCELLANEOUS STEEL

- A. Kin-Line, Superstrut or equal support systems using Kin-Line galvanized channel and #412, 418, and 450 components secured to solid electroplated steel rod hangers. On insulated piping crush-resistant pre-insulated hanger inserts shall be used unless specifically otherwise noted; Kin-Line #463, Pipe Shields Inc. or equal. Hanger rods shall be sized in accordance with the manufacturers recommendations. Concrete inserts shall be drilled, Phillips, Hilti or equal; use of powder-driven inserts or fasteners will not be permitted. Minimum depth of embedment shall be one and one half inches.
- B. Pipe guides for chilled water piping shall be Grinnell Fig. 256, Kin-Line, or equal.
- C. Where weather exposed, all support systems shall be hot dip galvanized after fabrication, and all washers, nuts and bolts shall be stainless steel.

2.04 PRESSURE AND TEMPERATURE STATIONS

- A. Pressure/temperature test plugs shall be Petersen Co. "Pete's Plug", Sisco, or equal.
- B. Thermometer's shall be Weksler AA5H-7, Trerice, or equal, 30 to 240 degrees F range for heating hot water, and 0 to 100 degrees F for chilled water.

2.05 PRESSURE GAUGES

Pressure gauges shall be Weksler, 4-1/2" dial, stainless steel case, shock resistant, furnished with pigtail connection and shut-off valve, range selected for mid-point operation; Trerice, or equal.

2.06 MANUAL AIR VENTS

Manual air vents shall be Nutro No. B-4J5 needle valve, 1/4" size, Jenkins, or equal.

PART 3 - EXECUTION

3.01 PIPING INSTALLATION

- A. Bolts, anchors, rod, structural steel, and all pipe shall be supported from building structure so that there is no apparent deflection in pipe runs. Pipes shall be fitted with steel sway braces and anchors to prevent vibration and/or horizontal displacement under load. Pipes shall not be supported from, or braced to, ducts, other pipes, conduit, or any materials except building structure unless this is specifically shown on the Drawings. Piping or equipment shall be immobile and shall not be supported or hung by wire, rope, plumber's tape or blocking of any kind. Felt or neoprene separators with galvanized sheet metal covering shall be used on all uninsulated copper tubing to separate the tubing from its support. At all pipe penetrations through floor or walls, caulk space between pipe and opening to full slab thickness as hereinbefore specified. Existing unsealed floor penetrations found during the progress of the work and not resulting from the work of this Section, shall be brought to the attention of the Architect who will arrange to have them sealed in accordance with these specifications.
- B. Maximum spacing between pipe supports shall be as follows:

<u>Nominal Steel Pipe Size</u>	<u>Maximum Span - Feet</u>
2" and larger	10
1-1/2" to 1"	8
3/4" and under	6

<u>Copper Tubing Size</u>	<u>Maximum Span - Feet</u>
3/4" and under	5
1" to 1-1/2"	8
2" to 3"	10

<u>Nominal Cast Iron Pipe Size</u>	<u>Maximum Span - Feet</u>
All sizes	5 with a minimum of one hanger per length adjacent to joint or change in direction.

<u>Nominal Polypropylene Pipe Size</u>	<u>Maximum Span - Feet</u>
All sizes	Use PVC spans unless otherwise recommended by manufacturer.

<u>Nominal PVC Pipe Sizes</u>	<u>Maximum Span - Feet</u>
2" to 3"	6
1"-1/2" and smaller or per manufacturer's re- commendations.	4

- C. Provide union connections downstream of all valves, at equipment connections and at all other points to facilitate removal of piping specialties.
- D. Pipe hangers shall be outside insulation.
- E. Exposed and concealed horizontal lines of pipe shall be carried on specified hangers properly spaced and set to allow the pipe to adjust for expansion and contraction. Trapeze hangers shall be used for supporting groups of pipes. Piping in parallel shall be evenly spaced and supported.
- F. Piping shall be concealed in furred walls and partitions and pipe spaces, except where specifically noted otherwise. In rooms with hung ceilings, install piping concealed in ceiling space. Maintain proper clearance for maintenance and to clear openings in exposed areas. Coordinate piping runs with mechanical ducts and equipment, electrical conduit and equipment, and structural and architectural conditions. Where work of other Sections prevents installation of the piping as shown on the Drawings, the Contractor shall reroute piping at no extra cost to the Owner. Verify all inverts and pitched lines before starting work.
- G. Exposed piping shall be installed parallel or at right angles to the building walls and shall be tight to walls or columns whenever possible; except where otherwise shown on the Drawings. Piping exposed on walls shall be secured with channels and pipe clamps. Locations on drawings are diagrammatic and final locations of exposed work are subject to the Architect's approval.
- H. Piping shall be installed free from traps and air pockets and true to line and grade.
- I. Wherever changes in sizes of piping occur, the changes shall be made with reducing fittings, as the use of face bushings will not, in general, be permitted. Eccentric reducing fittings shall be used where necessary to provide free drainage of lines.

- J. Piping systems for which copper tubing is specified shall have I.P.S. red brass pipe used in all connections to faucets, fixtures or similar items requiring rigid piping. Brass pipe shall extend from fixtures to points where piping shall be securely fastened to building construction.

3.02 SLEEVES AND PLATES

- A. Provide and locate all required sleeves and inserts. Drill holes required for the installation of hangers.
- B. Sleeves shall be provided for all mechanical piping passing through all concrete, masonry, tile and gypsum wall construction, with the exception of penetrations of existing concrete walls or floor slabs, where coring is required. In the case of cored holes the annular space shall be sealed as specified hereinbefore.
- C. Where pipe motion due to expansion and contraction will occur, make sleeves of sufficient diameter to permit free movement of pipe. Where sleeves pass insulated pipes, the sleeves shall be large enough to pass the pipe and insulation. Verify floor and wall construction finishes to determine proper length of sleeves for various locations. Make actual lengths to suit the following:
 - 1. Terminate sleeves flush with walls, partitions and ceiling.
 - 2. In areas where pipes are concealed, as in chases, terminate sleeves flush with floor.
 - 3. In areas where pipes are exposed extend sleeves 3/4" above floor.
- D. Sleeves shall be constructed of 24 gauge galvanized sheet steel with lock seam joints. After pipes have been installed sleeves shall be packed to full wall or slab thickness with incombustible packing and sealant to prevent the spread of fire and smoke.
- E. Fasten sleeves securely so that they will not become displaced when other construction is built around them. Prevent concrete, plaster, or other materials being forced into the space between pipe and sleeve during construction.

- F. Escutcheon plates shall be provided for all exposed uninsulated pipes passing through walls, floors, and ceiling. Plates shall be nickel plated, split ring sized to match the pipe. Where plates are provided for pipes passing through sleeves which extend above the floor surface, provide deep recessed plates to conceal the sleeves.

3.03 STENCILING AND IDENTIFICATION

- A. All pipes except waste and vent piping shall carry identifying markers. The markers shall be self-sticking pipe markers, black letters on yellow background, and arrow indicating flow direction; Brady, Seton or equal. The inscription shall be complete e.g. "Hot Water Supply", etc., and the arrow and lettering adjacent to one another, inscription upstream of the arrow, and shall be secured at each end with 2-1/4 inch wide self-sticking clear tape around the periphery of the pipe. Markers shall be maximum 20 feet apart, shall be provided where a pipe enters or leaves a concealed space and adjacent to all valves. For pipe sizes (inclusive of insulation) 2-1/2 inches and smaller the letter height shall be a minimum of 1 inch, and for 3 inches and larger the letter height shall be minimum 2 inches.
- B. Provide numbered tags for all new valves. Tags shall be laminated plastic and impressed on the tag shall be the piping service and the number of each room served by the valve (or if the valve serves a piece of equipment, the equipment reference number).
- C. Each piece of equipment shall have a laminated plastic tag, red background with white letters 1/2 inch high, showing the equipment number as indicated on the contract drawings and all room numbers served by the equipment. Additionally, include on the equipment identity tag all performance data as called for on the drawing equipment schedules.

3.04 TESTING

- A. Testing shall be scheduled with Architect with a minimum of 1 weeks notice, and the tests will be witnessed by him.
- B. Compressed air, vacuum and gas piping shall be tested with air or nitrogen and shall show no signs of leaks after four hours at 150 psig pressure. Leaks shall be determined by pressure drop and soap and water detection.

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SECTION 15050-12
GENERAL PROVISIONS

- C. The following piping systems shall be tested hydrostatically, and shall show no leaks after four hours at the pressures listed below:
1. Acid waste and acid vent, sanitary waste and vent - 10 foot water column above the highest joint.
 2. Hot and cold water, heating hot water, chilled water equipment drain, distilled water, steam and condensate 150 psig.
- D. All equipment which may be damaged by test pressure shall be isolated by blind flanges or pipe plugs while the tests are being conducted. No equipment shall be connected to the piping system during test.
- E. Should any of the products fail during the tests or during construction, they shall be replaced with new material and the test shall be repeated.
- F. The costs of replacing new equipment and associated work due to failure shall be borne by the Contractor at no extra charge to the Owner.

END OF SECTION 15050.

SECTION 15250 - INSULATION.

PART 1 - GENERAL

1.01 SCOPE OF WORK

Provide labor, materials and equipment necessary for complete systems as outlined on the Drawings, in the Specifications, or otherwise reasonably inferred.

- A. All hot and cold water piping, heating hot water piping, chilled water piping, steam and condensate piping.
- B. Supply air ductwork.

PART 2 - PRODUCTS

2.01 INSULATION

- A. Insulation shall meet the requirements of NFPA 90A and 90B, including having a flame spread rating not over 25 and a smoke developed rating not higher than 50.
- B. Pipe insulation shall be heavy density molded fiberglass, thicknesses as follows:
 - 1. Steam and condensate, heating hot water, chilled water - 1-1/2".
 - 2. Domestic hot water - 1".
 - 3. Domestic cold water - 1/2".

Insulation shall be Manville Micro-Lok 650AP, Owens Corning, or equal.

- C. Supply air ductwork shall be wrapped with heavy density foil-backed fiberglass insulation, 1" thick; Manville, Owens-Corning, or equal.

PART 3 - EXECUTION

3.01 PIPING SYSTEMS INSULATION JOINTS

All insulation joints on piping, including joints at thermal hanger shields, shall be sealed with canvas and Arabol.

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SECTION 15250-2
INSULATION

3.02 INSULATION OF FITTINGS

Pipe fittings shall be insulated using insulation segments enclosed in a PVC fitting cover. The PVC fitting cover joints shall be sealed with canvas and Arabol - in no case shall thumb tacks be used.

3.03 DUCT INSULATION JOINTS

Insulation joints shall be formed using a reinforced closure strip fused in place thermally; Manville "Therm-Lok", Owens-Corning or equal.

END OF SECTION 15250

SECTION 15300 - FIRE PROTECTION SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide engineering and technical services, drawings, and materials required to layout the automatic sprinkler system as shown on the drawings and as specified herein. Include an allowance for cost of providing hydraulic calculations for the system, since such may be required by the State Fire Marshal.
- B. Provide labor, material, equipment, tools and services for automatic sprinkler system work as specified herein and as shown on the drawings.

1.02 STANDARDS

Work shall conform to the State Fire Marshal's regulations and to National Fire Protection Association (NFPA) Pamphlet 13, latest edition, for Ordinary Hazard Group 2 occupancy; see also, Section 15050. The system shall be designed on the basis of the NFPA Pamphlet 13 and the UBC Standard 38-1 scheduled pipe sizes; hydraulically designed systems are not acceptable.

1.03 SUBMITTALS

- A. Shop drawings of the fire protection system showing location and type of heads, piping, drains, test valves and all related items.
- B. Submitted drawings shall have been reviewed by and bear the stamp of approval of the Office of the State Fire Marshal, and the Campus Fire Marshal prior to submittal. Drawings shall be prepared and signed by a Mechanical Engineer or licensed Fire Protection Engineer.
- C. As-built drawings.
- D. Sprinkler heads, with the California State Fire Marshal listing number.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: All materials and equipment shall be new, UL listed and labeled, shall conform to the State Fire Marshal requirements, and shall be made in the U.S.A.
- B. Sprinkler heads:
 - 1. Finished Areas: flush type heads, bronze alloy construction, satin chrome finish, 135 degrees F temperature rating.
 - 2. Perimeter Soffit: sidewall type, otherwise as 1.
 - 3. Cold Room: dry pendent type, ordinary temperature rating, brass finish; Viking Model "C", Central Sprinkler Corporation, or equal.
- C. Fire sprinkler piping shall be schedule 40 black steel, ASTM A-53, with screwed or grooved 150 # malleable iron fittings, ASTM A-197, and 300 # ductile iron flanges, ASTM A-395. Grooved system couplings shall be Victualic Standard 75, 750 and 005, with Victualic Grade E EPDM compound gaskets, Gustin-Bacon or equal.
- D. Wall Plates:

Plates at pipes passing through walls or ceiling shall be Beaton and Corbin Manufacturing Company's "Beacor", Plate 13 for steel pipe, stamped steel split-type plate with set-screw or spring retainer; Metalcraft or equal. Plates in finished areas shall be prime coated.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The fire protection system shall be installed in accordance with the requirements of the State Fire Marshal and the NFPA. The Contractor shall possess a valid fire sprinkler contractor's license.
- B. All piping shall be installed concealed unless otherwise noted on the drawings.

- C. All pipe hangers and hanger spacing shall be in accordance with NFPA Pamphlet 13, and shall comply with the seismic requirements of California State Code Title 24.
- D. Burrs formed by cutting tools shall be reamed out before installing each section of the pipe and the pipe shall be examined to see that it is clean and clear. All openings in the pipes shall be closed during construction to keep pipes free of dirt.
- E. Where pipes pass through walls or ceilings they shall be fitted with steel plates securely held in position, allowing clearance for expansion.
- F. No valve or piece of equipment shall support the weight of any pipe. Wherever changes in size of pipes occur, the changes shall be made with reducing fittings; the use of bushings will not be permitted.
- G. Sprinkler piping shall be tested in accordance with NFPA Pamphlet 13, at a pressure of 200 psig over a period of two hours. The testing shall be scheduled with the State Fire Marshal at least one week in advance, and shall be witnessed by the Campus Fire Marshal or other designated representative of the State Fire Marshal.
- H. Vapor-seal the pipe penetration of the Cold Room ceiling. Insulate the pipe which penetrates the Cold Room ceiling for a length of approximately five feet upstream of the penetration, using 3/4 inch fiberglass pipe insulation with sealed vapor barrier.

E N D O F S E C T I O N 1 5 3 0 0

SECTION 15400 - PLUMBING

PART 1 - GENERAL

1.01 SCOPE OF WORK

Provide labor, materials and equipment necessary for complete systems as outlined on the Drawings, in the Specifications, or otherwise reasonably inferred.

- A. Domestic hot and cold water systems; including connection to fixtures.
- B. Natural gas, compressed air, and vacuum systems.
- C. Acid waste and vent, sanitary waste and vent systems.
- D. Plumbing demolition indicated or otherwise necessary to completion of the project.
- E. Plumbing fixtures and trim except as otherwise noted.
- F. Cutting and coring required by the work of this Section.
- G. Testing, adjusting and calibration of all plumbing Systems.

1.02 SUBMITTALS

The Contractor shall furnish submittals for the following items:

- A. All plumbing fixtures, including trim.
- B. Pipe, including hangers and supports
- C. Valves.
- D. As-built record drawings.

PART 2 - PRODUCTS

2.01 PLUMBING FIXTURES

- A. P-1 Lab Hose Cocks: Deck-mounted turret with side openings at 180 degrees, for two ground key cocks; three turrets required for gas, air, and vacuum. Chicago #981-907, Water Saver, or equal.
- B. P-2 Lab Hose Cocks: Deck-mounted turret with single side opening for ground key cocks; three turrets required, for gas, air, and vacuum. Chicago #980-907, Water Saver, or equal.
- C. P-3 Cup Sink: 6" x 3" oval polypropylene, deck-mounted faucet with rigid gooseneck spout, serrated tip, wrist blade handle and vacuum breaker. Fuseal #7582A, Enfield Enfusion, or equal sink; Chicago #928-319, Water Saver, or equal.
- D. P-4 Emergency Shower/Eyewash: Single head drench shower with horizontal supply stay-open ball valve and pull rod; Haws #8122H, Guardian, or equal. Modify piping to shower head, and provide extended pull-rod as detailed on drawings. Fold-down twin eye-face wash in stainless steel cabinet, for recessed installation; Haws #7655, Guardian, or equal.
- E. P-5 Deck-Mounted Emergency Eyewash: spray unit with eight-foot hose, squeeze type, stay-open lever handle valve, angle-mounted spray head, and aligner escutcheon plate; Haws #8902-S-CM, Guardian, or equal. Provide shut-off valve in cabinet, secured to cabinet interior.
- F. P-6 Lab Sink: 18 gauge Type 316 stainless steel sink with 14" x 14" x 10-1/2" single compartment, single hole faucet punching; Just #SLX-2017-A-GR, Elkay, or equal. Deck-mounted HW/CW mixing faucet with rigid gooseneck spout, vacuum breaker, and serrated tip; Chicago #930, Water Saver, or equal.
- G. P-7 Lab Sink: 18 gauge, Type 316 stainless steel sink with 14" x 14" x 7-1/2" single compartment, single hole faucet punching; Just #SL-2017-A-GR, Elkay, or equal. Faucet same as P-6.
- H. P-8 Lab Sink : Epoxy resin sink furnished under another Section for plumbing connection under this Section. Provide acid waste P-trap and tailpiece.(Faucet is same as P-6).

