

## **8.0 FIGURES**

### **8.1. SITE**

FIGURE 1: SITE PLAN

### **8.2. STRUCTURAL RETROFIT SCHEMES**

FIGURE 2: RETROFIT SCHEME FOR McLEOD TOWER -- LOBBY

FIGURE 3: RETROFIT SCHEME FOR McLEOD TOWER -- 1<sup>ST</sup> FLOOR

FIGURE 4: RETROFIT SCHEME FOR McLEOD TOWER -- 2<sup>ND</sup> FLOOR

FIGURE 5: RETROFIT SCHEME FOR McLEOD TOWER -- 3<sup>RD</sup> FLOOR

FIGURE 6: RETROFIT SCHEME FOR McLEOD TOWER -- 4<sup>TH</sup> FLOOR

FIGURE 7: RETROFIT SCHEME FOR McLEOD TOWER -- FLOORS 5 - 9

FIGURE 8: RETROFIT SCHEME FOR ADAMS WING

FIGURE 9: RETROFIT FOR EAST EXTENSION -- SCHEME 1 -- 2<sup>ND</sup> FLOOR

FIGURE 10: RETROFIT FOR EAST EXTENSION -- SCHEME 1 -- 1<sup>ST</sup> FLOOR

FIGURE 11: RETROFIT FOR EAST EXTENSION -- SCHEME 1 -- FOUNDATION

FIGURE 12: RETROFIT FOR EAST EXTENSION -- SCHEME 2 -- 2<sup>ND</sup> FLOOR

FIGURE 13: RETROFIT FOR EAST EXTENSION -- SCHEME 2 -- 1<sup>ST</sup> FLOOR

FIGURE 14: RETROFIT FOR EAST EXTENSION -- SCHEME 2 -- FOUNDATION

FIGURE 15: RETROFIT FOR EAST EXTENSION -- SCHEME 3 -- ROOF

FIGURE 16: RETROFIT FOR EAST EXTENSION -- SCHEME 3 -- 2<sup>ND</sup> FLOOR