- I. P-9 Lab Sink: 18 gauge Type 316 stainless steel sink with 12" x 12" x 9" single compartment, single hole faucet punching; Just #SLX-1815-A-GR, Elkay, or equal. Gooseneck spout with rose spray, and double pedal valve; Chicago #625-LP valve, #626-E4 spout, #699 Straightway compression stops. Provide water hammer arrestors on HW and CW branch services, in cabinet utility space; PDI Type "A".
- J. P-10 Lab Sink: wall-hung, 20-1/2" x 18-1/4" vitreous china lavatory with integral back and faucet ledge, two-hole punching at 8" on-centers for single gooseneck spout and soap dispenser; American Standard "Lucerne" #0356.015 sink, #4503.029 soap dispenser, #7522.055 spout, #7679.012 wall-mounted double pedal valve, #774.018 supplies, Kohler, or equal. Floor mounted carrier with concealed arms; Smith #700-M31, Zurn or equal.
- K. P-11 Fume Hood: furnished under Section 15500 for plumbing connection under this Section. Provide shut-off valves for gas, air and vacuum and cold water services. Provide trap and tailpiece for cup sink. Install all remote control fittings and fixture trim furnished with the hood. Provide a USC, FCCC and HR approved vacuum breaker on CW faucet in hood utility space (out of exhaust airstream).
- L. P-12 Laminar Flow Hood: furnished under another Section for plumbing i.e. gas and vacuum connection under this Section. Provide shut-off valves under hood for gas and vacuum services.
- M. P-13 Floor Drain: corrosion-resisting cast-iron body, 2" size with No-Hub mechanical joints; Duriron #5501-C with #100 strainer and funnel, or equal (no known equal).
- N. P-14 Cold Room Sink: 18 gauge, Type 316 stainless steel sink with 14" x 14" x 10-1/2" single compartment, single hole faucet punching; Just #SLX-2017-A-GR, Elkay, or equal. Two Straightway remote control faucets with extended stems for HW and CW, common deck-mounted HW/CW rigid gooseneck spout with vacuum breaker and serrated tip; Chicago #962-V0 Straightway valves (two), and #900-GN-2b-VB-E7 spout, Water Saver, or equal. Provide 9" x 9" stainless steel access door with airtight gasket seal on back-side of cold room wall, for servicing of remote control valve.

2.01 PIPING

- A. Domestic hot and cold water piping, and vacuum piping shall be copper Type L, hard drawn, ASTM B-88, with wrought copper fittings and 95/5 solder joints.
- B. Gas piping shall be Schedule 40 black steel pipe, ASTM A-120, with 150 pound malleable iron galvanized fittings.
- C. Acid waste and vent pipe and fittings shall be:
 - 1. In casework: flame retardant polypropylene, Schedule 40, with fused joints. Sloane "Fuseal", Enfield "Enfusion", or equal.
 - 2. At penetration of floor slab, above ceilings, and below floor slab: high silicon corrosion-resisting drainage piping; Duriron, or equal (no known equal).
- D. Equipment drain piping shall be Type L copper, hard drawn, with 50/50 solder joints.
- E. Sanitary waste and vent piping shall be standard weight cast-iron piping, with No-Hub fittings and joints.

PART 3 - EXECUTION

3.01 PLUMBING FIXTURES INSTALLATION

- A. Fixtures shall be cleaned and construction dirt removed at the completion of the project.
- B. Rough-in supply pipe stubs so that supply pipes will run in a straight vertical line from stops to faucets.
- C. At each fixture provide rigid supply fittings with chrome-plated brass body angle valves, loose key type, and escutcheon wall plates with polished chromium finish; Chicago, T & S or equal. Additionally, provide a "P" trap at each fixture drain.
- D. Each water pipe connection to faucet shall have an 18 inch long air chamber, placed in vertical position, and one pipe size larger than the connection size.
- E. This Section shall completely connect all equipment and or fixtures requiring plumbing connections, whether or not such equipment or fixtures are furnished under this Section.
- F. Provide and install all necessary traps, tailpieces, valves and faucets for equipment and fixtures. Verify exact installation requirements prior to plumbing rough-in work.

3.02 DISINFECTION OF DOMESTIC WATER SYSTEM

- A. Supervision and Testing: The University of California, Office of Environmental Health and Safety, will oversee the disinfecting operation. The Contractor shall employ a testing agency approved by the University Office of Environmental Health and Safety, and the said agency shall take water samples, make tests, carry-out the disinfecting procedure, procure bacteriological analysis, and issue written certification of satisfactory disinfection results.
- B. Contractor's Responsibility: Disinfect domestic hot and cold water systems and fire lines directly connected thereto in conformity with procedures and standards described herein.

C. Disinfecting Agent: One of the following may be used:

1. Hypochlorite, calcium or sodium, powdered or aqueous.
2. "Purex", "Clorox" or equal with 5.25% or 16% available chlorine in water solution.

D. Preliminary Preparation:

1. Service cock: Provide a 1/2" or 3/4" service cock or valve within 3 feet of the supply line for introducing a disinfecting agent into the lines.
2. Flushing: After final pressure tests, each fixture or outlet shall be left wide open until flow shows only clear water.

E. Procedure:

1. Drain all piping to be disinfected.
2. Inject disinfectant into systems through the service cock, by means of pump or pressure device at a slow, continuous rate simultaneously with reduced flow from water main until an orthotolidin test at each outlet shows chlorine residual concentration of at least 50 parts per million (ppm).
3. Close all outlets and valves, including main service valve and inject cock to retain chlorinated water. Maintain this condition for 24 hours.
4. An orthotolidin test, after 24 hour period, shall indicate a chlorine residual concentration of not less than 50 ppm. An orthotolidin test reading less than 50 ppm may result in the repetition of the procedure.
5. After satisfactory completion of the above test, domestic water system shall be drained and flushed until orthotolidin tests show a chlorine residual of not more than 0.5 ppm.

F. Alternate Procedure:

For alteration involving branch lines of 20' length or less the following alternate procedure may, at the contractors option, be followed:

1. Ascertain before installation that all pipe and fittings are substantially clean.
2. Using a solution of one part Purex, Clorox or equal, to ten parts of water, thoroughly swab the pipe and fittings immediately prior to assembly.
3. Immediately after assembly, cap or plug the assembled piping against entry of contamination; maintain this condition until final connection.
4. Immediately prior to final connection, thoroughly swab all fittings, valves etc. which are to be used to make the final connection, in the chlorine solution as in para. 2 above.
5. Immediately after connection flush the piping thoroughly with water.

G. Preliminary Approval: After satisfactory completion of disinfection procedure, the Office of Environmental Health and Safety may issue a temporary approval for immediate use of the piping system pending bacteriological analysis of water samples.

H. Bacteriological Analysis of Water:

1. After final flushing (Para. E.5 or F.5 above) water samples should test negative for coliform aerogenes organisms.
2. Analysis should indicate total plate count less than 100 bacteria per cc.

I. Final Approval: Upon satisfactory completion of analysis (Para H), approval of water system disinfection results will be given by the Office of Environmental Health and Safety. If analysis results are not satisfactory, disinfection procedure shall be repeated until the specified standards are met.

E N D O F S E C T I O N 1 5 4 0 0

SECTION 15500 - HEATING, VENTILATION AND AIR CONDITIONING.

PART 1 - GENERAL

1.01 SCOPE OF WORK

Provide labor, materials and equipment necessary for complete systems as outlined on the Drawings, in the Specifications, or otherwise reasonably inferred.

- A. Complete and fully operable heating, ventilation and air conditioning systems.
- B. Air conditioning units, including fan, chilled water cooling coil and filter.
- C. Hot water re-heat coils.
- D. Filter bank including mounting frame, and differential pressure gauge.
- E. Fume Hood exhaust fans, mounting pads and vibration isolators.
- F. Ductwork.
- G. Diffusers and registers.
- H. Fume Hoods.
- I. Supports for ductwork and equipment.
- J. Coordination with other trades.

1.02 RELATED WORK IN OTHER SECTIONS

- A. Line voltage electrical work.

1.03 SUBMITTALS

The Contractor shall furnish submittals for the following items:

- A. Fans, (with AMCA certification).
- B. Air Conditioning units.

- C. Coils.
- D. Differential pressure gauges.
- E. Diffusers and registers.
- F. Vibration isolators.
- G. Filters and holding frames.
- H. Fume Hoods.
- I. Shop Drawings for ductwork and autoclave hoods.
- J. As-built record drawings.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Air Conditioning unit shall be factory assembled customized package, as follows:
 - 1. Fan section shall be cabinet mounted, internally isolated, solid steel shaft, self-aligning pre-lubricated bearings rated for 200,000 hours service and with adjustable drive. Cabinet housing shall be internally lined with one inch thick heavy density fiberglass insulation, mylar encapsulated. The fan shall be factory balanced for an overall vibration amplitude not to exceed 0.005 inches at maximum rpm.
 - 2. Coils shall be copper tube, copper fin, maximum ten fins per inch. Tubes shall be seamless and of 5/8 inch minimum outside diameter and expanded into the fin collars to provide a permanent mechanical bond. Headers shall be non-ferrous copper bronze brazed steel male pipe connections. Casings shall be minimum 16 gauge galvanized steel with double formed face. Cooling coil shall be counter-flow construction. Coil circuiting shall be so that the tubes will drain when the coil is properly leveled.
 - 3. The unit shall be as manufactured by Pace, Gamewell or equal.

- B. Fume hood exhaust fans shall be utility set constructed of 316 stainless steel where parts are in the airstream, and #304 stainless steel all other parts. The unit shall be furnished with TEFC motor, adjustable sheave, V-belt drive with a minimum of two belts, full stainless steel weather enclosure for motor and drive, and four elastomeric vibration isolators, Korfund Series F size AA blue, Mason, or equal. The fan bearings shall be minimum 200,000 hour rated, shaft shall be stainless steel, solid, minimum 1-3/16" diameter, and the fan shall be factory balanced for an overall vibration amplitude not in excess of 0.005 inches at maximum RPM. Motor shall be Reliance "Dutymaster" XT-XE, or equal (no known equal). Pace, Pacific Fan and Blower, or equal.

- C. Fans shall be AMCA certified.

2.02 DUCTWORK

- A. Ductwork shall be fabricated from galvanized sheet-metal in accordance with the latest SMACNA standards for low pressure duct, with Pittsburgh seam longitudinal joints and pocket lock transverse joints. All joints shall be sealed with "Hardcast", or canvas and "Arabol"; duct tape will not be acceptable.
- B. Fume hood exhaust ductwork shall be fabricated from 16 gauge Type 316 stainless steel, all joints welded.
- C. Ductwork support shall conform to the requirements of "SMACNA Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems", OSHPD pre-approval No. R-0010.

2.03 VOLUME DAMPERS

- A. Minimum 16 gauge stainless steel. Dampers shall have 3/8" square axle rods with permanently lubricated bearings at both ends. Maximum blade width shall be nine inches and for widths greater than nine inches dampers shall be multiblade opposed type with channel frames.
- B. Dampers shall have indicating locking-type operating quadrants and shall be the standard product of a recognized manufacturer; Titus, Air Balance or equal. Where inaccessible the dampers shall be provided with a remote operator system, Young Regulator Co. No.301 CDS, 3/8" rod; or equal (no known equal).

- C. Damper operating quadrants on insulated ducts shall be furnished with extension brackets to provide sufficient clearance to enable the damper to be operated freely.

2.04 DIFFUSERS AND REGISTERS

Supply air diffusers and exhaust registers shall be Titus Model TMS-AA, baked enamel off-white finish, and furnished with opposed blade damper.

2.05 FLEXIBLE DUCT CONNECTIONS AT FANS

30 ounce closely woven glass fabric, double-coated with neoprene and UL approved. Material shall be fire retardant, waterproof, airtight, ozone resistant, and resistant to acids and grease. Flexible connections shall be Ventfabrics Inc. "Ventlon", Duro-Dyne, or equal; fume hood exhaust fans only.

2.06 DUCT ACCESS DOORS

Doors shall be totally removable, framed, neoprene gasketed and secured in place with four cam locks; Ruskin, Ventlon, or equal.

2.07 FUME HOODS

- A. Fume hoods shall be benchtop type, constant volume/by-pass superstructure, 60 inches wide, remote control cold water, gas, air and vacuum outlets, two-tube fluorescent light fixture, single duplex electrical outlet. See Architectural drawings for outlet height modifications.
- B. Fume Hood FH-C540: shall be Hamilton #54L592-E, with 1-1/4" thick molded epoxy resin work surface, with polyethylene cup sink, and ceiling enclosure; Kewanee, or equal.
- C. Fume Hood FH-C550: shall be Hamilton #54L736-K, with integral stainless steel work surface with cup sink; Kewanee, or equal. This hood shall be furnished with a filter assembly to house a 30% pre-filter and a 99.9% HEPA filter, and complete with Magnahelic gauge to indicate pressure drop across the filter bank.

- D. Room negative pressure monitor for bio hazard labs, shall be Dwyer Magnahelic gauge model 2000-0-AF, with ASF option and No. A-605 kit.
- E. Differential pressure gauge for filters shall be Dwyer model 2002-AF, with ASF option and No. A-605 kit.

PART 3 - EXECUTION

3.01 AIR SYSTEMS

Ducts shall be supported from the structure using galvanized steel straps or rods and hangers in accordance with standards hereinbefore specified. Concrete inserts shall be drilled, Phillips, Hilti, or equal; the use of powder-driven inserts or fasteners is prohibited.

3.02 ACCESS DOORS

Access doors shall be provided where specifically shown on the plans; door frames shall not project into the airstream

3.03 FLEXIBLE CONNECTIONS AT FANS

Flexible connectors shall be of sufficient length to provide a minimum of four inches clearance between the fan and the duct when the system is in operation.

3.04 DAMPERS

Dampers shall be provided in all branch ducts.

3.05 BIOHAZARD AREA SEALING

All pipe and duct penetrations of walls of the biohazard area (P2* Labs) shall be thoroughly sealed with foamed-in-place urethane. Diffusers and registers penetrating the ceiling shall be set in a full bed of hypalon to provide a thorough airtight seal.

END OF SECTION 15500

SECTION 15700 - LIQUID HEAT TRANSFER

PART 1 - GENERAL

1.01 SCOPE OF WORK

Provide labor, materials, and equipment necessary for complete systems as outlined on the Drawings, in the Specifications, or otherwise reasonably inferred.

- A. Complete and fully operable system of chilled water generation and distribution.
- B. Complete and fully operable system of hot water generation.
- C. Supports for piping and equipment.

1.02 SUBMITTALS

The Contractor shall provide submittals for the following items:

- A. Air cooled chiller.
- B. Steam to water heat exchanger.
- C. Pumps.
- D. Air eliminators, expansion tanks.
- D. Flexible pipe connectors.
- E. Valves, including flow control valves.
- F. Strainers.
- G. Gauges and Thermometers.
- H. Pipe supports, including hanger shields.
- I. Water Meter.
- J. Steam traps.

PART 2 - PRODUCTS

2.01 AIR COOLED CHILLER

The chiller shall be furnished with hot gas by-pass, flow switch, load limit thermostat, housed spring isolators, suction and discharge gauges, low ambient control, copper fins, control circuit transformer, compressor timer lock-out, and with cabinet provided with heavy coating of epoxy resin electrostatically applied, to resist a salt laden atmosphere. The unit shall be Trane model CGAB-C20K-1 as scheduled on the Drawing, McQuay, or equal.

2.02 PUMPS

The pumps shall be base mounted type, Bell and Gossett as scheduled on the Drawing, Armstrong, or equal.

2.03 EXPANSION TANKS

Shall be as scheduled on the Drawings.

2.03 PIPING

A. Chilled water, steam condensate, and equipment drain piping shall be Type L copper, hard drawn, with bronze or wrought copper solder fittings; solder shall be 95/5.

B. Steam piping shall be schedule 40 black steel with malleable iron fittings.

2.04 PIPE TRIM

A. Valves:

1. Shut-off valves and globe valves shall be as specified under Section 15050.
2. Check valves shall be Nibco No. T-433, Crane, or equal.
3. Flow control valves shall be Griswold as scheduled on the Drawings, Autoflow, or equal.

2.05 TEMPERATURE/PRESSURE TEST PLUGS

Test plugs shall be Petersen Co. "Pete's Plug", Sysco, or equal.

2.06 FLEXIBLE PIPE CONNECTORS

- A. Flexible pipe connectors at pumps shall be Mason Industries Type MFTNC, Sausee, or equal.
- B. Flexible pipe connectors at chiller shall be Flexonics "Vibra-Sorber", Mason, or equal.

2.07 VIBRATION ISOLATORS

Vibration isolators at chiller shall be Mason Industries Housed Spring Isolator, cast-iron mount, external adjustment, neoprene coated springs, 1 inch deflection, size B-1000 (4 required); Sausee, or equal.

2.08 FLOW MEASURING/PUMP SWITCHING STATION

- A. The orifice flow station shall be 2" diameter, with stainless steel orifice plate, flanges tapped for jacking with flange bolts, quick connect plug valve with safety shut-off valve; as distributed by G.M. Cooke Associates, Berkeley, CA (Telephone 415-845-5110).
- B. The orifice meter shall be Meriam Instruments Indicating Switch No. 1220, double pole single throw, 0-50 gpm range. The unit shall be housed in an airtight stainless steel enclosure for wall mounting.
- C. The differential pressure tubes shall be copper or stainless steel, diameter as recommended by the station supplier.

2.09 PIPE HANGERS, SUPPORTS AND BRACES

- A. Kin-Line, Superstrut, or equal support system; Kin-Line galvanized channel and #412, 418, 450, and 513 components secured to solid electroplated steel rod hangers. On insulated pipes crush-resistant pre-insulated hanger inserts shall be used. Hanger rods shall be sized in accordance with the manufacturer's recommendations. Concrete inserts shall be drilled Phillips, Cinch, or equal; the use of powder-driven inserts is not acceptable.
- B. All ferrous hanger and support material and all miscellaneous steel exposed to the weather shall be hot-dipped galvanized after fabrication. All nuts, washers, spacers and miscellaneous hardware shall be stainless steel in weather exposed locations.

2.10 PRESSURE REDUCING VALVE

Water pressure reducing valve shall be Watts U-5B, Watkins, or equal.

2.11 PRESSURE RELIEF VALVES

Pressure relief valves shall be ASME stamped, UL listed; Watts, Bailey, or equal.

PART 3 -EXECUTION

3.01 PIPED SYSTEMS

Pipes shall be supported in accordance with SMACNA "Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems", as approved by the State Architect. Crush resistant pre-insulated hanger inserts shall be provided at all pipe supports on steam, hot water, and chilled water piping.

3.02 TESTING

- A. Testing shall be scheduled with the Owner's Project Manager, with a minimum of ten days notice, and will be witnessed by him.
- B. Strainers shall be removed, demonstrated to be clean, and then replaced. Any piping specialties which might be damaged by the test pressure shall be removed during the testing.
- C. Chilled water piping, hot water piping, steam piping, and steam condensate piping shall be tested over a period of four hours at a pressure of 150 psig with water or compressed air as the medium. There shall be no loss of pressure over the four hour period, with no priming.

END OF SECTION

SECTION 15950 - HVAC SYSTEM CONTROLS

PART 1 - GENERAL

1.01 SCOPE OF WORK

Provide labor, materials and equipment necessary for complete systems as outlined on the Drawings, in the Specifications, or otherwise reasonably inferred.

A. New thermostats, control valves, and all control hardware indicated on the drawings.

B. Connection to building pneumatic control air lines.

PART 2 - PRODUCTS

2.01 CONTROL HARDWARE

Control hardware shall be Honeywell as scheduled on the Drawings, to match existing.

2.02 CONTROL AIR PIPING

Control air piping shall be Type L copper, hard drawn, one quarter inch diameter, with 50/50 tin/lead solder joints. Use of plastic tubing will not be permitted.

PART - 3 EXECUTION

3.01 THERMOSTAT MOUNTING

Wall mounted thermostats shall be mounted using the Honeywell copper tubing assembly No. 140016115-002.

3.02 INSTALLATION OF CONTROLS.

Control air piping shall be installed as other piping, secured to the structure or available rigid building components in such a manner as to provide a rigid and secure installation, run in lines parallel to the building lines, and otherwise to provide a neat and durable installation. All control components shall be neatly installed, secure, and in such a manner as to preclude damage.

3.03 QUALIFICATIONS OF CONTROL INSTALLERS

Mechanics employed in the installation of the controls shall be journeyman qualified, shall specialize in control work and shall have a minimum of five years experience in this trade. In overall charge, and on the site at all times the work is in progress, shall be a journeyman installer who shall have a minimum experience record of ten years solely in this trade.

3.02 TESTING

- A. Control air piping shall be tested with air or nitrogen at 150 psig and show no pressure drop over a sustained period of four hours.
- B. The function of the control systems shall be tested when all the mechanical work is completed. The Contractor shall certify in writing that the control systems have been tested and are functioning precisely in accordance with the design intent. The installer in charge shall attend on site for a final inspection of the controls and shall demonstrate the proper functioning of the systems in the presence of the Architect, carrying out such tests as the Architect shall direct, to the same end.

END OF SECTION 15950

SECTION 15990 - BALANCING AND ADJUSTING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Air balancing shall be carried out by an independent Air Balancing Agency employed for the purpose by the Contractor.
- B. Prior to turning over the system for balancing the contractor shall:
 - 1. Determine that all dampers and other balancing devices have been installed and are operable.
 - 2. Place all systems in automatic operation and establish that the operation is in accordance with design intent, including the controls.
 - 3. Schedule the work of all other trades to eliminate system shutdown for any reason once the balancing process has started.
 - 4. Complete all testing.
 - 5. Operate the systems for 72 consecutive hours without shutdown and without malfunctions before notification of the Balancing Agency that the system is ready for balancing.
- C. On satisfactory completion of the balancing, the Contractor shall provide the Architect with six copies of a comprehensive balance report, the format of which shall be similar to that used by the AABC, and which shall include the following tabulations:
 - 1. Design air quantities and actual air quantities at each air outlet and hood.
 - 2. Design and actual air quantity delivered by each fan.
 - 3. Nameplate data for each fan, rpm, inlet and outlet static pressure, motor horsepower, motor voltage and electrical characteristics, nameplate amperes and actual.

4. Air temperature on to each coil, and off each coil with (a) control valve closed, (b) control valve open.
5. Complete verification of controls function.

END OF SECTION 15990

SECTION 16010 - ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. General: Furnish all labor, materials, apparatus, tools, equipment, transportation, temporary construction and special or occasional services as required to make a complete working electrical installation, as shown on the drawings or described in these specifications, including necessary demolition.
- B. Work Included:
 - 1. Lighting.
 - 2. Power wiring.
- C. Work Excluded:
 - 1. Internal wiring of factory wired equipment.
 - 2. Installation of telephone cables.
 - 3. Painting.

1.02 CODES AND STANDARDS

A. Specific:

- 1. The following publications or editions of the documents current at the time a project is ongoing shall apply:
 - a. NEC National Electrical Code
 - b. UBC Uniform Building Code
 - c. UFC Uniform Fire Code
 - d. UMC Uniform Mechanical Code (509,1009)
 - e. California Administrative Code (Titles 17, 22, and 24 as applicable)

2. Equipment and materials specified under this division shall conform to the following standards where applicable:

- a. UL Underwriters' Laboratories
- b. ASTM American Society for Testing Materials
- c. CBM Certified Ballast Manufacturers
- d. IPCEA Insulated Power Cable Engineer Association
- e. NEMA National Electrical Manufacturer's Assn.
- f. ANSI American National Standards Institute

1.03 DRAWINGS

- A. Layout: General layout shown on the drawings shall be followed except where other work may conflict with the drawings.
- B. Accuracy:
 1. Drawings for the work under this section are diagrammatic.
 2. Contractor shall verify lines, levels and dimensions shown on the drawings and shall be responsible for the accuracy of the setting out of work and for its strict conformance with existing conditions at the site.

1.04 SUBSTITUTIONS

Refer to Division 1 for general instructions regarding substitutions. Information on a proposed substitution must be presented in writing complete in one package and must contain all necessary data to show conclusively that the substitution is equal to the specified product.

1.05 SUBMITTALS

- A. General: Refer to Division 1 for submittal procedures and requirements.
- B. Format: Furnish submittal data neatly bound in an 8 1/2" x 11" folder or binder with a table of contents listing in order of specification section and paragraph number.

- C. Submittals shall consist of detailed shop drawings, specifications, catalog "cuts" and data sheets containing physical and dimensioned information, performance data, electrical characteristics, materials used in fabrication, material finish and those optional accessories which are included and those which are excluded. in addition include seismic data regarding installation and seismic withstand certification if applicable.
- D. Contractor agrees that Shop Drawing Submittals processed by the Architect are not change orders; that the purpose of Shop Drawing Submittals by the contractor is to demonstrate to the Architect that the contractor understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use.

1.06 DEMOLITION

Existing to be demolished shall be as indicated on the Drawings or otherwise as necessary to complete the work of this Section.

PART 2 - PRODUCTS.

2.01 ELECTRICAL IDENTIFICATION

All electrical materials shall bear the Underwriters Laboratory label or be UL listed unless the material is of such type for which labeling or listing service is unavailable.

PART 3 - EXECUTION

3.01 TESTS:

Tests shall be conducted during the construction period and at completion to determine conformity with applicable codes and with these specifications. Tests shall be scheduled with the Owner, and shall include, but are not limited to, the following:

- A. Circuit Continuity: Test all feeder and branch circuits for continuity. Test all neutrals for improper grounds.
- B. Equipment Operations: Test motors for correct operation and rotation.
- C. Lighting Control Circuits: Perform operation tests for all lighting circuits.
- D. Circuit Numbering Verification: Select on a random basis various circuit breakers in the panelboards and cycle them on and off to verify compliance with the typed panel directories in the panelboards.
- E. Product Failure: Any products which fail during the tests or are ruled unsatisfactory by the Architect shall be replaced, repaired, or corrected as prescribed by the Architect at the expense of the contractor. Tests shall be performed after repairs, replacements or corrections until satisfactory performance is demonstrated.

3.02 AS-BUILT DRAWINGS

The Contractor shall maintain on site at all times in an approved location and in a clean dry legible condition one set of Contract Drawings. These documents shall be used to record as-built conditions on a day to day basis, shall be kept current and shall be subject to inspection at any time. Such drawings shall fully represent installed conditions including actual location of outlets, true panelboard connections following phase balancing routines, correct conduit and wire sizing as well as routing, revised fixture schedules listing the manufacturer and products actually installed and revised panel schedules.

3.03 WORKMANSHIP

- A. Preparation, handling and installation shall be in accordance with manufacturer's written instructions and technical data particular to the product specified and/or approved except as otherwise specified. Coordinate work and cooperate with others in furnishing and placing this work. Work to approved shop drawings for work by others and to field measurements as necessary to properly fit the work.
- B. Conform to the National Electrical Contractor's Association Standard of Installation for general installation practice.

3.04 SCHEDULE OF WORK

Arrange work to conform to the schedule which has been established for the progress of the work. Advise regarding shipping schedule of major equipment.

3.05 PROTECTION

Keep conduits, junction boxes, outlet boxes, and other openings closed to prevent entry of foreign matter. Cover fixtures, equipment and apparatus and protect against dirt, paint, water, chemical or mechanical damage, before and during construction period. Restore to original condition any fixture, apparatus, or equipment damaged prior to final acceptance, including restoration of damaged shop coats of paint, before final acceptance. Protect bright finished surfaces and similar items until in service. No rust or damage will be permitted.

3.06 SEISMIC BRACING

All electrical components shall be braced to conform to California Administrative Code, Title 24, and to the Uniform Building Code.

3.07 CUTTING

- A. Cutting required by the work of this Section shall be the responsibility of this Section. Patching of finishes required by the work of this Section shall be the responsibility of another Section.

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ORAL AIDS CENTER
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SECTION 16010-6
ELECTRICAL
GENERAL PROVISIONS

- B. No cutting of finished or structural work may be done without written consent of the Architect.
- C. All abandoned penetrations of floor and fire-rated walls shall be filled with 3 M's Product No. CP-25, Bio-Fire Protection System Ltd product "Bio-Therm" or equal non-asbestos packing.

END OF SECTION 16010

SECTION 16100 - ELECTRICAL BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.01 SCOPE OF WORK

Work specified in this section encompasses products, assemblies and basic installation methods required for electrical project systems specified under this division and includes, but is not limited to:

- A. Conduit, raceways and fittings.
- B. Wire and cables.
- C. Wire connections and devices.
- D. Outlet boxes.
- E. Pull and junction boxes.
- F. Switches and receptacles.
- G. Device plates.
- H. Over current protection devices.
- I. Supporting devices.
- J. Cable tray.
- K. Empty conduits for telephone systems, complete with pull wire.
- L. Provision of identification nameplates on new and existing electrical outlets within the project area.
- M. Up-dating all electrical panelboard directories to show new and existing conditions within the project area; this will require verification of all existing circuits which are to remain, including tracing-down as proves necessary.
- N. Mechanical systems interlock wiring.

1.02 SUBMITTALS

Submit in conformance with the requirements of Section 16010 the following item:

- A. Switches and receptacles. Submittal data shall clearly indicate the U.L. and NEMA compliance.
- B. Disconnect switches.
- C. Motor starters.
- D. Surface Mounted Multi Outlet Raceways and fittings.
- E. Sealing fittings and compounds.
- F. As-built record drawings.

PART 2 - PRODUCTS

2.01 CONDUIT AND FITTINGS

A. Rigid Steel Conduit:

- 1. Conduit, rigid steel: full weight, threaded, hot-dip galvanized, inside enameled, conforming to ANSI C80.1.
- 2. Three-piece couplings: electroplated, cast malleable iron. Efcor 165 series, O.Z./Gedney 4-50 series or equal.
- 3. Threadless couplings: electroplated, cast malleable iron, with integral conduit stop. Efcor 1760 series, O.Z./Gedney 30-050 series or equal.
- 4. Threadless connectors: electroplated, cast malleable iron on threaded male hub plastic insulated throat rated 90 degree C minimum. Efcor 1750B series, O.Z./Gedney 31-050 IT series or equal.
- 5. Insulating bushings: threaded polypropylene or thermosetting phenolic rated 150 degree C minimum.
- 6. Insulated grounding bushings: threaded cast malleable iron body with insulated throat and steel, "lay-in" ground lug with compression screw. O.Z./Gedney BLG series, Thomas & Betts 3870 series or equal.

7. Insulated metallic bushings: threaded cast malleable iron body with plastic insulated throat rated 105 degree C. O.Z./Gedney Type B, Thomas & Betts 1222 series or equal.

B. Electrical Metallic Tubing (EMT):

1. Conduit: Shall be formed of cold rolled strip steel, electrical resistance welded continuously along the longitudinal seam and hot dip galvanized after fabrication. Conduit shall conform to ANSI C80.3 specifications and shall meet U.L. requirements.
2. Couplings: Electroplated, steel compression type, U.L. listed rain and concrete tight through 1-1/4 inch trade size. O.Z./Gedney, Efcor or equal.
3. Connectors: Gland compression type, steel body with male hub and insulated plastic throat, 150 degree C rated.
4. Conduit seal fittings for all conduit entering (leaving) the biohazard area.

C. Flexible Metallic Conduit:

1. Conduit shall be fabricated in continuous lengths from spirally wound galvanized steel strips formed to provide an interlocking design.
2. Fittings: Connector shall be of the two screw double clamp variety with steel bodies and threaded male hubs with insulated throats.

D. Liquid Tight Flexible Metallic Conduit:

1. Conduit: Anaconda Type U.A., Coleman Type Uxt1 or equal.
2. Fittings: Connector body and gland nut shall be steel, with insulated throat.

E. PVC Conduit:

1. Conduit shall be UL listed schedule 80 polyvinyl-chloride, manufactuerd to NEMA TC-2 standard.
2. Fittings, couplings, and connectors shall be of the same manufacturer as the conduit, and shall be joined with the manufacturer recommended cement.

- F. Sealing fittings for biohazard area shall be Appleton type EYF, EYDM, SF etc, as appropriate to the application; Bryant, or equal.
- G. Sealing compound for raceways at biohazard penetrations shall be Appleton "Apelco", Bryant, or equal.

2.02 WIRE AND CABLES

A. General:

1. Acceptable manufacturers: General Electric Co., Rome Cable, Traingle, PWC Inc., or equal.
2. Conductor material: All wire and cable shall be insulated copper conductors; ALL WIRE SHALL BE STRANDED.
3. Insulation: Insulation shall be THWN or THHN unless otherwise noted.
4. Minimum conductor size:

Power and lighting branch circuits: #12 AWG

5. Color coding: System conductors shall be identified as to phase connections by means of color impregnated insulation or approved colored marking tape as follows:

VOLTAGE	A PH.	B PH.	C PH.	NEUTRAL	GRD.
208Y/120	Black	Red	Blue	White	Green
480Y/277	Brown	Orange	Yellow	White	Green

2.03 WIRE CONNECTIONS AND DEVICES

- A. Wire Joints: Wires in sizes from #18 to #8 AWG conductor, with insulation rated 105 degrees C. or less shall be joined with electrical spring connectors of three part construction incorporating a non-restricted, zinc coated steel spring enclosed in a steel shell with an outer jacket of vinyl plastic with a flexible insulating skirt; Scotchlox, Ideal or equal. For conductors No. 6 and larger use solderless connectors, T & B 'Locktite' with 'Scotchfil', or two layers of Okonite rubber tape and plastic electrical tape, or UL approved splicing kits; T & B or equal. Where bolts are used to connect lugs the contractor shall use T & B "Tork-Nut" assembly, or equal (no known equal), and for motor connections he shall use T & B Series MSC, or equal (no known equal).

B. Splicing and insulating tape (600 volts and below):

General purpose electrical tape shall be suitable temperatures from minus 18 degrees C to 105 degrees C, shall be black, ultraviolet-proof, self-extinguishing, seven mil thick vinyl with a dielectric strength of ten thousand volts.

2.04 OUTLET BOXES AND COVERS

A. Standard Outlet Boxes: galvanized one-piece drawn steel, knock-out type, of size and configuration best suited to the application indicated on the plans. Minimum box size 4 inch square by 1-1/2 inch deep.

B. Switch Boxes: Two inch wide by 3 inch long, galvanized steel switch boxes shall be used only for the installation of single switches. Install multiple switches in standard gang boxes with raised device covers suitable for the application indicated.

2.05 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes : Use standard outlet boxes wherever possible; otherwise use minimum 16 gauge galvanized sheet metal NEMA 1 boxes sized to code requirements with covers secured with cadmium-plated machine screws located six inches on centers. Appleton, Steel City or equal.

2.06 SWITCHES AND RECEPTACLES

A. General:

1. All general purpose 15 and 20 ampere, 125/250 volt receptacles and 120/277 volt switches shall conform to NEMA WD-1 specifications. Outlets shall be brown.

B. Receptacles:

1. Standard Receptacles shall be 20 amp duplex, 3-wire grounding type, specification grade, Hubbell #5362-1 Bryant or equal.

2. Special Outlets:

a. 20 amp., 208 volt, single phase 3-wire grounding type, Hubbell #5461-1, Bryant or equal.

b. 30 amp., 208 volt, single phase 3-wire grounding type, Hubbell #9330, Bryant or equal.

- c. 30 amp., 120/208 volt, single phase 4-wire grounding type, Hubbell #9430, Bryant or equal.
 - d. 30 amp., 120 volt receptacles shall be Hubbell #9308.
 - e. GFCI receptacles shall be Hubbell #GF-5362, with S-26 wall plate, Bryant or equal.
 - f. Isolated ground receptacles shall be Hubbell No. IG-5362, with #IGP-8 wall plate, Bryant, or equal.
- C. Switches: Twenty ampere, 120/277 volt, fast make-slow break, quiet type switch with silver cadmium alloy contacts, binding head terminal screws, back and side wired. All switches shall be ivory in color.
- 1. Single pole, single throw, Hubbell #1201-1, Bryant or equal.
- D. Surface mounted Multi-Outlet Raceway and fittings shall be complete Wiremold systems as indicated on the Drawings, or otherwise noted; Walker-Parkerburg, or equal.