FIGURE 17: RETROFIT FOR EAST EXTENSION -- SCHEME 3 -- 1<sup>ST</sup> FLOOR

FIGURE 18: RETROFIT FOR EAST EXTENSION -- SCHEME 3 -- FOUNDATION

FIGURE 19: RETROFIT FOR EAST EXTENSION -- SCHEME 4 --ROOF

FIGURE 20: RETROFIT FOR EAST EXTENSION -- SCHEME 4 -- 2nd FLOOR

FIGURE 21: RETROFIT FOR EAST EXTENSION -- SCHEME 4 -- 1st FLOOR

FIGURE 22: RETROFIT FOR EAST EXTENSION -- SCHEME 4 -- FOUNDATION

### **8.3 NONSTRUCTURAL AREAS AND SYSTEMS**

FIGURE 23: McLEOD TOWER -- LOBBY LEVEL

FIGURE 24: McLEOD TOWER -- LEVEL 1

FIGURE 25: McLEOD TOWER -- LEVEL 2

FIGURE 26: McLEOD TOWER -- LEVEL 3

FIGURE 27: McLEOD TOWER -- LEVEL 4

FIGURE 28: McLEOD TOWER -- LEVEL 5

FIGURE 29: McLEOD TOWER -- LEVEL 6

FIGURE 30: McLEOD TOWER -- LEVEL 7

FIGURE 31: McLEOD TOWER -- LEVEL 8

FIGURE 32: McLEOD TOWER -- LEVEL 9

FIGURE 33: ADAMS WING -- LEVEL 1

FIGURE 34: ADAMS WING -- LEVEL 2

FIGURE 35: ADAMS WING -- LEVEL 3

FIGURE 36: ADAMS WING -- LEVEL 4

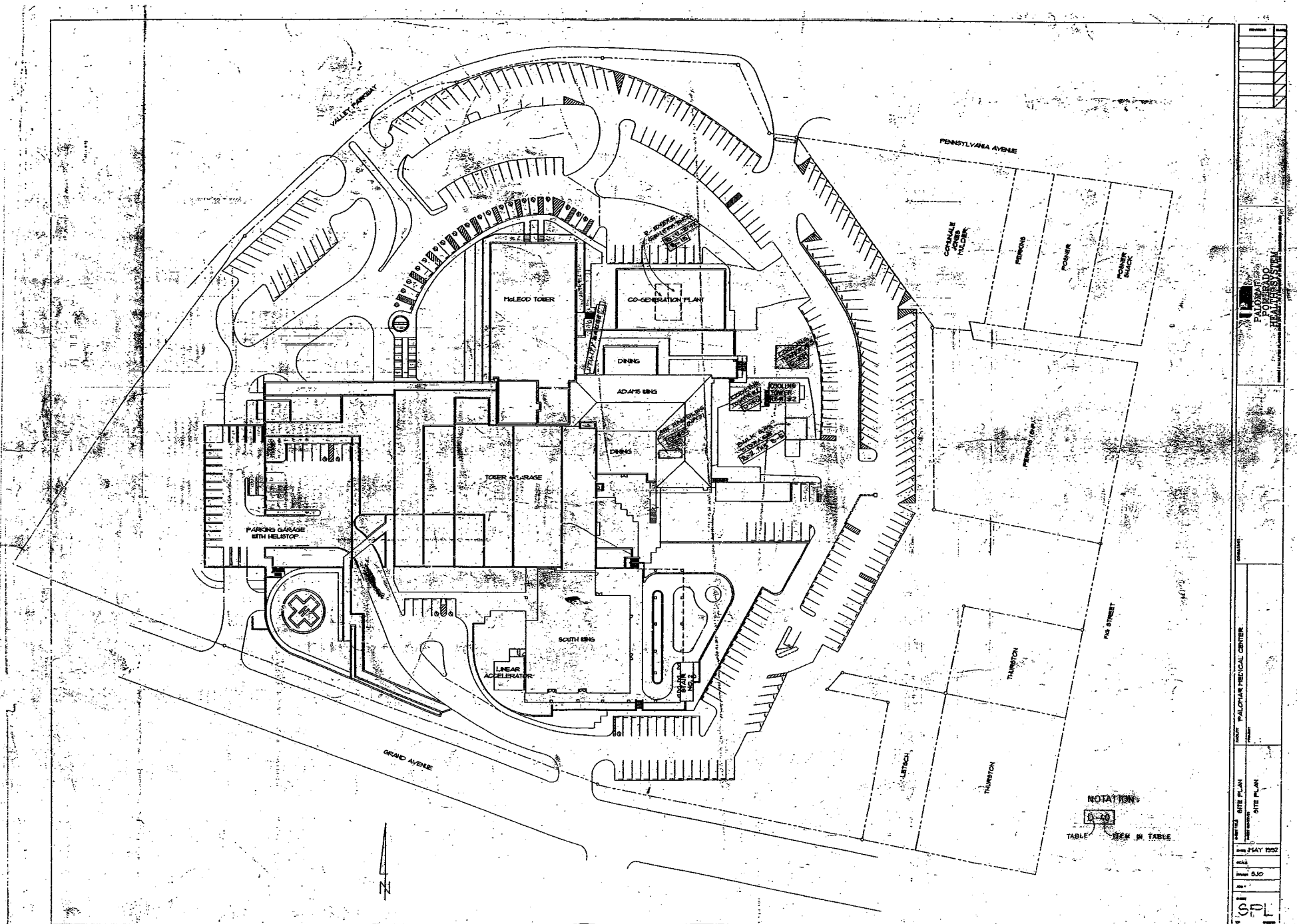
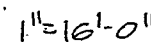
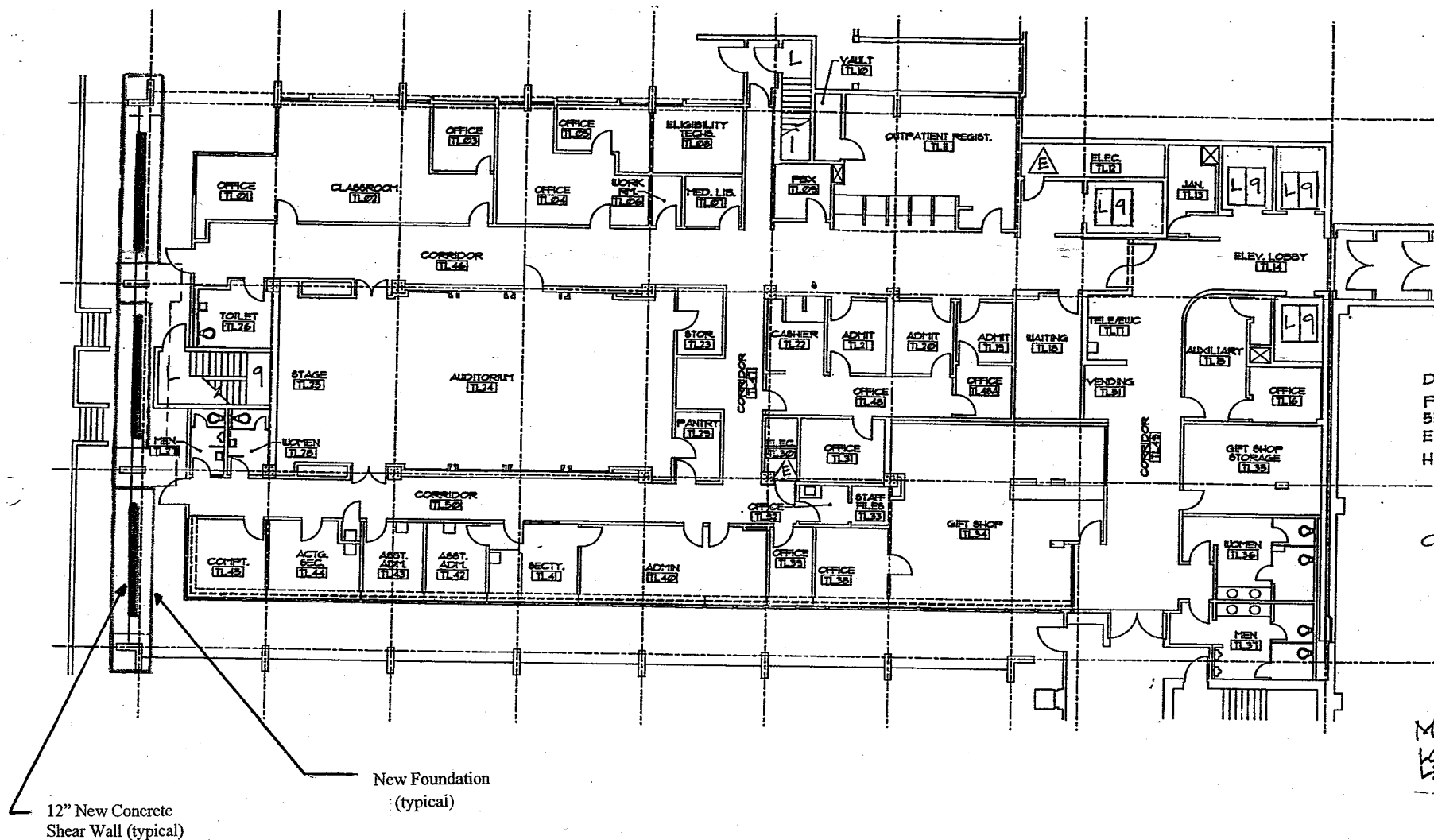