2.07 DEVICE PLATES

- A. Flush Device Plates: Shall be stainless steel 0.040" thick. Screws shall be metal, with oval heads, with finish to match plate finish. Device plates shall be of the one-piece type of suitable shape for the devices to be covered. Where the device plate does not cover the outlet opening, special large plates shall be used. Sectional device plates will not be permitted. Leviton #8400 series, Hubbell or equal.
- B. Device plates on surface-mounted raceways shall match the raceway.
- C. Coverplates for devices in Cold Room shall be weather-proof type, with self-closing covers; Bell #245, Leviton or equal.

2.08 DISCONNECT SWITCHES

- A. Switch Interior: Dead-front construction with hinged arc-suppressor and switch blades which are fully visible in the "OFF" position and with door open.
- B. Switch Mechanism: Quick-make and quick-break operating handle and mechanism with a dual cover interlock to prevent unauthorized opening of the switch door in the "ON" position or closing the switch mechanism while the door is open.
- C. Ratings: Switches shall be horsepower rated for the operating voltage and with fused or non-fused arrangements as shown on the drawings.
- D. Enclosures: NEMA 1, code gauge sheet steel with hinged cover, except outdoors which shall be NEMA 4 stainless steel.

2.09 PROTECTIVE DEVICES

- A. Circuit Breakers: Molded case, bolt-on, thermal magnetic type, 40 degrees C ambient temperature compensated, fixed mounting, with quick-make quick-break switching mechanism mechanically trip-free from the operating handle and conforming to the application.
- B. Ratings: Refer to drawings and panel schedules for trip frame and poles required. Minimum short circuit rating for 120/208 volt breakers is 22,000 A., minimum short circuit rating for 480v breakers is 22,000 A., unless otherwise noted.

2.10 ELECTRICAL SUPPORTING DEVICES

- A. Concrete Fasteners: Concrete inserts shall be drilled Phillips, Hilti or equal. The use of powder driven inserts or fasteners is prohibited.
- B. Conduit Straps: Hot-dip galvanized, cast malleable iron, one hold type strap with cast clamp-backs and spacers as required. O.Z./Gedney #14-50G strap and #141G spacer; Efcor #231 strap and #131 spacer; or equal.
- C. Construction Channel: 1-1/2 inch by 1-1/2 inch 12 gauge galvanized steel channel with 17/32 inch diameter bolt holes, 1-1/2 inches on center, in the base of the channel. Kindorf 905 series, Unistrut P-1000-HS or equal.

- D. Fasteners (General): Wood screws for fastening to wood. Machine screws for fastening to steel. Toggle bolts for fastening to hollow concrete block, gypsum board or plaster walls.

2.11 IDENTIFYING DEVICES

- A. Nameplates: Engraved laminated phenolic, 1 inch by 3 1/2 inch, 1/8 inch high white letters on black background, machine screw retained. For permanent identification of all panelboards, motor starters, and cabinet enclosed apparatus, and the panel door.
- B. Panelboard Directories: Shall be typewritten, arranged in numerical order and shall show the number of the room in which each outlet served by each panelboard circuit is located.
- C. Wire & Terminal Markers: Self-adhering, pre-printed vinyl with self laminating wrap-around strip. Brady B191 series; Thomas and Betts WSL series or equal.
- D. Receptacle Identification: Epoxy attached, engraved nameplate of laminated phenolic, white letters on black background shall be provided on all new and existing receptacles, indicating the the circuit number and the panel of power origin for the outlet. Dymo type labels shall not be used.

2.12 CABLE TRAY

Cable tray shall be Mono-Systems Inc., bottom rung, nominal 12 inch width, six inch rung spacing; or equal (no known equal).

PART 3 - EXECUTION

3.01 CONDUIT AND RACEWAY APPLICATIONS

- A. Rigid Steel Conduit: Feeders run exposed to weather, or subject to mechanical damage.
- B. Electrical Metallic Tubing (EMT): Interior power and lighting branch circuits and low voltage (telephone and fire alarm) distribution system where run concealed above suspended ceilings, in stud walls, furred spaces and where exposed not less than 6 feet above finished floors.
- C. Flexible Metallic Conduit: In dry locations for connection from adjacent outlet boxes to transformers, vibrating equipment, and to lighting fixtures installed in suspended ceilings. Maximum length shall be five feet.
- D. Surface-mounted multi-outlet raceway systems shall be installed as shown on the plans and in all finished areas where exposed to view.
- E. PVC conduit shall be installed in Cold Room.

3.02 CONDUIT INSTALLATION

A. General:

- 1. Conduit system shall be concealed unless exposed work is clearly called for on the drawings.
- 2. Conduits shall be tightly covered and well protected during construction using metallic bushings and bushing "pennies" to seal open ends.
- 3. In all empty conduits or ducts, install a 100-pound tensile strength polyethylene pulling rope.
- 4. Conduit systems shall be electrically continuous throughout. Install code size, insulated, copper, green grounding conductor in all conduit runs, unless specifically noted otherwise.
- 5. Minimum conduit size shall be 3/4" except (1) short runs to a single outlet in existing work may be 1/2", and extensions and connections to a single fixture may be 1/2".

6. Multi-outlet raceway systems shall be installed with all necessary fittings and hardware for a neat and complete installation, without field modifications. All runs shall follow the building lines. Work not properly fitted, aligned or mounted will be rejected

B. Layout.

1. Locations of conduit runs shall be planned in advance of installation and coordinated with the ductwork plumbing, ceiling and wall construction in the same areas, and shall not unnecessarily cross other conduits or pipes, nor prevent removal of panels or block access to mechanical or electrical equipment.
2. Where practical, install conduits in groups in parallel, vertical or horizontal runs and at elevations that avoid unnecessary offsets.
3. Exposed conduit shall be run parallel or at right angles to the centerlines of columns and beams.
4. Conduits shall not be placed closer than 12 inches from a parallel hot water or steam line or 3 inches from such lines crossing perpendicular to the runs.

C. Supports:

1. All raceway systems shall be secured to building structures using specified fasteners, clamps and hangers spaced according to code requirements.
2. Support single runs of conduit using one hole pipe straps. Where run horizontally on walls in damp or wet locations, install "clamp backs" to space conduit off the surface.
3. Multiple conduit runs shall be supported using "trapeze" hangers fabricated from specified construction channel, mounted to 3/8 inch diameter, threaded steel rods secured to building structures. Fasten conduit to construction channel with standard one hole pipe clamps or the equivalent.

D. Termination and Joints:

1. Raceways shall be joined using specified couplings or transition couplings where dissimilar raceway systems are joined.

2. Conduits shall be securely fastened to cabinets, boxes and gutters using two lock-nuts and a insulating bushing or specified insulated connectors. Install grounding bushings or bonding jumpers on all conduits terminating at concentric knockouts.
3. Empty conduit for telephone and security systems shall be terminated with turned-down radius elbows directly over telephone terminal boards.

E. Penetrations:

All floor penetrations shall be sealed watertight. Maintain fire rating as required. Fire penetration separations shall be sealed by caulking to full slab thickness with incombustible packing and sealant. Floor penetrations shall be sealed watertight.

3.03 CABLE AND WIRE INSTALLATION

A. General:

1. Conductors shall not be installed in conduit until all work of any nature that may cause injury is completed. Care shall be taken in pulling conductors that insulation is not damaged. U.L. approved nonpetroleum base and insulating type pulling compound shall be used as needed.
2. All cables shall be installed in accordance with the manufacturer's requirements and warranty.

B. Splicing and Terminating:

1. All aspects of splicing and terminating shall be in accordance with cable manufacturer's published procedures.
2. Make up all splices in outlet boxes with connectors as specified herein with separate tails of correct color to be made up to splice. Provide at least six (6) inches of tails packed in box after splice is made up.
3. All wire and cable in panels, control centers and equipment enclosures shall be bundled and clamped.

C. Identification:

1. Securely tag all branch circuits, noting the purpose of each. Mark conductors with vinyl wrap-around markers. Where more than two conductors run through a single outlet, mark each circuit with the corresponding circuit number at the panelboard.
2. Color code conductors size #6 and larger using specified phase color markers and identification tags.
3. All terminal strips are to have each individual terminal identified with specified vinyl markers.
4. Identify all junction boxes in furred ceiling spaces via felt-tip pen denoting the circuits contained in the box.

3.04 INSTALLATION OF BOXES AND WIRING DEVICES

A. General:

1. All outlets shall finish flush with building walls, ceilings and floors except where exposed work is called for.
2. Install raised device covers (plaster rings) on all outlet boxes concealed in concrete, masonry or stud walls; or in furred, suspended, or exposed concrete ceilings. Covers shall be of a depth to suit the wall or ceiling finish.
3. Leave no un-used openings in any box. Install close-up plugs as required to seal openings.
4. Exposed outlet boxes and boxes in damp and wet locations shall be cast metal with gasketed cast metal cover plates.

B. Box Layout:

1. Outlet boxes shall be installed at the locations and elevations shown on the drawings or specified herein. Make adjustments to locations as required by structural conditions and to suit coordination requirements of other trades.
2. Outlet boxes in stud walls and partitions shall not be mounted back-to-back nor shall through-wall boxes be permitted.
3. Duplex receptacles shall be installed with long axis horizontal.

C. Supports:

1. Boxes installed in metal stud walls shall be equipped with brackets designed for attaching directly to the studs or shall be mounted on heavy gauge galvanized steel, snap-in box supports. Efcor MBS series 0.Z. Gedney or equal.
2. Fixture outlet boxes installed in suspended ceilings of gypsum board or lath and plaster construction shall be mounted to 16 gauge metal channel bars attached to main ceiling runners.

3.05 GROUNDING

Enclosures of equipment, raceways and fixtures shall be permanently and effectively grounded. Provide code sized green insulated copper equipment ground with all conductor runs. Equipment ground shall originate at panelboard ground bus and shall be bonded to all electrical equipment enclosures and or grounding terminals using an insulated copper conductor.

3.06 SEALING OF CONDUIT IN BIOHAZARD AREA

All conduits communicating between biohazard area and non-hazard shall be sealed using fittings and packing materials as hereinbefore specified.

END OF SECTION 16100

SECTION 16400 - ELECTRICAL SERVICE AND DISTRIBUTION

PART 1 - GENERAL

1.01 SCOPE OF WORK

Work under this section includes products, assemblies and basic installation methods required for electrical project systems specified herein but shall not be limited to the following:

A. Panelboards and Overcurrent Devices.

1.02 SUBMITTALS

Submit in conformance with the requirements of Section 16010 the following items:

- A. Panelboard.
- B. Overcurrent Devices.

1.03 SERVICE VOLTAGES

- A. Building Distribution Voltages: As indicated on the Drawings.

PART 2 - PRODUCTS

2.01 PANELBOARD

- A. Manufacturer: Square D, Westinghouse, or equal.
- B. Construction: Cabinets shall be provided with stretcher-leveled, steel doors and trim of code thickness, complete with concealed butt hinges. Panel doors shall be "door in door" construction. Provide combination spring catch and lock on inside edge of door trims with good fitting joint between door and trim. Locks on all panelboards, cabinets and switchboards shall be keyed alike and coordinated in advance with the Physical Plant Department Lockshop, Bob Dyer telephone 476-2679. Provide necessary hardware to permit locking each circuit breaker in the "OFF" position. Provide a ground bar. Buses shall be full length.

- C. Finish: Finish shall be standard or custom baked factory finish. Do not paint in field.
- D. Overcurrent Devices: Molded case, thermal magnetic circuit breakers 40 degrees C., ambient compensated as specified under Section 16100.
- E. Terminal Lugs: Approved for use with copper conductors.
- F. Additional Features: Refer to panel schedule for the following:

Number and type of circuit breakers
Bus ampacity and arrangements
Terminal lug size and location
Interrupting capacity
Service voltage
Mounting arrangement

PART 3 - EXECUTION

3.01 PANELBOARDS

- A. Set cabinets plumb and symmetrical with building lines.
- B. Equipment cabinets shall be anchored and braced to withstand seismic forces calculated in accordance with the Uniform Building Code, Section 2314.
- C. "Train" interior wiring: bundle and clamp using specified plastic wire wraps.
- D. Touch-up paint any marks, blemishes, or other finish damage suffered during installation.
- E. Replace cabinets, doors, or trim exhibiting dents, bends, warps, or poor fit which may impede ready access, security or integrity.
- F. Install nameplates, legend plates, and panel directories as specified under Section 16100.
- G. Poles shall be numbered consecutively with permanent markers, odd numbers on the left, even numbers on the right to match those shown on the Drawings.

END OF SECTION 16400

SECTION 16500 - LIGHTING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Work specified under this section includes:

1. Furnishing, installation and connection of all fixtures, lamps, ballasts, lighting control devices, related components and accessory wiring as shown on the plans, Fixture Schedule, and as specified herein.

B. Related Work Specified Elsewhere: Refer to Section 16010 for requirements applicable to this section.

1.02 COORDINATION

A. Refer to architectural reflected ceiling plans for exact location of lighting fixtures.

B. Refer to mechanical and plumbing drawings for duct and pipe locations to coordinate the installation of surface or recessed mounted light fixtures. Notify architect in advance of installing fixtures for resolution of potential conflict areas.

1.03 IDENTIFICATION SYSTEM

A. All junction box cover plates for the lighting branch circuit system shall be clearly marked with a permanent ink felt pen identifying the branch circuit (both panel number and circuit number) contained in the box.

1.04 SUBMITTALS

A. Light Fixtures.

PART 2 - PRODUCTS

2.01 LAMPS

A. Fluorescent Tubes: Use Cool White, Rapid Start, G.E. 35 Watt- Miser II, Westinghouse 34 watt Econ-o Watt II or equal energy saving lamps.

2.02 BALLASTS

- A. Ballasts for all fixtures shall be UL approved, CBM certified or ETL tested, Class P, sound-rated A, "full output" energy saving ballasts as follows: Advance Mark 111, General Electric Maxi-Miser 11, Jefferson Energy-Lok or equal.
- B. Emergency ballasts shall be Jefferson Emergency Fluorescent Lighting Pack #400-221, with integral battery charger, pilot light, and test switch; Advance, or equal.

2.03 FIXTURES

Shall be as scheduled on the drawings.

PART 3 -EXECUTION

3.01 INSTALLATION

- A. Contractor shall be responsible for handling, and fixtures shall be plumb, level, in straight lines without distortion and clean.
- B. Contractor shall turn over project with all lamps in new and operating condition. Lamps with less than 100 hours operation on this site shall be considered new.
- C. Flush fixtures shall be fed from junction boxes located at least one foot from the fixture, by means of a flexible metallic conduit.
- D. Flush fixtures in the ceiling shall be provided with secondary support from the building structure independent of the ceiling. The support shall consist of two #12 AWG galvanized steel wires attached to diagonally opposite corners of the fixture.
- E. Fixtures shall be sealed flush with the ceiling using hypalon to provide an air sealed barrier; in biohazard area.

END OF SECTION 16500.

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

20 June 1991

Stomatology Laboratory C635 (Kramer)
UCSF Project 0012

MEMO ABOUT STATE FIRE MARSHAL'S (SFM) REQUIREMENTS
FOR ELEVATOR SHAFT DOORS AND FIRE SPRINKLERS

1. Discussed this new requirement (separately) with Georgianne Tucker, Tim Callahan, Russ Akre, Carolyn Koster and Carol Littlejohn. Options:
 - a. Persuade the SFM that the work will be done as a campus project according to E. Paul Kelley's study. This is at least three years away and estimated at about \$23,000.
 - b. Do the work as part of the lab project with the School of Dentistry being reimbursed eventually. The scope could be shown as an alternate so the exact cost would be known. The Dean's Office does not want to delay the project so this option is acceptable if necessary to expedite the SFM approval. Further design work would be necessary.
2. Other alternate means of protection might be required by the SFM. Before the backcheck it is important to have Tim Callahan's opinion on what would be acceptable so it could be incorporated in the drawings.
3. Tim Callahan: Please call me on Monday morning to discuss these items. We also need a draft format for the letter to the SFM regarding H-7 work.

Saul Wolf

Distribution: CRM, Callahan (FAX), Koster, Littlejohn

F.Y.I.

To: JSG

From: CK

Return ☐

Keep or toss ☐

Post-ItTM F.Y.I. pad 7668



JUN 24 1991

Wol & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

STOMATOLOGY LABORATORY CSB 5TH FLOOR PROJECT 8060

24 May 1991

ARCHITECTURAL PUNCH LIST BACKCHECK

REPORT NO. 74

(Corrected Items Deleted from 2/28/91 Report)

Items not lined out remain to be completed.

~~C540, IMMUNOLOGY AND BIOCHEMISTRY~~

- ~~40. Removeable panel not glued to backing panel.
Peninsula west.~~

C540B, P2* WEST

- ~~2. Cutout at sink cabinet floor for valves needs
edge trim where plywood is exposed.~~

C544, DISHWASHING

- ~~7. Door at sink cabinet (left) not a compatible
color match.~~

changed.

C544A, COLDROOM5A. ~~Laminate at top of splashes lifting~~

- 5A. Laminate at top of splashes lifting up. Gap
covered needs solid backing.

C544C, P2*, EAST

- ~~3. Edge band needed at cutout in sink cabinet floor
for valves where plywood is exposed.~~

C550C, TISSUE CULTURE

- ~~4. Sink cabinet floor cutout for valves needs hard-
wood edge at exposed plywood.~~

END OF ARCHITECTURAL PUNCH LIST

MECHANICAL ITEMS

- ~~1. Certification of controls system function required.~~
2. C544A COLDROOM: Condensate drip from ^{thermostat} data outlet
box on west wall,
- ~~3. C547 Mechanical Room: Label valves.~~

Distribution: Carolyn Koster, Carol Littlejohn, Russ
Akre, Cuevas-Mannion, Downey & Associates,

RECEIVED

Carolyn Koster
Stomatology
Box 0422

JUN 24 1991

June 1, 1991

TO: DEANS, DIRECTORS, ADMINISTRATIVE OFFICES, AND
DEPARTMENT CHAIRPERSONS

FROM: Georgianne C. Tucker *HCJ*
Manager, Major Projects Division
Capital Resources Management

SUBJECT: CONSTRUCTION ALERTS

I am forwarding the June, 1991 edition of CONSTRUCTION ALERTS, a bi-monthly newsletter produced by Major Projects, designed to advise the Campus Community of current and up-coming construction projects.

Please share this with those in your Department, and notify me if there is anyone that you would like to receive a copy. My box number is 0894.

CRM's Inspection Services

As of June 1, 1991, Capital Resources Management (CRM) is providing construction inspection for all contracted work occurring under CRM direction. The provision of this service is in response to requests from faculty and staff, and is in keeping with the Douglas Group recommendations for 1990.

In the past, all capital improvements at UCSF were reviewed by the architects and their consultants for compliance with contract requirements. Now, through a building permit program, quality assurance, code compliance, contract compliance and coordination of State agencies inspections will be assured by the inspection staff at CRM.

Doug Hahn, CRM's Inspections Dept. Manager, is a State Certified OSHPD Class A Inspector. Other staff inspectors are required to have similar credentials.

Please call Doug at 6-6828 if there are any questions regarding this newly enacted program.

cc: CRM Advisory Committee
CRM Senior Managers
CRM Building Managers
CRM Project Managers
Major Projects Supplementary Mailing List

"CONSTRUCTION ALERTS"
An Update on UCSF Campus Construction

JUNE 1991

AMBULATORY CARE CENTER (ACC)

Department of Medicine Office Alterations

CRM #9111

CRM Project Manager: Jeff Cavener - telephone 6-6816
Project: Remodeling of Rooms 18, 18A and 18C to provide new offices and library/conference room.
Status: Project estimated to start construction July 30th, 1991; anticipated completion: October 30th, 1991.

CAMPUS LIBRARY (CL)

New Projects - Library

CRM #0041MP

CRM Project Manager: Ivy Chiao - telephone 6-8071
Project: Construction of a number of small projects at new Library Building.
Status: Work will continue on these projects through August, 1991.

CLINICAL SCIENCES BUILDING (CSB)

2nd Floor S/M Laboratory Medicine Lab. Alts.

CRM #9066

CRM Project Manager: Carlos Delfino - telephone 6-3818
Project: Remodel Existing Laboratory
Status: Scheduled to start construction 8/15/91; estimated completion: 12/2/91.

7th Floor S/D Growth & Development Laboratory & Office Alts.

CRM #9051

CRM Project Manager: Paul Beuttas - telephone 6-0854
Project: Remodel of S/D laboratory and offices.
Status: Construction underway; estimated completion: 7/1/91.

HEALTH SCIENCES WEST (HSW)

Room 604 S/D Stomatology Alts.

CRM #0087MP

CRM Project Manager: Paul Beuttas - telephone 6-0854
Project: Renovations to Room 604 for Stomatology Department.
Status: Construction anticipated to start in August, 1991; estimated completion: October 1, 1991.

HOUSING

1322/1324 3rd Avenue House Alterations

CRM #7059

CRM Project Manager: Gene Perry - telephone 6-6824
Project: Remodel and refurbish existing two flats for student housing.
Status: Construction underway; est. completion: Mid-July, 1991.

1326 3rd Avenue House Alterations

CRM #8092

CRM Project Manager: Gene Perry - telephone 6-6824
Project: Remodel and refurbish existing house for student housing.
Status: Construction underway; est. completion: Mid-July 1991.

1362 3rd Avenue House Alterations

CRM #8091

CRM Project Manager: Gene Perry - telephone 6-6824
Project: Remodel and refurbish existing house for student housing.
Status: Construction underway; est. completion: Mid-July, 1991.

1482 5th Avenue House Alterations

CRM #8090

CRM Project Manager: Gene Perry - telephone 6-6824
Project: Remodel and refurbish existing house for student housing.
Status: Construction underway; est. completion: Mid-July, 1991.

"CONSTRUCTION ALERTS"

UCSF Capital Resources Management
June 1991

HUNTER'S POINT

Emergency Power Improvements

CRM #9106

CRM Project Manager: Glenn Claycomb - telephone 6-6817

Project: Provide new emergency generator for Hunter's Point facilities.

Status: Construction underway; est. completion: Late September 1991.

LANGLEY PORTER PSYCHIATRIC INSTITUTE (LPPI)

Elevators #1 & 2 Renewal

CRM #9107

CRM Project Manager: Glenn Claycomb - telephone 6-6817

Project: Modernize LPPI Elevators #1 & 2.

Status: Elevator #1 construction scheduled to start May 1, 1992; completion: July 31, 1992.

Elevator #2 construction scheduled to start February 1, 1992; completion: April 30, 1992.

LAUNDRY STOREHOUSE (L/S)

4th Floor Exit Corridors & Suite 404 Renovations

CRM #0059MP

CRM Project Manager: Rob Purcell - telephone 6-1012

Project: Construction of occupancy separations, exit corridors and exit stairwell for 4th Floor. Building occupants can expect hammer drilling, demolition and restricted areas during construction period.

Status: Construction is anticipated to start July 11, 1991; est. completion: August 15, 1991.

4th Floor Mezzanine Infill Alterations

CRM #0082MP

CRM Project Manager: Rob Purcell - telephone 6-1012

Project: Infill open mezzanine area at 4th Floor

Status: Construction to start in September, 1991.

LAUREL HEIGHTS (LHTS)

Fan Rooms - Asbestos Removal Project III

CRM #0031MP

CRM Project Manager: Paul Beuttas - telephone 6-0854

Project: Asbestos abatement work at existing fan rooms.

Status: Construction scheduled to start in July, 1991; estimated completion: December, 1991.

LONG HOSPITAL (LH)

13th Floor CVRI Laboratory & Dr. Fielding's Laboratory Alts

CRM #9036 & 9109

CRM Project Manager: Rob Purcell - telephone 6-1012

Project: Laboratory Alterations. Project will require shutdowns of utilities at various times - these will be posted in advance. Work will create noise at times; dust control activities will be monitored.

Status: Construction scheduled to begin Mid-August, 1991; anticipate completion end of February, 1991.

MEDICAL RESEARCH (MR)

Elevators #1 & 2 Renewal

CRM #9048

CRM Project Manager: Glenn Claycomb - telephone 6-6817

Project: Renovation of existing Elevators #1 & 2.

Status: Elevator MR #1 is scheduled to be completed June 16, 1991.
Construction on Elevator MR #2 is to start June 17, 1991; est. completion: August 31, 1991.

MR I Animal Exercise Pen Upgrade

CRM #0030MP

CRM Project Manager: Carlos Delfino - telephone 6-3818

Project: Upgrade Animal Exercise Pen at MR I

Status: Construction period is scheduled to start July 1st, 1991; est. completion: 8/23/91

"CONSTRUCTION ALERTS"
UCSF Capital Resources Management
June 1991

MEDICAL RESEARCH (MR), cont'd

MR I/II 6th Floor Transgenic Research Animal Care Facility CRM #9007

CRM Project Manager: Carlos Delfino - telephone 6-3818

Project: Renovations to develop isolation area for transgenic mice.

Status: Construction to start June 24, 1991; est. completion: 9/2/91.

MEDICAL SCIENCES BUILDING (MSB)

4th Floor S/M Dr. Blackburn Laboratory Alterations CRM #9021

CRM Project Manager: Russ Akre - telephone 6-8082

Project: Provision of a new laboratory and administrative spaces for Dept. of Microbiology.

Status: Construction underway; est. completion: Early July 1991.

8th Floor Physiology Department Laboratory Alterations CRM #0001MP

CRM Project Manager: Jeff Cavener - telephone 6-6816

Project: Remodel Rooms S859 & S859A for laboratory.

Status: Construction scheduled to begin June 18th, 1991; est. completion: October 5th, 1991.

10th Floor S/M Biochemistry Laboratory Alterations CRM #9016

CRM Project Manager: Paul Beuttas - telephone 6-0854

Project: Alterations to laboratory casework.

Status: Start of construction is scheduled for 7/8/91; estimated completion: 10/3/91.

Electrical System Improvements

CRM #8084

CRM Project Manager: Glenn Claycomb - telephone 6-6817

Project: Increase electrical capacity to Medical Sciences Building.

Status: Construction started April 22nd; est. completion: mid-April 1992.

Wall coring for electrical conduit at Floors 3 through 13 is scheduled to be completed June 14th.

Electrical closets will be constructed on each of Floors 3 through 13 in the South Corridor. This work will continue during normal working hours through July and will cause intermittent noise of short duration and some vibration.

Electrical conduit will be installed on each floor from an electrical closet near the elevators to the electrical riser about two-thirds of the way south in the corridor. This conduit will run above the ceiling of the rooms west of the corridor, just inside the rooms. Rotammers will be used to place inserts in the concrete slab above the ceiling. A rotohammer sounds like a jackhammer, with much lower intensity but does cause sensible vibration. Floors will be affected according to the following anticipated schedule:

3rd Floor: June 17 - June 20
4th Floor: June 21 - June 25
5th Floor: June 26 - June 28
6th Floor: July 1 - July 3
7th Floor: July 5 - July 9
8th Floor: July 10 - July 12
9th Floor: July 15 - July 17
10th Floor: July 16 - July 18
11th Floor: July 19 - July 23
12th Floor: July 24 - July 26
13th Floor: July 29 - July 31

This schedule may change somewhat due to field conditions.

Power and light shutdowns will be scheduled between 6:00 PM and 10:00 PM, Monday through Friday starting July 15th, continuing through September. Advance notice of shutdowns will be posted.

"CONSTRUCTION ALERTS"

UCSF Capital Resources Management
June 1991

MEDICAL SCIENCES BUILDING (MSB), cont'd

Elevators # 5 & 6 Renewal

CRM #9048

CRM Project Manager: Glenn Claycomb - telephone 6-6817

Project: Renovation of existing Elevators #5 & 6.

Status: Construction for MSB Elevators #5 & 6 is scheduled to start October 1, 1991 with completion scheduled for January 31, 1992.

MILLBERRY UNION (MU)

H Level, Parking Exit Modifications

CRM #0073MP

CRM Project Manager: Ivy Chiao - telephone: 6-8071

Project: Prepare Garage H-Level to reopen as a public and permit parking exit area.

Status: A contract with a design-build firm is being issued; construction to start in August; est. completion: September, 1991.

J Level, Faculty Club Renovations

CRM #8016

CRM Project Manager: Rob Purcell - telephone 6-1012

Project: Remodeling of Faculty Club's food service and seating area on J-Level.

Status: Construction scheduled to start 7/10/91; est. completion 10/15/91.

4th Floor West, S/M Epidemiology Office Alterations

CRM 9014

CRM Project Manager: Ivy Chiao - telephone 6-8071

Project: Relocation of Epidemiology from HSW to MU 4th Floor West.

Status: Construction scheduled to start 6/3/91; est. completion: Mid-November, 1991.

Elevators #1, 2, 3 Renewal

CRM #7091

CRM Project Manager: Glenn Claycomb - telephone 6-6816

Project: Modernize existing MU Elevators #1, 2, & 3, and extend Elevator #2 down to A Level.

Status: Elevator #1 will be out of service from June through November 3, 1991.

Elevator #1-West Renewal

CRM #9107

CRM Project Manager: Glenn Claycomb - telephone 6-6817

Project: Modernize MU Elevator #1-West.

Status: Construction scheduled to start February 1, 1992; anticipated completion: April 30, 1992.

MISSION CENTER BUILDING (MCB)

1st Floor Permanent Police Department

CRM #9061

CRM Project Manager: Paul Beuttas - telephone 6-0854

Project: Alterations at MCB 1st Floor for Permanent Police Facility.

Status: Construction to start in August, 1991; estimated completion: March, 1992.

MOFFITT HOSPITAL (MH)

6th Floor, M697 Pediatrics PCRC Core Laboratory Alterations

CRM #8077

CRM Project Manager: Carlos Delfino - telephone 6-6818

Project: Alteration and renovation of existing P2 laboratory.

Status: Construction started January 2, 1991; estimated completion: Late June, 1991.

Dietary Water Conservation

CRM #0057MP

CRM Project Manager: Rob Purcell - telephone 6-1012

Project: Installation of recirculation system tied to chilled water for use with freezers; anticipate saving seven million gallons of water per year. Project site is limited to rear of Kitchen Area.

Status: Construction to start 7/16/91; est. completion: 8/31/91. Plumbing and electrical shutdowns will be required and shall be posted.

"CONSTRUCTION ALERTS"
UCSF Capital Resources Management
June 1991

SAN FRANCISCO GENERAL HOSPITAL (SFGH)

5th Floor GCRC Alterations

CRM #9013

CRM Project Manager: Russ Akre - telephone 6-8082

Project: Renovation of patient room and addition of GCRC Support Core Unit.
Status: Construction to start November 1st, 1991; est. completion: 5/1/92.

Building 100 1st Floor, Pediatrics Laboratory Alterations

CRM #9030

CRM Project Manager: Russ Akre - telephone 6-8082

Project: Renovation of Rooms 109, 109A and 110, Building 100, to provide new laboratory for the Department of Pediatrics.
Status: Construction to start June 15th, 1991; est. completion: 11/1/91.

SCHOOL OF DENTISTRY (D)

Sterilization Unit ETO Scrubber

CRM #0025MP

CRM Project Manager: Rob Purcell - telephone 6-1012

Project: Addition of equipment to incinerate ethylene oxide (ETO) from the sterilizer exhaust.

Status: Equipment is on order. Construction period is scheduled to start July 1st, 1991; est. completion: 8/31/91. Impact: Evening ventilation system shutdowns will be required. Portions of the work will be done in ceilings of Rooms D1050, 1051 & 1050A.

UNIVERSITY HOSPITAL (UCH)

U10 Research & Development Lab., Admin. & Electrical Shop Alts.

CRM #9070

CRM Project Manager: Gene Perry - telephone 6-6824

Project: Remodel portion of existing RDL for new electronics shop and administrative area.

Status: Construction to start August 1st, 1991; est. completion: 12/31/91.

2nd, 3rd & 4th Floors - Corridors - Asbestos Removal Project III

CRM #0031MP

CRM Project Manager: Paul Beuttas - telephone 6-0854

Project: Asbestos abatement work at East-West Corridors on 2nd, 3rd & 4th Floors.

Status: Construction to start in July, 1991; estimated completion: December, 1991.

5th Floor Ophthalmology

CRM #6095

CRM Project Manager: Russ Akre - telephone 6-8082

Project: Remodeling to provide modern clinical facilities for the Dept. of Ophthalmology.

Status: Construction underway; est. completion: Early July, 1991.

Elevators #1, 2 & 3 Renewal

CRM #9107

CRM Project Manager: Glenn Claycomb - telephone 6-6817

Project: Modernize UCH Elevators #1, 2 & 3.

Status: Elevators #1 & 3 are scheduled to start construction May 1, 1992; est. completion: July 31, 1992.
Construction on Elevator #2 is to start February 1, 1992; est. completion: April 30, 1992.

Transformers Installation

CRM Project Manager: Al Ianniccheri - telephone 6-2125

Project: Installation of two 750 KVA transformers to provide adequate power to the UCH Building.

Status: Construction is underway; est. completion: Mid-June.

produced by

UCSF Capital Resources Management Department
Major Projects Division
Georgianne Tucker, Manager - telephone 6-4513

UCSF CAMPUS CONSTRUCTION SCHEDULE

JUNE 1991

Projects Under Construction	1991												1992											
	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S							
ACC Dept. of Medicine Office Alts...																								
Campus Library - Misc. Projects																								
CSB 2nd Fl. S/M Laboratory Medicine Lab Alts....																								
CSB 7th Fl. S/D Growth & Development Lab.																								
HSW 604 S/D Stomatology Alts.																								
Housing - 1322/24-3rd Ave. House Alts....																								
Housing - 1326-3rd Ave. House Alts...																								
Housing - 1362-3rd Ave. House Alts....																								
Housing - 1482-5th Ave. House Alts...																								
Hunter's Point Emergency Power Improvement...																								
LPPI Elevators #1 & 2 Renewal...																								
L/S 4th Fl Exit Corridors & Suite 404 Renovations																								
L/S 4th Fl Mezzanine Infill Alterations																								
LHTS Fan Rooms - Asbestos Removal Project III																								
LH 13th Fl CVRI/Dr. Fielding's Lab Alts....																								
MR Elevators #1 & 2 Renewal...																								
MR I Animal Exercise Pen Upgrade...																								
MR I/II 6th Fl. Transgenic Research ACF, Ph II...																								
MSB 4th Fl. Dr. Blackburn Laboratory																								
MSB 10th Fl. S/M Biochemistry Laboratory Alts....																								
MSB Electrical System Improvements...																								
MSB Elevators #5 & 6 Renewal...																								
MU H-Level Parking Exit Modifications																								
MU J-Level Faculty Club Renovations...																								
MU 4th Fl. West Epidemiology Office Alts....																								
MU Elevators #1 Renewal...																								
MU Elevator #1-West Renewal...																								
MCB 1st Fl Permanent Police Department...																								
MH M697 Pediatrics PCRC Core Lab Alts....																								
MH Dietary Water Conservation																								
SFGH 5th Fl GCRC Alterations ...																								
SFGH Bldg 100 1st Fl Pediatrics Laboratory Alts....																								
S/D Sterilization Unit ETO Scrubber																								
UCH U10 R&D Lab, Admin. & Electrical Shop...																								
UCH 2nd, 3rd, 4th Fl Corridors Asbestos Removal																								
UCH 5th Fl. Ophthalmology...																								
UCH Elevators #1, 2 & 3 Renewal...																								
UCH Transformers Installation																								
Symbol Key Bid Period																								
Construction Period																								

produced by UCSF Capital Resources Management Department
Major Projects Division
Georgianne Tucker, Manager

Project: All H-7 Projects Above the 3rd Floor

9013
9065
0012
0026
UC Project No.: 0076 Date: 6/5/91

SFM Submission Procedures for
Subject: H-7 Projects Above the 3rd Floor

To: Saul Wolf (W&B)
David Fong (F&C)
David Thistlewaite (TAG)
Lee Ann Knight (M&C)
Tac Eshima (HME)

copy to	no.	encl.
G. Tucker	1	-
C. Koster	1	1

☒ enclosed herewith ☐ under separate cover ☐ by messenger ☐ handed to you

we are sending you:

- ☐ for your use
☒ for your information
☐ for your resubmittal
☐ for your appropriate action

- ☐ as per your request
☐ reviewed as noted
☐ for your review and comment
☐ for

the following:

1 copy of a self-explanatory letter dated 28 May 91, from Tim Callahan to Jason Mavis regarding the above subject.