FIGURE 1

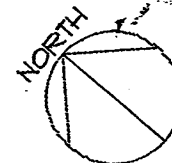


9 OF 31

MC LEOD TOWER  
LOBBY-(GROUND)  
LEVEL







1" = 16'-0"

DATED: 2/84  
PALOMAR MEDICAL CENTER  
555 E. VALLEY PARKWAY  
ESCONDIDO, CA 92025  
H 14230

10 OF 31

MCLEOD TOWER

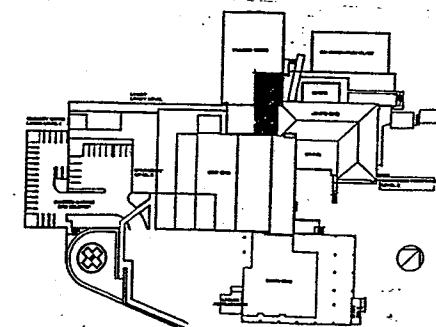
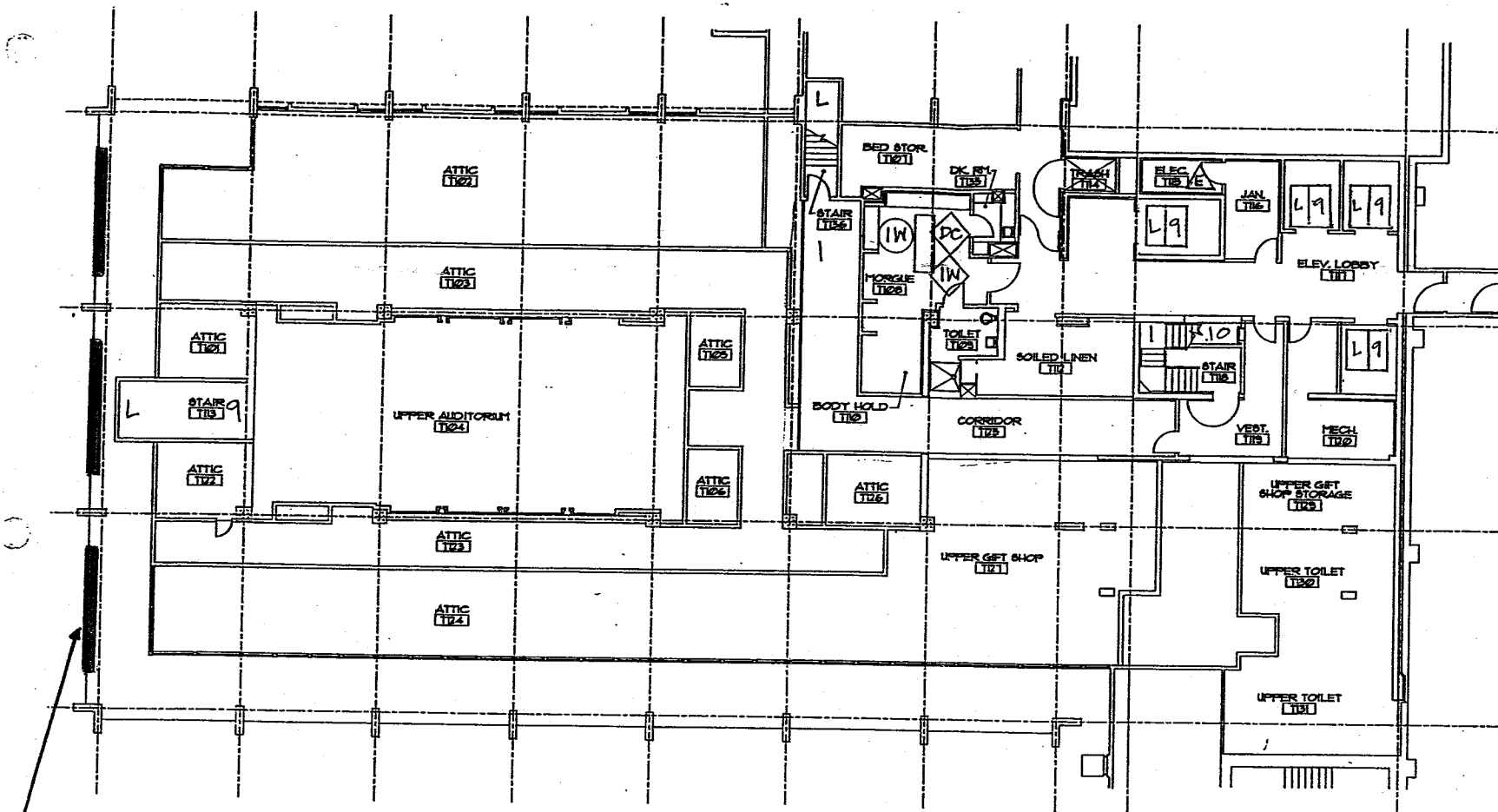
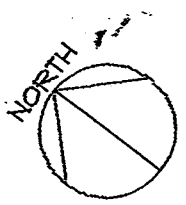


FIGURE 3



12" New Concrete  
Shear Wall (typical)



1" = 16'-0"