F.Y.I.

To: JSG

From: CK

Return ☒

Keep or toss ☐

Post-It™ F.Y.I. pad 7668



JUN 11 1991

By: Russ Akre
Russ Akre, Project Manager

transmittal

June 3, 1991

To: All Project Managers

Fr: Georgianne Tucker

Re: Review of H-7 Projects above 3rd Story

Please read the attached document from Tim Callahan to Jason regarding H-7 projects above the 3rd story.

Thanks.

ccc
enc

h-7.gt/cc1



2251 Colonial Court
Walnut Creek, CA 94598
415-932-4490
415-932-2174 FAX

Georgianne
Gary
PHI
Renn
6/3

May 28, 1991
Via FAX

Jason Mavis
Assistant Vice Chancellor
Capital Resources Management
University of California, San Francisco
Box 0894
San Francisco, CA 94143-0894

Subject: Review of H-7 Projects above 3rd Story
Process-Transmittals-Recommendations

Dear Jason,

Last week, 100% construction documents for the Clinical Sciences Building Stomatology project, UCSF 0012, was returned, without complete review, simply annotated "H-7 above third story - prohibited". This action, to return the project without complete review, was the direction given to plan checkers by SFM Office administration.

Because of impact on project schedules with such a process, I conferred with Elmer Scott, Supervisor of Plan Review and Joe Garcia, Region Chief on Wednesday to determine an appropriate solution. As discussed, the following appears the appropriate review process in the interim pending final review and SFM acceptance of the fire protection infrastructure improvements efforts as alternates to the 3 story limit.

Four Projects - Specific SFM Approval. As a result of the September '90 site visit by the State Fire Marshal (Chief James McMullen), the four projects subject to his specific approval will proceed. Alternates Means of Fire Protection for these four projects, specifically negotiated with Joe Garcia, will be forwarded to Sacramento for review and specific approval by him.

This process was established given the status of Parnassus Campus, fire protection infrastructure improvement efforts, infancy of efforts by the Fire Protection Core Group and need for further analysis to determine appropriate, campus-wide, Alternate Means of Protection measures. These four projects will continue under this process for the indefinite future.



Projects Submitted Pending SFM Office/UCSF Agreement on Improvement Efforts and Timetable. H-7 projects would be accepted for complete review for compliance with H-7 code requirements. The transmittal should specifically state:

"H-7 occupancy above 3rd story - request complete review for compliance with code requirements. Issue of location above 3rd story being separately addressed with Region Chief. Approved Alternate Means of Protection measures will be incorporated in final design documents and presented for review and approval at back-check."

These projects would be granted Alternate Means of Protection approvals by Joe Garcia, on a case-by-case basis, based upon the progress made in the overall negotiations/timetable/funding of fire protection infrastructure improvements. Thus, these projects can proceed but with specific, Alternate Means of Protection negotiated on a project specific basis.

It is important that the transmitter of plans include the above notation to be sure the plans receive a complete review, and are not erroneously returned. Further, project managers should consider the time required to execute documentation and receive approval for the project specific alternates, such that the project time schedule is not adversely impacted.

Project approvals will be subject to, and rate of approvals measured by, UCSF efforts in completing the agreement, and implementation of, the fire protection infrastructure improvements.

Projects Submitted After SFM Office/UCSF Agreement and Timetable. These H-7 projects would be accepted for complete review and potential approval without negotiation of specific Alternate Means of Protection. This will be possible after agreement on how specific code requirements, unable to be complied with due to design/arrangement of existing structures and not addressed by the SFM Office/UCSF Agreement, are accomplished.

The form of agreement on code compliance specifics may be a blanket Alternate Means of Protection, Alternate approval of Design Guidance Instructions given to you retained architects or some other arrangement. Final form of such approval has not been determined.



Apart from UC, campus or systemwide, efforts to change code language, Joe Garcia perceives the above as outlining how UCSF Parnassus avenue H-7 labs above 3rd story may continue, be approved and proceed.

For you information, the 1991 edition of the Uniform Building Code has been released. It is currently being reviewed by the responsible state agencies for statutorily required adoption. State law mandates adoption within 1 year (note: no penalty if time period for adoption exceeded - 1988 edition took 19 months). Late approval will probably be the case, this year.

Fire Protection Consultants, Inc.

A handwritten signature in dark ink, appearing to read "Timothy Callahan".

Timothy Callahan, P.E.
Principal

CF: Remi Barron
Joe Garcia
Jim Myers

University of California

THE DANIEL G. KRUCKER CO.

1351 Egbert Street
San Francisco, CA 94124
Attention: Dan or Eva

Date: 06/03/91
Project No.: N0060
Contract No.: 84319
Account No.: DAN1

AGREEMENT

CC: S. WOLF, WFB
G. KOSTER, STOMATOLOGY

Russ
Sent 6/5/91

THIS AGREEMENT IS
made as of the 3rd day of June, 1991.

between Owner: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
whose facility is: University of California San Francisco
Capital Resources Management

and Contractor: THE DANIEL G. KRUCKER CO.

for the Project: CSB 5TH FLOOR S/D STOMATOLOGY LAB ALTS.

SPECIFICATIONS: Provide and install miscellaneous casework as directed by architect.

Owner and Contractor hereby agree as follows:

ARTICLE 1 - WORK. Contractor shall provide all services, materials, tools, equipment, and labor required to perform and complete all work described in the Contract Documents (the "Work").

ARTICLE 2 - CONTRACT DOCUMENTS. "Contract Documents" means this Agreement, General Conditions, Supplementary Conditions, Affirmative Action Program, Exhibits, Specifications, List of Drawings, Drawings, Addenda numbers _____, Certificates of Insurance, Payment Bond, if applicable, Notice to Proceed, Change Orders, Field Orders, and Notice of Completion, if applicable.

ARTICLE 3 - CONTRACT SUM.
TWO THOUSAND FIVE HUNDRED FIFTY-NINE AND 00/100 (\$ 2,559.00)

ARTICLE 4 - CONTRACT TIME. Contractor shall commence the Work on the date specified in the Notice to Proceed and fully complete the Work within TEN (10) calendar days (the "Contract Time").
If Contractor is delayed in the completion of the Work by conditions beyond its control, a Change Order may be issued to make any necessary adjustment of the Contract Time. If the delay is an unreasonable delay caused by Owner, the Contract Sum may also be adjusted by Change Order.

***INSURANCE CERTIFICATE REQUIRED**

Project Manager: Russ Akre, Telephone No.: 476-8082

This Agreement is entered into by Owner and Contractor as of the date set forth above.

OWNER:

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

University of California San Francisco
Capital Resources Management

CONTRACTOR:

THE DANIEL G. KRUCKER CO.

a _____
(Type of Organization:
corporation, copartners, individual, joint venture, etc.)

By: _____
(Signature)

Remi Barron

Deputy Assistant-Vice Chancellor, CRM

By: _____
(Signature) (Date)

(Printed Name)

(Title)

California Contractor's License(s):

(Name of License)

(Classification and License Number)

(Expiration Date)

University of California

CAL-CUSTOM CONSTRUCTION

1113 First Street
NOVATO, CA 94945
Attention: Zabas Rosales

Date: 06/03/91
Project No.: N8060
Contract No.: 84318
Account No.: [REDACTED]

CAL1

AGREEMENT

THIS AGREEMENT IS
made as of the 3rd day of June, 1991.

between Owner: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
whose facility is: University of California San Francisco
Capital Resources Management

and Contractor: CAL-CUSTOM CONSTRUCTION

for the Project: CSB 5TH FLOOR S/D STOMATOLOGY LAB ALTS.

SPECIFICATIONS: Complete work as directed by architect to relocate film developer to room
C550A.

*Russ
sent 6/5/91*

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ARTICLE 3 - CONTRACT SUM.
FOUR HUNDRED NINETY-FIVE AND 00/100 (\$ 495.00)

ARTICLE 4 - CONTRACT TIME. Contractor shall commence the Work on the date specified in the Notice to Proceed and fully complete the Work within TEN (10) calendar days (the "Contract Time").
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***INSURANCE VALID**

Project Manager: Russ Akre, Telephone No.: 476-8082

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OWNER:
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
University of California San Francisco
Capital Resources Management

CONTRACTOR:
CAL-CUSTOM CONSTRUCTION

(Type of Organization:
corporation, copartners, individual, joint venture, etc.)

By: _____
(Signature)
Remi Barron

Deputy Assistant-Vice Chancellor, CRM

By: _____
(Signature) (Date)

(Printed Name)

(Title)

California Contractor's License(s):

(Name of License)

(Classification and License Number)

(Expiration Date)

Cuevas-Mannion Construction

June 19, 1991

Mr. Saul Wolf, Architect
Wolf & Berghen Associates
533 - 28th Street
San Francisco, CA 94131

RE: CSB 5th Floor
Stomatology Laboratory Alterations
Oral Aids Center
Project No. 8060
Contract No. R220
File No. 3549

Dear Saul:

This will confirm our telephone conversation on Wednesday, June 12, 1991 regarding our health risk and liability concerns related to performing punch list work in the coldroom of the referenced project, which contains AIDS blood specimens. It is our understanding that you discussed these concerns with Ms. Emily Rappaport, a principle staff member of the Oral Aids Laboratory, and she assured you that there is no risk of exposure to AIDS in the coldroom area, and that it is a safe area to work. In addition, she will move the specimens out of the way of the construction workers as necessary. It is our further understanding that you are satisfied with these working conditions and that you continue to request us to complete our punch list work in the coldroom.

We are placing this letter on file in the event a future claim is filed against Cuevas-Mannion Construction for directing work to be performed in this area.

Very truly yours,

CUEVAS-MANNION CONSTRUCTION

Alan Ehni
ALAN EHNI
Project Manager

AE:sb

cc: Mr. Russ Akre, CRM
MF
CF

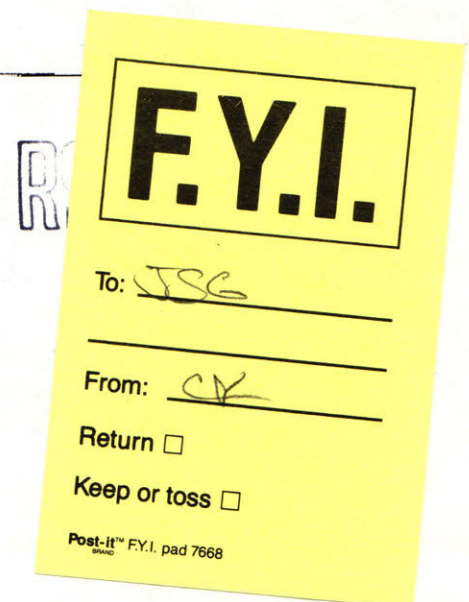
47-90\WBA53

JORGE A. CUEVAS
JOSEPH F. MANNION

4177 17th St.
1641 Hawes St.

San Francisco, CA 94114
San Francisco, CA 94124

(415) 626-1182
(415) 822-3622



RECEIVED

JUN 19 1991

Wolf & Berghen Associates

cc: *Carolyn Koster*

Cuevas-Mannion Construction

A JOINT VENTURE

June 19, 1991



Mr. Saul Wolf, Architect
Wolf & Berghen Associates
533 - 28th Street
San Francisco, CA 94131

JUN 20 1991

RE: CSB 5th Floor
Stomatology Laboratory Alterations
Oral Aids Center
Project No. 8060
Contract No. R220
File No. 3549

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Very truly yours,

CUEVAS-MANNION CONSTRUCTION

ALAN EHNI
Project Manager

AE:sb

cc: Mr. Russ Akre, CRM
MF
CF

47-90\WBA53

RECEIVED

JUN 19 1991

Wolf & Berghen Associates

JORGE A. CUEVAS
JOSEPH F. MANNION

4177 17th St.
1641 Hawes St.

San Francisco, CA 94114
San Francisco, CA 94124

(415) 626-1182
(415) 822-3622

Cuevas-Mannion Construction

RA
8060
AJOINT VENTURE

June 19, 1991

Attn: Mr. Russ Akre

Mr. Saul Wolf, Architect
Wolf & Berghen Associates
533 - 28th Street
San Francisco, CA 94131

CC: C. KOSTER, STOMATOLOGY
G. TUCKER, CRM



RE: CSB 5th Floor
Stomatology Laboratory Alterations
Oral Aids Center
Project No. 8060
Contract No. R220
File No. 3549

JUN 21 1991

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Very truly yours,

CUEVAS-MANNION CONSTRUCTION

ALAN EHNI
Project Manager

AE:sb

cc: Mr. Russ Akre, CRM
MF
CF

47-90\WBA53

JORGE A. CUEVAS
JOSEPH F. MANNION

4177 17th St. San Francisco, CA 94114
1641 Hawes St. San Francisco, CA 94124

(415) 626-1182
(415) 822-3822

Wolf & Berghen Associates

533 28th Street, San Francisco, California 94131

415/ 821-6503 or 415/824-1675

RA
8060

1 April 1991

Russ Akre, Project Manager
Capital Resource Management
University of California
San Francisco, CA 94131-0894

Re: CSB 5th Floor Stomatology Lab
Project 8060

CC: C. KOSTER, STOMATOLOGY

CAROLYN: PLEASE CALL
ME UPON RECEIPT
TO DISCUSS.

THANKS -

RUSS AKRE
1 APR 91

Dear Russ,

Some time ago I mentioned to you that our time on this project during the construction stage was running way ahead of our budgeted fee. This is due to the complications of the work, extra services, numerous change orders not under our control and the original reduction of our fee proposal. Following is a breakdown of our fee amounts, excluding the amounts budgeted for our consultants.

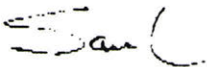
Design Stage Budget:	\$30,500.	
Design Stage Time:	<u>29,863</u>	
Profit:	637	+ 637.

Construction Stage Budget:	22,500.	
Construction Stage Time:	<u>29,120.</u>	
(Includes 24 hours for April)		
Loss:	6,620.	<u>-6,620.</u>

Net Loss:		\$5,983.
-----------	--	----------

We are requesting an authorization for extra fee in the amount of \$5,983.

Sincerely,



Saul Wolf

FAX to Russ Akre

PROJECT: CSB 5TH FLOOR STOMATOLOGY LAB ALT
 PROJECT NO: 8060
 SUBJECT: CHANGE ORDER SUMMARY
 DATE: 8 APR 91

NO.	ITEM	STATUS	USER*	OTHER**
C01A	SUP#01: REVISED ROOF SUPPORT DETS.	CO		\$6,147
C02A	SUP#02: CREDIT FOR LOCK CYLINDERS	CO		(\$36)
2B	SUP#04: REMOVE OLD CERAMIC DUCT	CO		\$763
2C	SUP#07: ADDL CORRIDOR SIDEWALL WORK	CO		\$2,985
2D	REVISE HEIGHT OF FLAM STORAGE CAB	CO		\$290
C03A	PR#12: 4TH FL H. W. TIE IN ON OT	CO		\$1,565
B	PR#13: 4TH FL WASTE TIE INS ON OT	CO		\$3,110
C	REMOVE (E) VCT FLOORING, PR#14	CO		\$387
D	SALVAGE CASEWORK AT 7TH FLOOR	CO		\$315
E	FO#01: PR#16: ADD VALVES @ MECH ROOM	CO		\$1,534
C04A	SUP#05: RELOCATE VAC LINES ON OT	CO		\$4,483
C05A	SUP#08: DELETE S S VALVES	CO		(\$355)
5B	FO#02: BYPASS ELEC OUTLET @ COLD BX	CO		\$170
5C	REROUTE ACID WASTE LINE	CO		\$2,513
C06A	SUP#18: FO#11: CAP ROOF VENTS @ CHLR	CO		\$1,089
6B	ADD SS FLASHING @ ROOF/DUCT PENETRA	CO		\$1,808
6C	FO#03: ADD 2 WATER HAMMER ARRESTORS	CO		\$1,107
6D	FO#04: ADD GYP BD @ WAINSCOT @ CORR	CO		\$129
C07A	SUP#09: RELOCATE CONDUITS @ SHAFT	CO		\$1,021
7B	TIME EXTENSION FOR ASBESTOS (4 CD'S)	CO		\$0
7C	FO#05: TIE IN STEAM LINES ON O T	CO		\$3,869
7D	SUP#23: MODIFY ROOF ELEC DIS. (+ 1 CD)	CO		\$1,391
7E	SUP#22: ADD SHELF @ ROOM ()	CO	\$385	
C08A	CREDIT FOR UNDERSIZED COU	NEGOTIATION		(\$1,000)
C09A	SUP#20: EXTRA SAFELIGHT F		\$94	
9B	FO#06: DO EPOXY PAINTING			\$1,760
9C	FO#09: ADD 3 COMPUTER OUT		5	
9D	SUP#25: ADD WINDOW STOOL			\$1,008
9E	FO#10: ADD ELEC FOR STIL		16	
9F	FO#08: ADD EMER SHOWER @			\$1,190
9G	SUP#06: DELETE FINISHES			(\$523)
9H	FO#07: ADD C A OUTLETS		47	
9I	FO#13: ADDL ELEC WIRING			\$1,006
9J	FO#16: ADD SUPPORTS FOR			\$116
9K	FO#15: ADD PRESSURE GUA			\$462
9L	4TH FLOOR HHW TIE IN ON			\$662
9M	SUP#24: REMOVE 2 FANS			\$2,490
F12	FO#12: ADD DRAIN & ELE			\$1,543
F14	FO#14: ADD VALVES TO P			\$990
F17	FO#17: FURR IN EXPOSED			\$1,000
F18	FO#18: ADD VOLUME DAM			\$2,500
S21	SUP#21: CREDIT FOR DE			(\$500)
X1	FIRE RATED PENETRATION SEALS			\$1,000
X2	CASEWORK CLAIM FOR UNEQUAL CASES			\$500