DATED: 2/84  
 PALOMAR MEDICAL CENTER  
 555 E. VALLEY PARKWAY  
 ESCONDIDO, CA 92025  
 H 14230

11 OF 31

MCLEOD TOWER  
 2

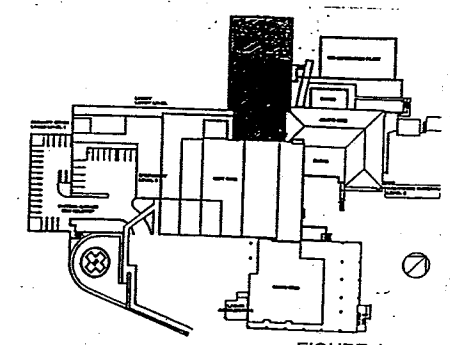
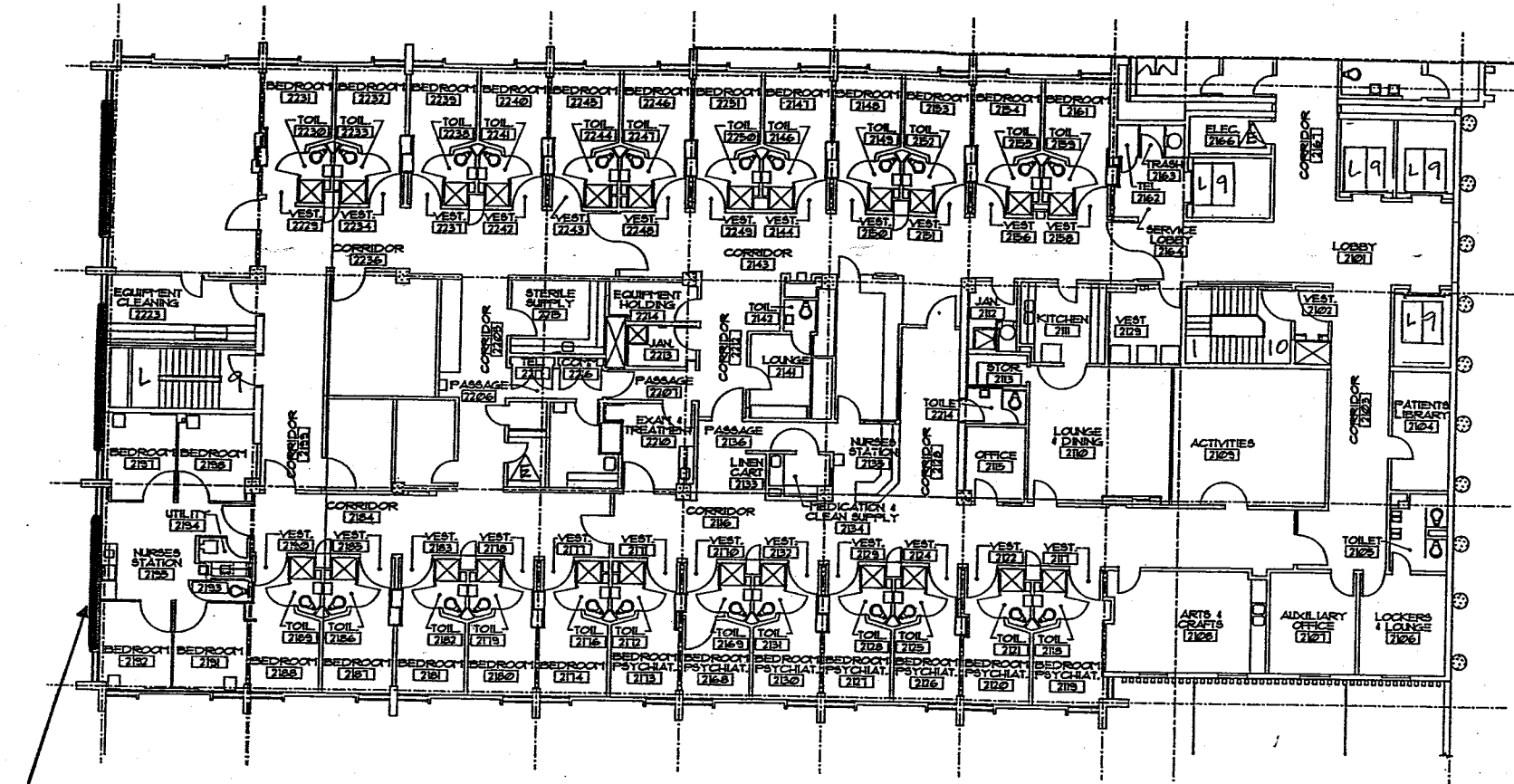
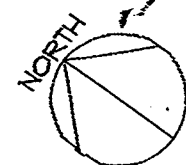


FIGURE 4



12" New Concrete  
 Shear Wall (typical)