SUBTOTALS \$2,427 \$48,489
 TOTAL \$50,916

PROJECT: CSB 5TH FLOOR STOMATOLOGY LAB ALT
 PROJECT NO: 8060
 SUBJECT: CHANGE ORDER SUMMARY
 DATE: 8 APR 91

NO.	ITEM	STATUS	USER*	OTHER**
C01A	SUP#01: REVISED ROOF SUPPORT DETS.	CO		\$6,147
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D	SALVAGE CASEWORK AT 7TH FLOOR	CO		\$315
E	FO#01: PR#16: ADD VALVES @ MECH ROOM	CO		\$1,534
C04A	SUP#05: RELOCATE VAC LINES ON OT	CO		\$4,483
C05A	SUP#08: DELETE S S VALVES	CO		(\$355)
5B	FO#02: BYPASS ELEC OUTLET @ COLD BX	CO		\$170
5C	REROUTE ACID WASTE LINE	CO		\$2,513
C06A	SUP#18: FO#11: CAP ROOF VENTS @ CHLR	CO		\$1,089
6B	ADD SS FLASHING @ ROOF/DUCT PENETRA	CO		\$1,808
6C	FO#03: ADD 2 WATER HAMMER ARRESTORS	CO		\$1,107
6D	FO#04: ADD GYP BD @ WAINSCOT @ CORR	CO		\$129
C07A	SUP#09: RELOCATE CONDUITS @ SHAFT	CO		\$1,021
7B	TIME EXTENSION FOR ASBESTOS (4 CD'S)	CO		\$0
7C	FO#05: TIE IN STEAM LINES ON O T	CO		\$3,869
7D	SUP#23: MODIFY ROOF ELEC DIS. (+ 1 CD)	CO		\$1,391
7E	SUP#22: ADD SHELF @ ROOM C534A	CO	\$385	
C08A	CREDIT FOR UNDERSIZED COUNTERS	NEGOTIATION		(\$1,000)
C09A	SUP#20: EXTRA SAFELIGHT FILTER	CO	\$94	
9B	FO#06: DO EPOXY PAINTING ON O T	CO		\$1,760
9C	FO#09: ADD 3 COMPUTER OUTLETS	CO	\$685	
9D	SUP#25: ADD WINDOW STOOL STIFFENERS	CO		\$1,008
9E	FO#10: ADD ELEC FOR STILL	CO	\$216	
9F	FO#08: ADD EMER SHOWER @ C544C	CO		\$1,190
9G	SUP#06: DELETE FINISHES AT C736	CO		(\$523)
9H	FO#07: ADD C A OUTLETS	CO	\$1,047	
9I	FO#13: ADDL ELEC WIRING FOR FLOW SW.	CO		\$1,006
9J	FO#16: ADD SUPPORTS FOR EXISTING M&E	CO		\$116
9K	FO#15: ADD PRESSURE GUAGE & ACCESS DR	CO		\$462
9L	4TH FLOOR HHW TIE IN ON OT	CO		\$662
9M	SUP#24: REMOVE 2 FANS AND PATCH ROOF	CO		\$2,490
F12	FO#12: ADD DRAIN & ELEC FOR ICE MAKER	OK FOR CO		\$1,543
F14	FO#14: ADD VALVES TO PIPES IN DUCT	OK FOR CO		\$990
F17	FO#17: FURR IN EXPOSED STEAM LINE	PRICING		\$1,000
F18	FO#18: ADD VOLUME DAMPERS	PRICING		\$2,500
S21	SUP#21: CREDIT FOR DELETION OF HEPA	REVIEW		(\$500)
X1	FIRE RATED PENETRATION SEALS	PRICING		\$1,000
X2	CASEWORK CLAIM FOR UNEQUAL CASES	REVIEW		\$500

SUBTOTALS	\$2,427	\$48,489
TOTAL	\$50,916	

A. SCHEDULE: PROJECT COMPLETE AND OCCUPIED

B. FINANCIAL:

NUMBER OF CHANGE ORDERS (C O'S) FORMALLY EXECUTED TO DATE--	9
TOTAL VALUE OF C O'S FORMALLY EXECUTED TO DATE-----	\$41,456
PROBABLE TOTAL VALUE OF C O'S TO DATE PER R AKRE OPINION--	\$50,916
BUDGETED C O CONTINGENCY-----	\$63,500
% OF BUDGETED CONTINGENCY USED TO DATE-----	80%

* USER INITIATED CHANGES

** CHANGES FOR ALL OTHER REASONS INCLUDING EXISTING CONDITIONS, DESIGN DEFICIENCIES, ADDITIONAL AGENCY REQUIREMENTS, OVERTIME WORK, ETC.

NOTE: ITEMS LISTED AS "CO" (CHANGE ORDER) OR "OK FOR CO" ARE FIXED; ALL OTHER COSTS ARE APPROXIMATE.

POTENTIAL ADDITIONAL ITEMS TO BE INCLUDED IN PROJECT BUDGET	APPROX COST
A. ADDED CABINETS BY DAN KRUCKER MFG	\$1,820
B. MOVING COSTS	\$3,890
C. PPR TO REMOVE DOOR DURING MOVE	\$637
D. HERKENHOFF MOVING FEE	\$1,000
E. INSTALATION OF UTP PAIRS	\$810
F. ADD TABLE	
G. ADD'L STEELCASE FURNITURE	
H. DISPLAY CASES IN CORRIDOR	

CC: C. KOSTER, STOMATOLOGY ; S. WOLF, WOLF AND BERGHEN

3
2.5

13.6
12.6

[1] CHANGE ORDERS TO DATE \$51,000 + 5,000 ALLOWANCE = \$56,000

[2] ASBESTOS FUNDED BY CHANCELLOR'S SPECIAL FUND

[3] WEB FEE \$91,000 TO DATE + 6,000 NEW REQUEST = \$97,000

[4] UNCOMMITTED FUNDS: LINE 9 LESS LINES 1 + 5 + 6 + 7 = \$20,150

[5] TOTAL, CLIENT FUNDED (NOT INCLUDING ASBESTOS) \$882,250

PROJECT BUDGET WORKSHEET

CAPITAL RESOURCES MANAGEMENT		Project Title: CSB 5th Floor S/D Stomatology Lab Alt.		
Box 0894	Project No.:		Project Mgr.: Russ Akre	
	Plant Acct. No.:	520870	Funded By:	
		(12/4/90)		
PROJECT COST BUDGET:		Budget #1	Budget #1A	Budget #2
		(Estimate)	(Estimate)	(Bid)
1. CONSTRUCTION:		Total		
a. General Construction		\$523,900	\$639,500	\$621,000
b. Campus Construction (Shutdowns)		16,500	13,500	13,500
c. Construction Contingency (10% of a + b)		54,050	65,300	63,500
d. Asbestos Construction		22,500	22,500	22,500
e. Asbestos Contingency (lump sum)				
f. Other				
Total Construction:		\$616,950	\$740,800	\$720,500
2. EXTERNAL UTILITIES:				
3. GROUPS 2 & 3 EQUIPMENT:				
4. LANDSCAPING & SITE DEVELOPMENT:				
5. DESIGN SERVICES:				
a. Design Consultants		94,150	94,150	94,150
b. Design Consultants/Additional Services				
c. Construction Administration				
d. Design Review				
e. Inspection (OSHDP)		5,000	5,000	0
f. Soils				
Total Design Services:		\$99,150	\$99,150	\$94,150
6. PROJECT MANAGEMENT:				
a. Capital Resources Management Fee		60,050	72,750	68,500
b. CRM Design Assistance				
c. UA&P Project Planning Guide (PPG)		2,500	2,500	2,500
d. Other Campus				
e. Other				
Total Project Management:		\$62,550	\$75,250	\$71,000
7. SURVEYS, TESTS, PRINTING & ADVERTISING:				
a. Site & Topo Surveys				
b. Testing		2,500	2,500	2,500
c. Printing		6,000	6,000	6,000
d. Advertising		1,500	1,500	1,500
e. State Fees (handicapped)		1,000	300	300
f. Other				
Total Surveys, Tests, Printing & Adv.:		\$11,000	\$10,300	\$10,300
8. SPECIAL ITEMS				
a. EIR				
b. Other				
Total Special Items:		\$0	\$0	\$0
9. PROJECT CONTINGENCY		\$8,600	\$9,250	\$8,800
GRAND TOTAL:		\$798,250	\$934,750	\$904,750

REMARKS:

* Bid result including Alternates 1 thru 4.

** To be funded by campus sources.

Prepared By:

Project Manager

Approved by:

Georgianne C. Tucker
Manager, Major Projects

Date: 2/6/91

cc Eric Vermillion, Project Manager, Accounting

CHECKLIST FOR PROJECT BUDGET WORKSHEET

1.b. Campus Construction

CAPITAL RESOURCES MANAGEMENT

Project Title:

CSB 5th Floor S/D Stomatology Lab Alt.

Box 0894

Project No.:

8060

Project Mgr.:

Russ Akre

1.b Campus Construction:

a. Security Systems

N.I.C.

b. Fire Alarm Hook-Up

c. Shutdowns

12,000

d. Telephone Wiring

e. Computer Cabling

f. Air Balancing

g. Keying

1,000

h. Signage

500

i. Moving

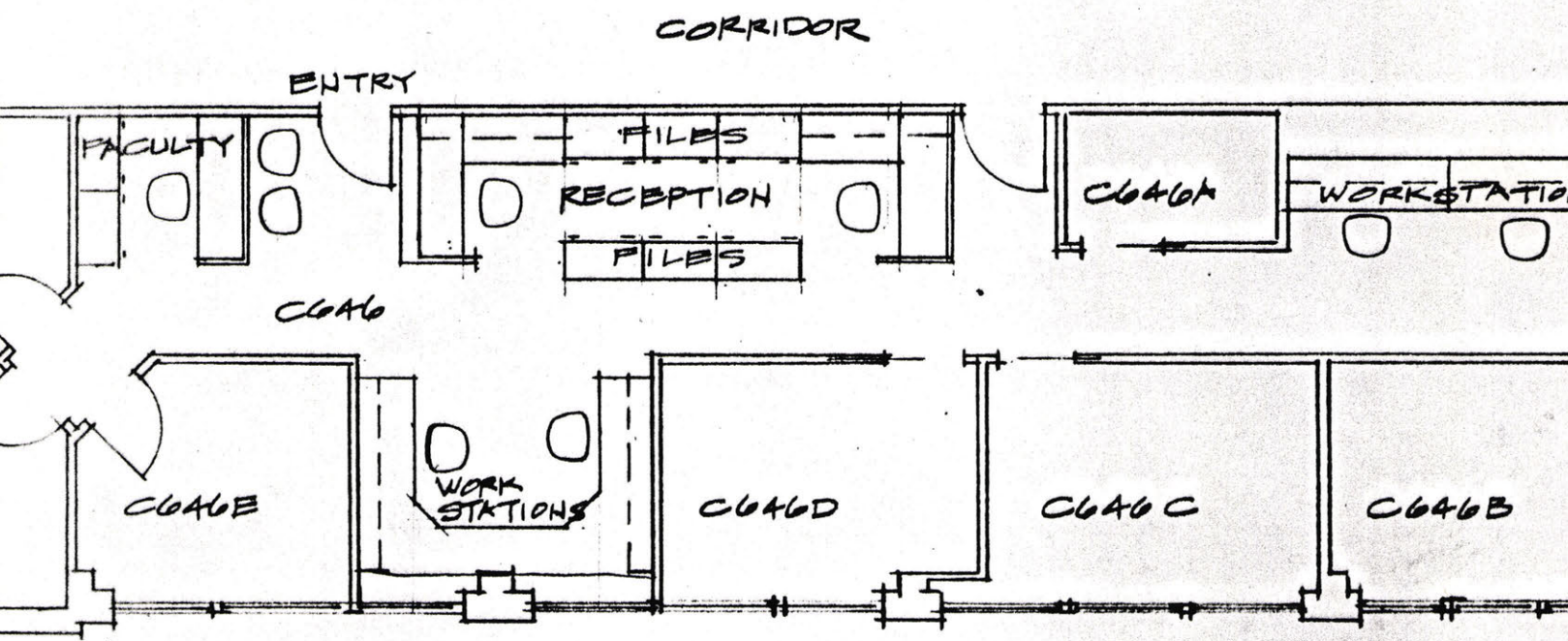
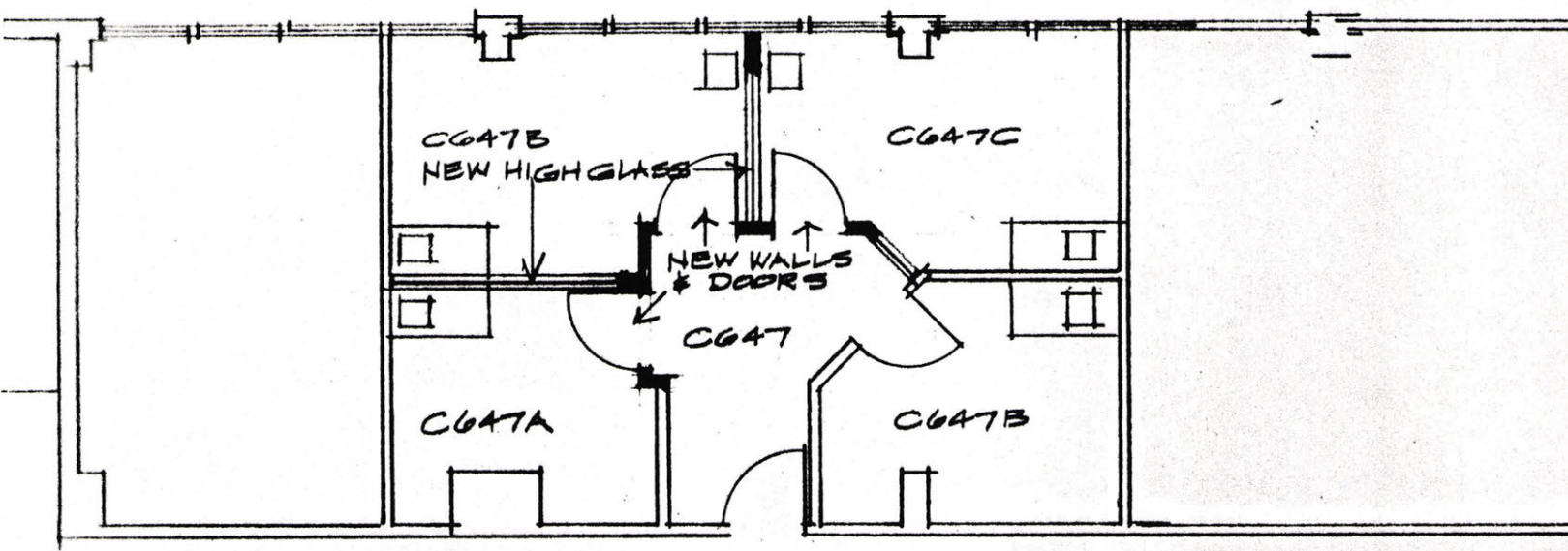
Total:

\$13,500

\$11,000

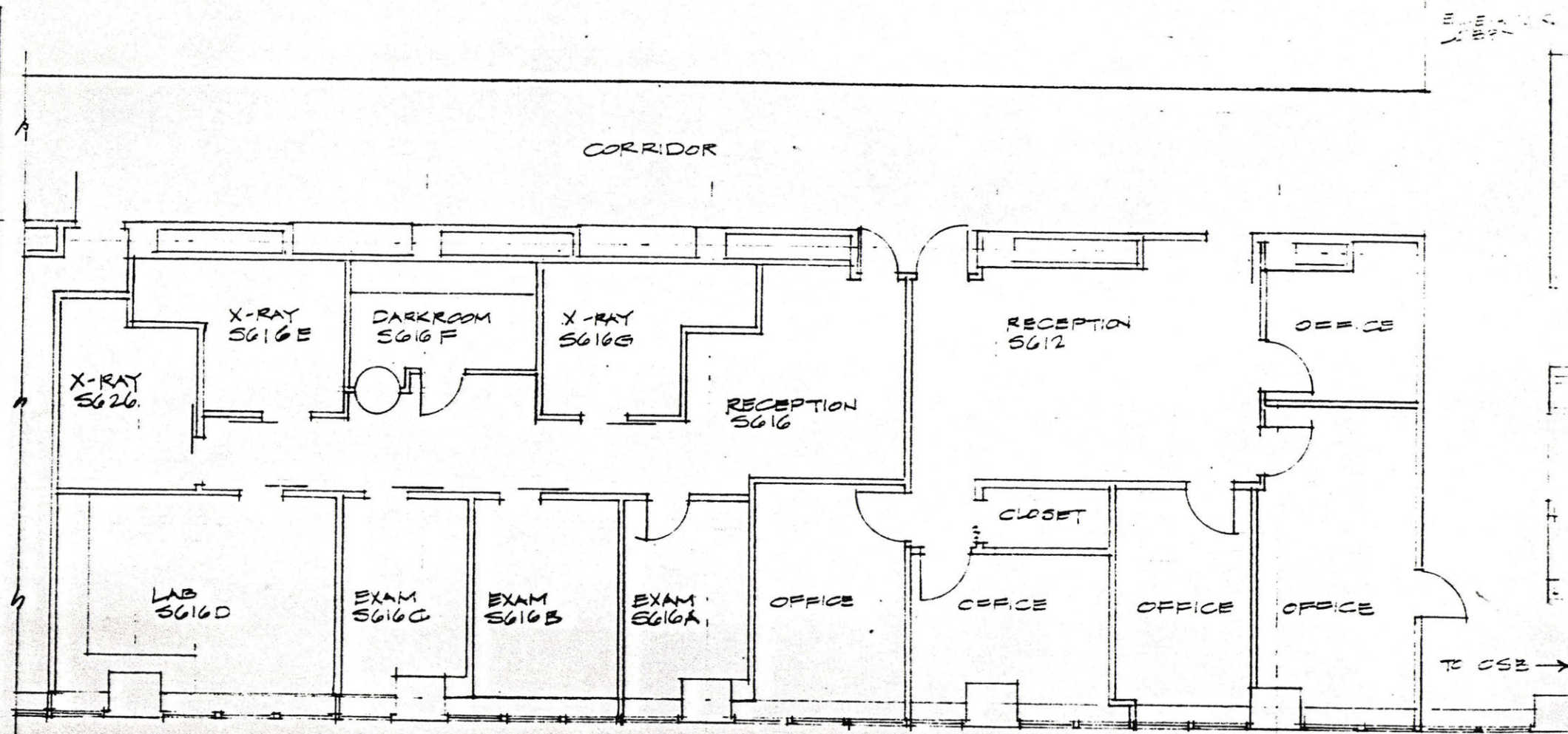
\$2,394 to 9 APR 71

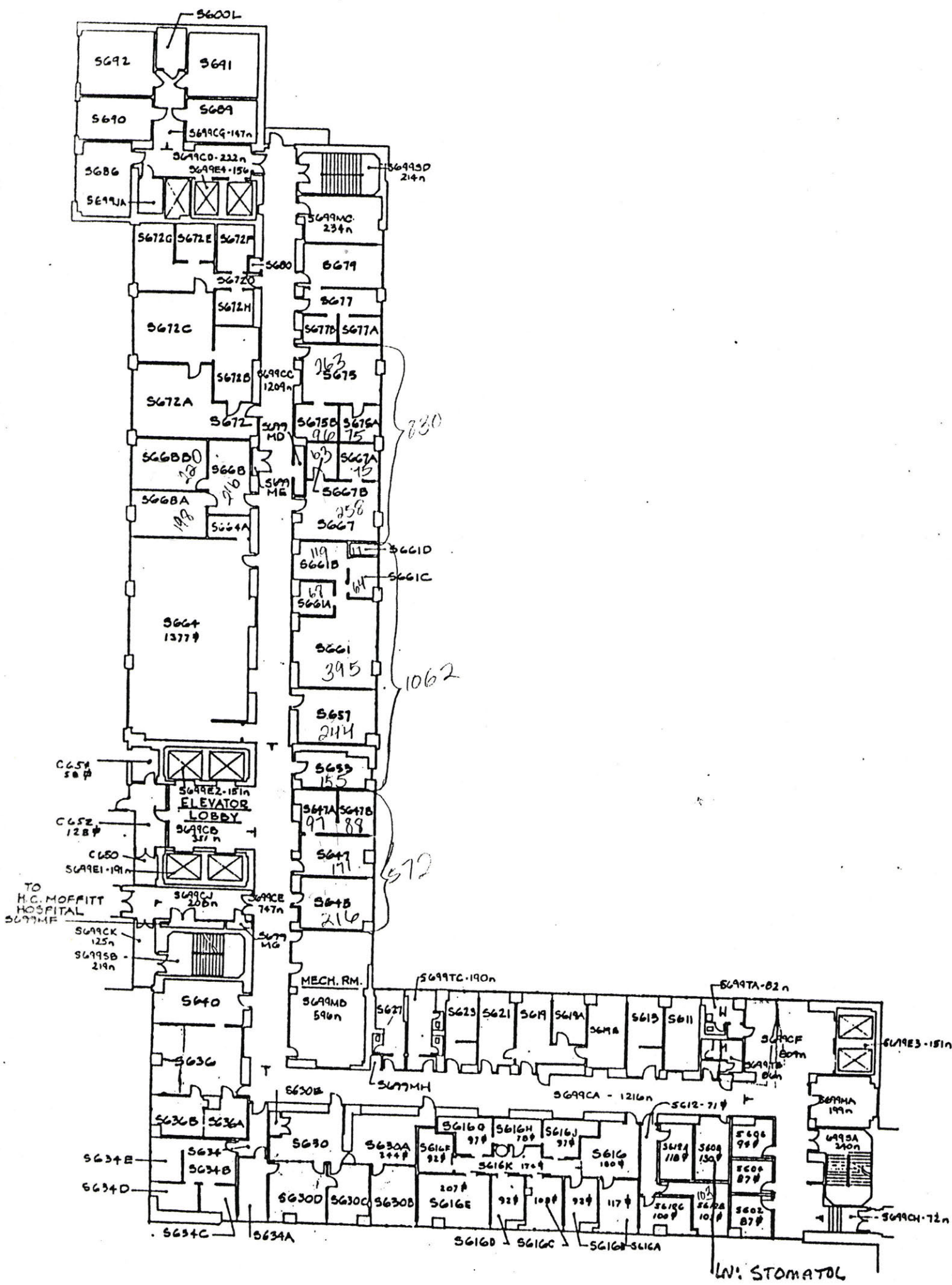
NOTE: Items with no costs noted are either not needed by the project or are arranged for by the department.



Wolf & Berghen Associates 533 28th Street San Francisco, CA 94131 415/824-1675 or 821-6503	Title PROPO CLINIC & OFFICES	Project No.	Date 2 SEP 88
	Project STOMATOLOGY S/D MBB CSB 646 & 647	File No.	Sheet No.
		1/8" = 1'-0"	SK-'4

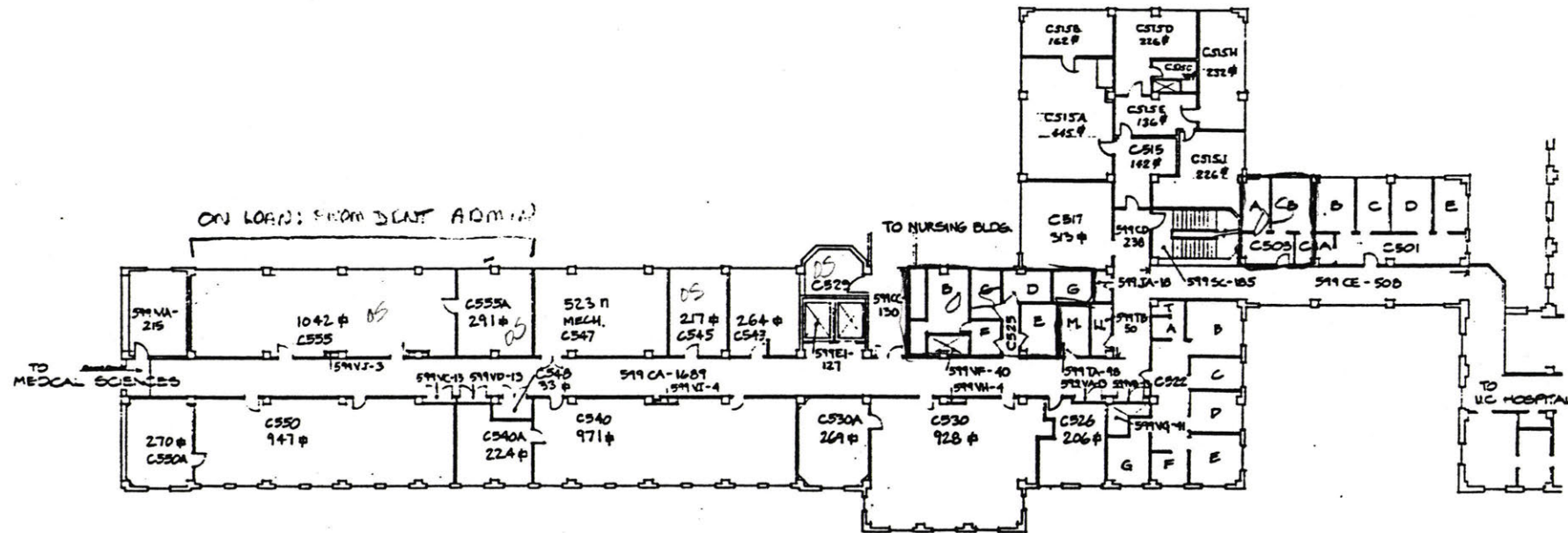
Wolf & Berghen Associates 533 28th Street San Francisco, CA 94131 415/824-1675 or 821-6503	
Title EXISTING PLAN	Project No. 29 AUG 88
Project STOMA TOLOGY ALTERATIONS MSB 6TH FLOOR	File No. SK-1





6TH FLOOR
 ROOM NOS. REV. 7-1-86





5TH FLOOR

DEPARTMENT OF FACILITIES MANAGEMENT UNIVERSITY OF CALIFORNIA SAN FRANCISCO		SHEET 6 OF 8	
TITLE CLINICAL SCIENCES BUILDING		DATE 7-11-77	
SCALE 0 4 8 12 16 20 40 80 120 160 200		REV 8-8-78-2	
CAAN 2251		REV 8-15-78-2	

DEPARTMENT OF STOMATOLOGY

CAPITAL IMPROVEMENT NEEDS

FISCAL YEAR 1988-89

I. Needs related to recruitment and hire of Sargent

A. Relocation of Dr. Hussain from S-524 to C-631

Minor alterations to convert former prothetics lab to ressearch lab - Removal of attached storage bin, replacement of rusted splashboards around sink, replacement of custom sink & related plumbing, paint and mount cabinets, patch & paint, install 220 outlet. Estimate \$18,000.

Distilled water is not available in this building. Dr. Hussain already has a still but will need to purchase and install a demineralizer. Estimate \$4,500.

Total estimate C-631 \$22,500.

B. Costs directly related to Sargent

- Renovations to S-524 \$67,006.

- Fume hood estimate \$50,000.

Cost of moving laboratory & purchase of equipment \$60,000.

Direct costs for Sargent \$117,006.

Total all costs for project I \$199,506.

II. Move out of S-616, consolidation of clinics & clinic reception, partial conversion of Perio clinic to faculty offices.

Panorex from S-616 to C-634 \$ 5,000

Conversion of C-647 to closed operatories \$36,800

Modular, centralized reception counter, etc., C-646 \$ 4,000

Conversion of 4 operatories & waiting area in C-634 to faculty offices \$10,000

Total project II \$55,800

III. AIDS Infrastructure project

Cost of renovation \$888,000

Award \$346,850
To Dan Stites \$-10,000

\$336,850

Balance needed

\$551,150

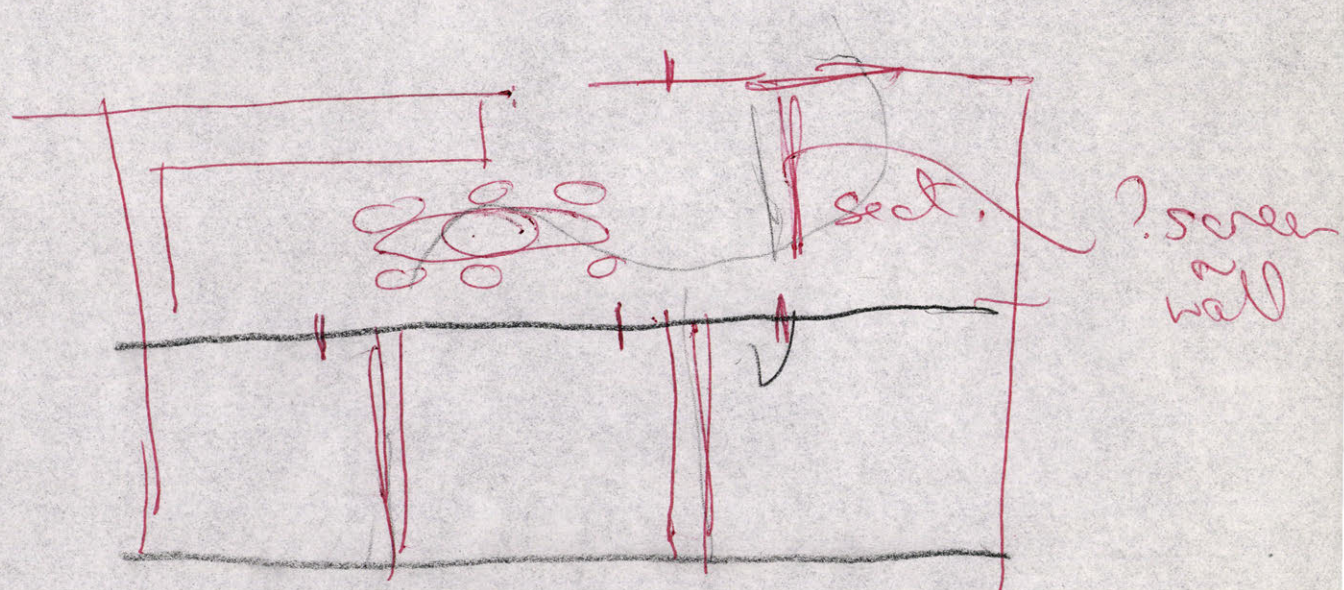
Cost of Equipment \$250,000

Expected from NIH \$100,000

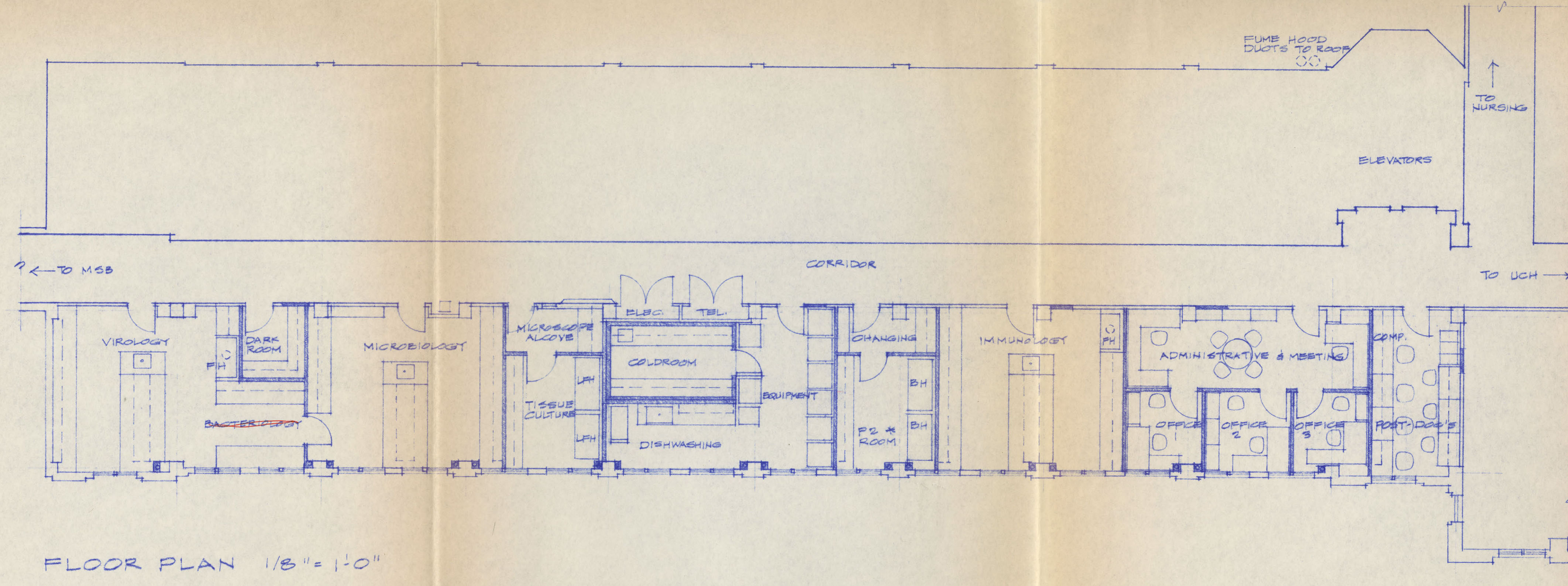
Balance needed

\$150,000

/ck
3/2/89



? locker.



NET AREA CALCULATIONS

VIROLOGY BACTERIOLOGY LAB	449
DARKROOM	56
MICROBIOLOGY LAB	397
MICROSCOPE ALCOVE	55
TISSUE CULTURE	137
COLDROOM	108
DISHWASHING & EQUIPMENT	299
CHANGING ROOM	54
P2 * ROOM	139
IMMUNOLOGY LAB	381
ADMINISTRATIVE & MEETING	241
OFFICE #1	74
OFFICE #2	85
OFFICE #3	72
POST-DOC'S & COMPUTER	185
TOTAL ASF	2,732
GROSS AREA	2,891

FLOOR PLAN 1/8" = 1'-0"

Project	ORAL & STOMATOLOGY SCHOOL CSB 5-
Sheet Title	SCHEMATIC FLOOR PLAN "A"
Revisions	
Date	1 MARCH 1989
Project No.	
File No.	
Checked	
Drawn	
Scale	1/8" = 1'-0"
Sheet	SK-1 of

UNIVERSITY OF CALIFORNIA
ATTACHMENT MEMO
GEN 100 (8-72) Series 249-E25

Date

3.2.89

To

From

Subject

John

Carolyn

Capital Improvement Needs

For

☐

Approval
(Signature)

☐

Initial

☐

Comments

☐

Discussion

☒

Information

Please

☐

File

☐

Return

☐

Draft
Reply

☐

Take
Action

☐

Route to:

Message

This is for you & me for discussion purposes.

DEPARTMENT OF STOMATOLOGY

CAPITAL IMPROVEMENT NEEDS

FISCAL YEAR 1988-89

? Ralfina

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Pete 25
JF 30

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Award

346,850

To Dan Stites

-10,000

336,850

Balance needed

551,150

/ck

3/2/89

Note

Total equipment probably amount
to \$20,000, and 100,000 has
been approved as a supplement
to the Award.