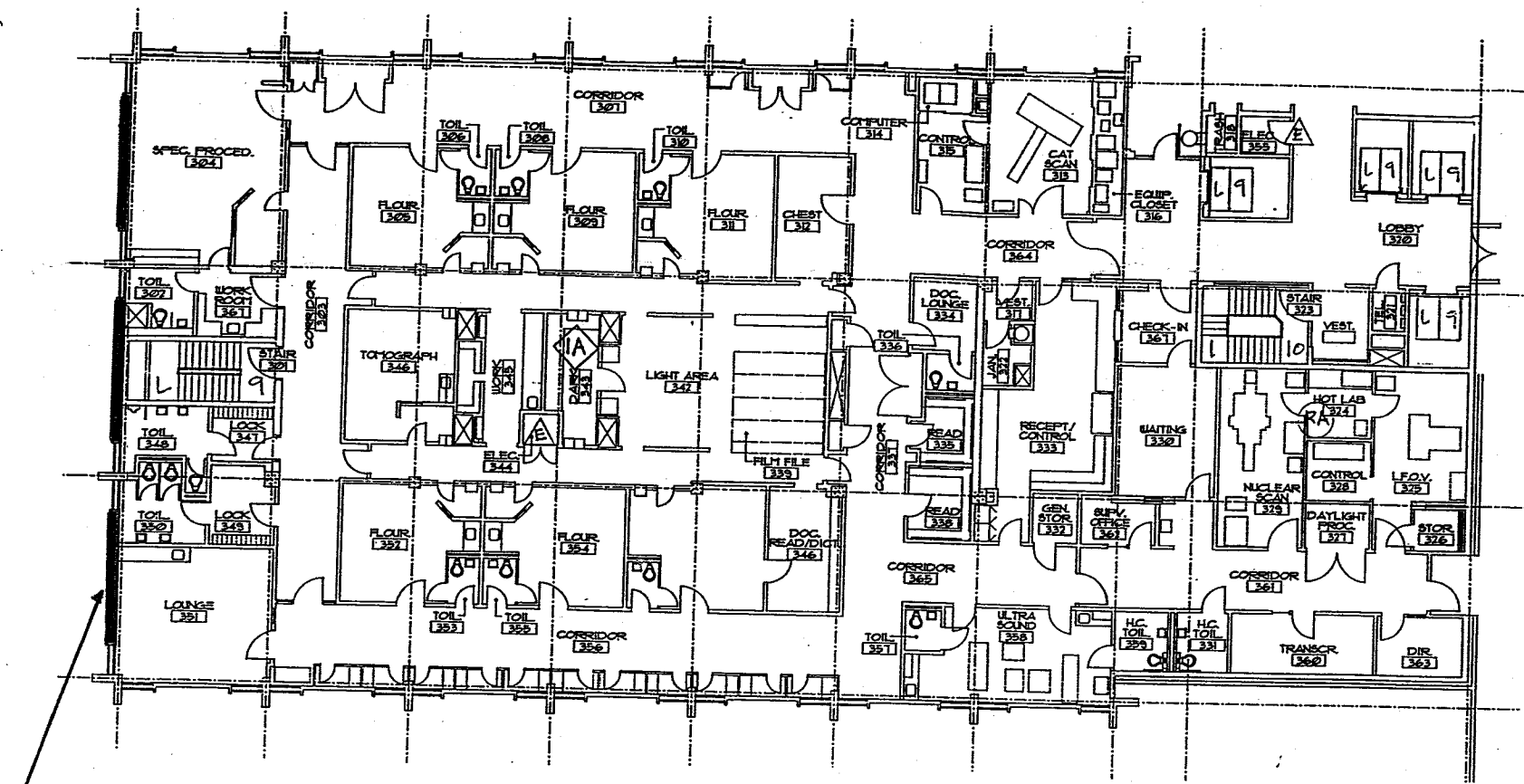


1"=16'-0"

DATED: 2/94  
 PALOMAR MEDICAL CENTER  
 555 E. VALLEY PARKWAY  
 ESCONDIDO, CA 92025  
 H 14230

12 OF 31

MCLEOD TOWER  
 3



12" New Concrete  
 Shear Wall (typical)

RA ENTIRE FLOOR

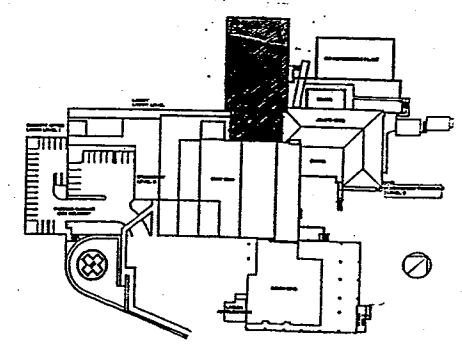
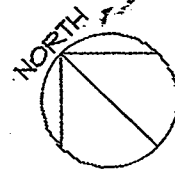
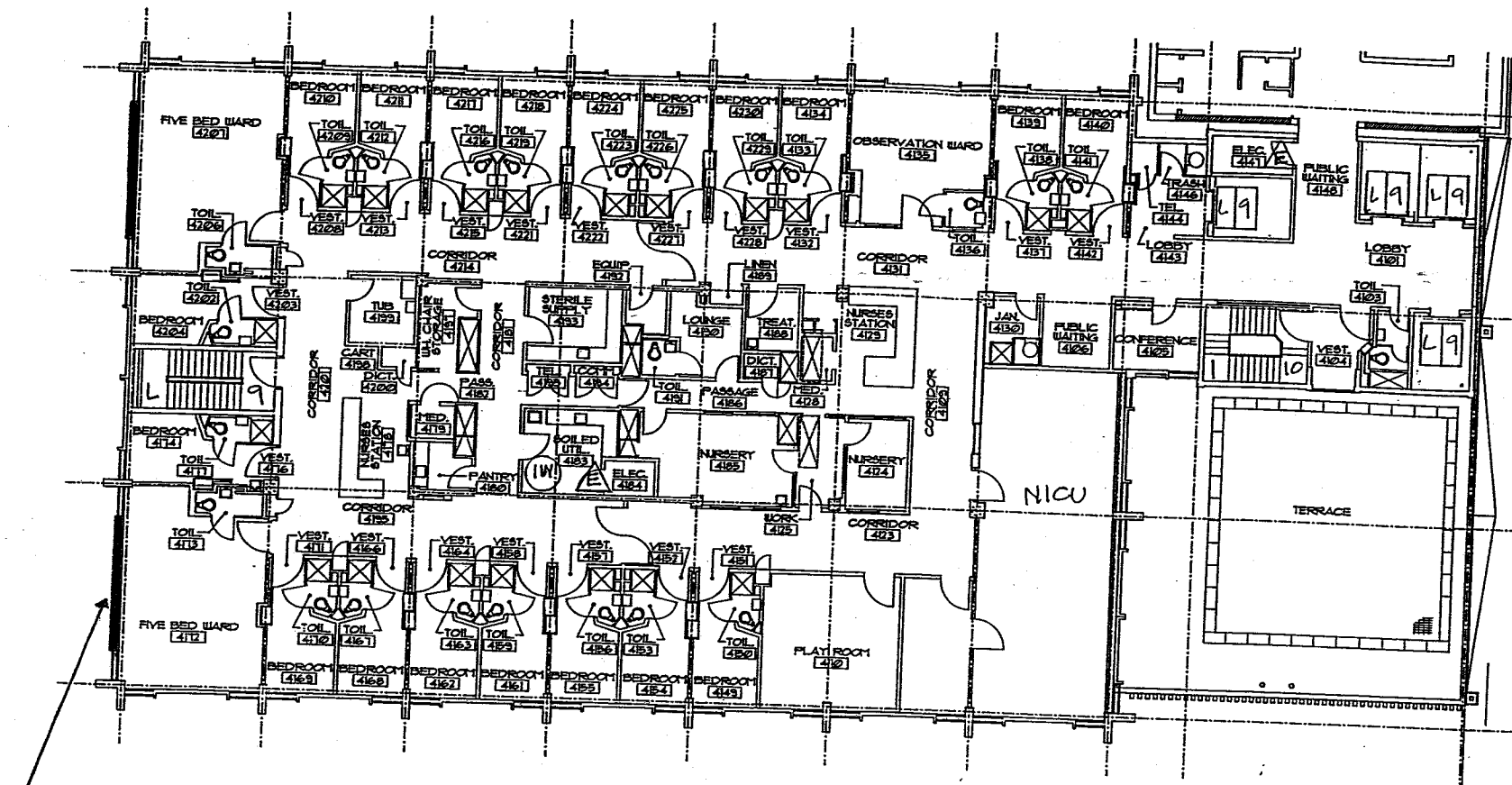


FIGURE 5



1" = 16'-0"



12" New Concrete  
Shear Wall (typical)

DATED: 2/84  
PALOMAR MEDICAL CENTER  
555 E. VALLEY PARKWAY  
ESCONDIDO, CA 92025  
H 14230

13 OF 31

MC LEOD TOWER  
4

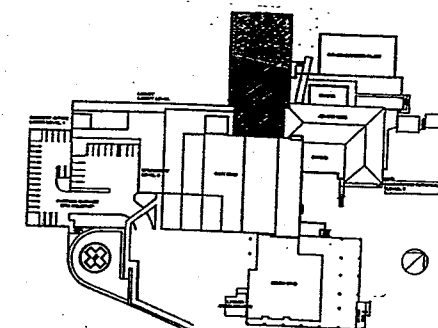
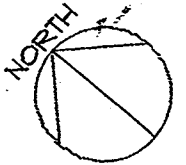


FIGURE 6

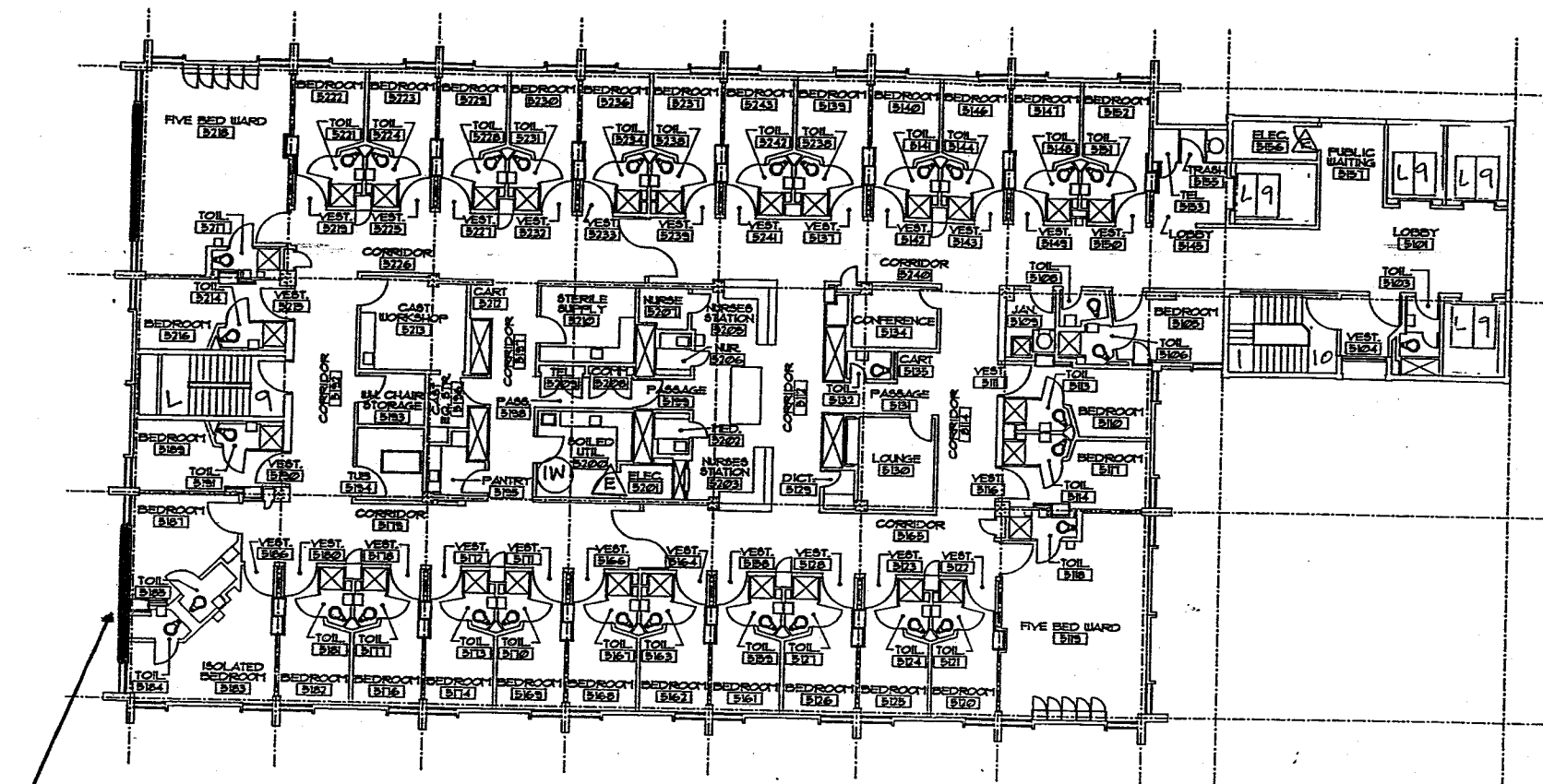


1" = 16'-0"

DATED: 2/94  
 PALOMAR MEDICAL CENTER  
 555 E. VALLEY PARKWAY  
 ESCONDIDO, CA 92025  
 H 14230

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MC LEOD TOWER  
 5-9



12" New Concrete  
 Shear Wall (typical)

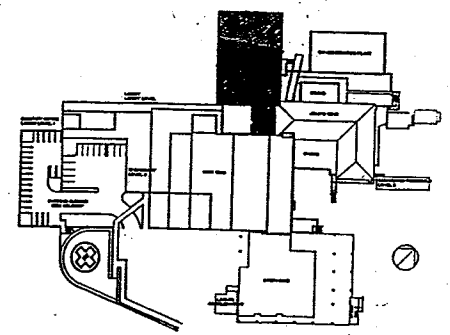


FIGURE 7

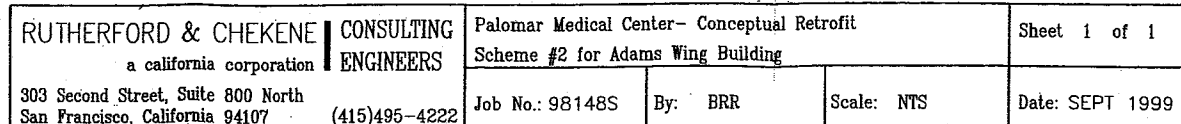
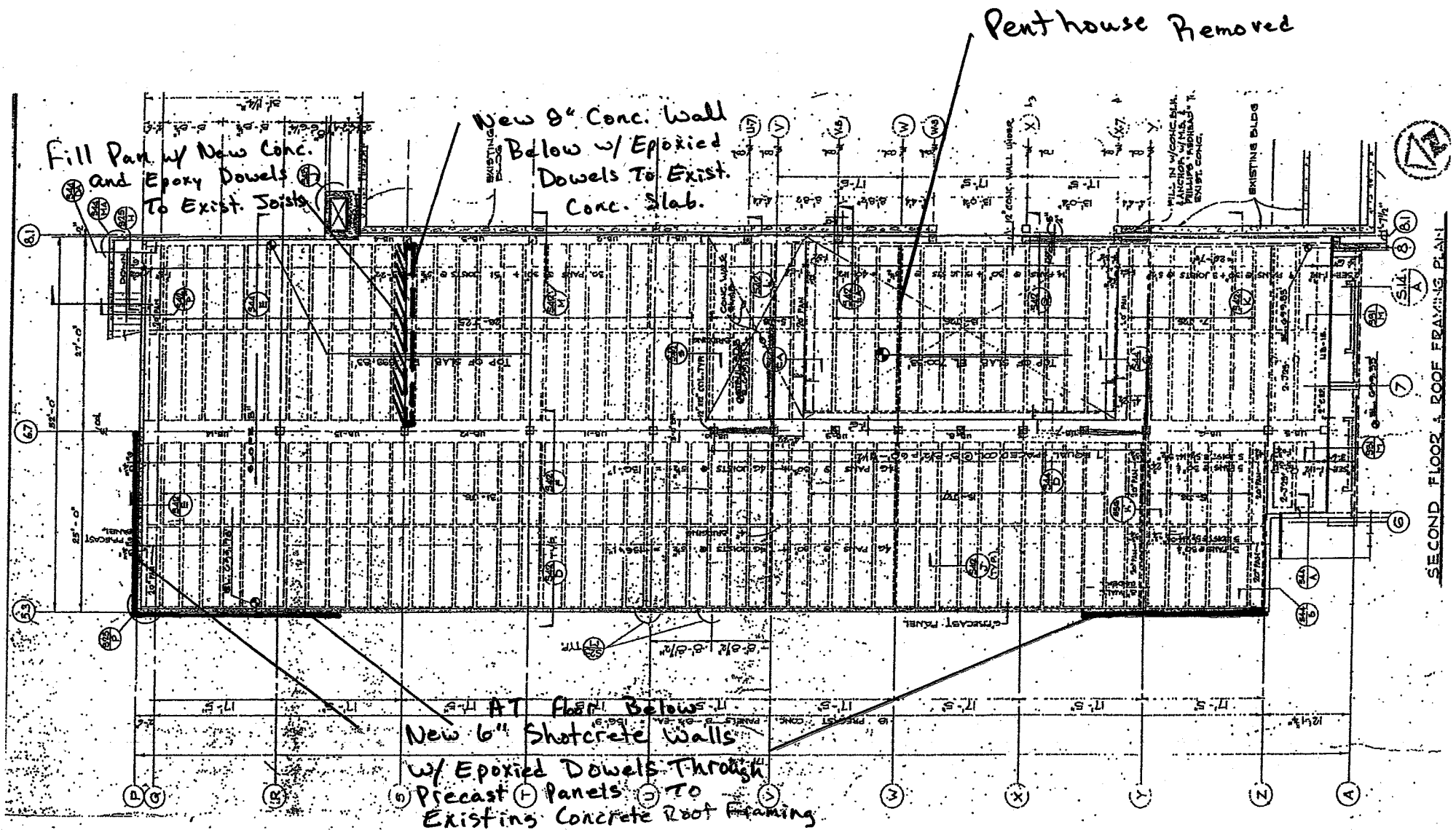


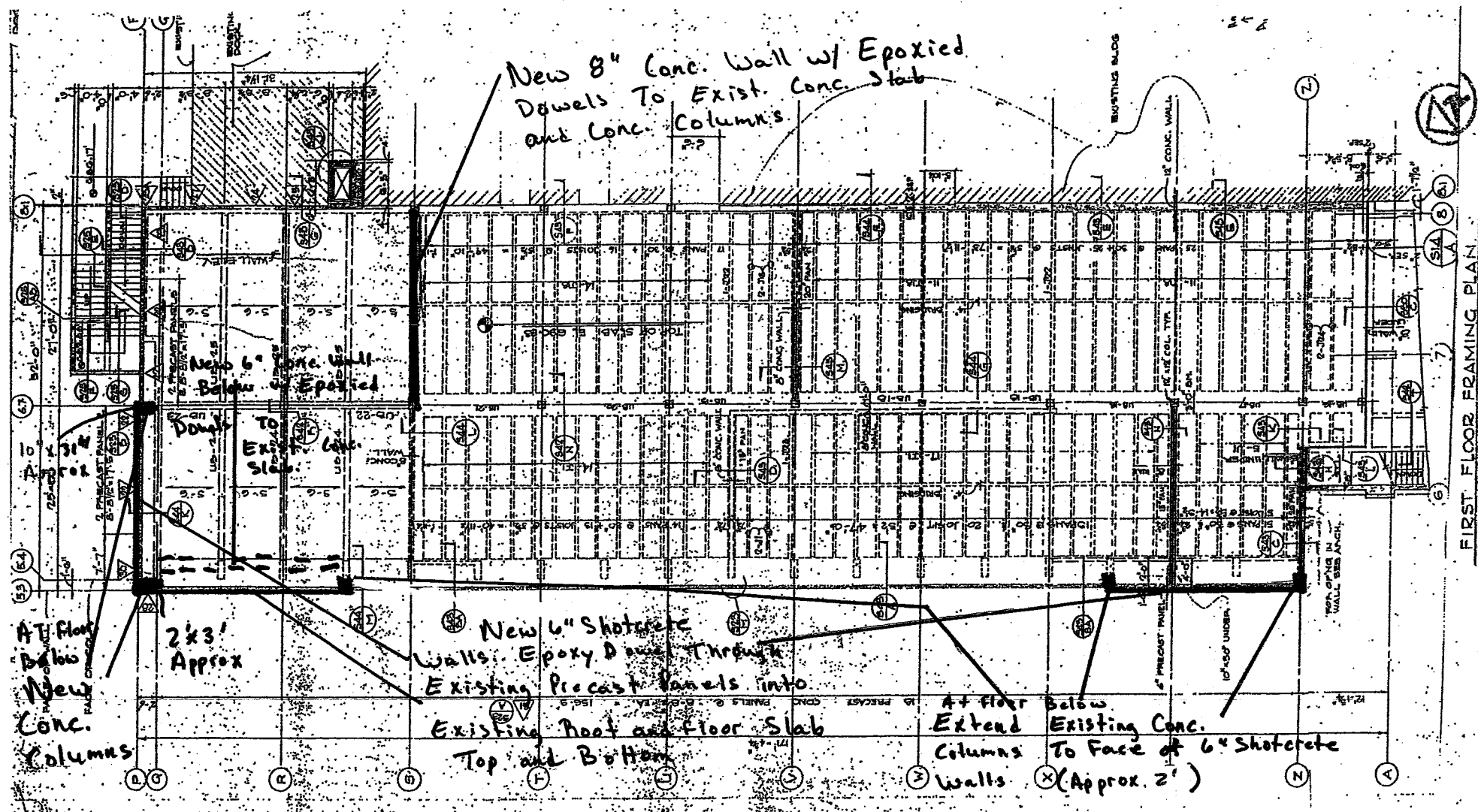
FIGURE 8



### Second Floor and Roof Framing Plan

RUTHERFORD & CHEKENE a california corporation	CONSULTING ENGINEERS	Palomar Medical Center- Conceptual Retrofit Scheme #1 for McLeod Tower East Extension		Sheet 1 of 3
303 Second Street, Suite 800 North San Francisco, California 94107	(415)495-4222	Job No.: 98148S	By: BRR	Scale: NTS
		Date: SEPT 1999		

FIGURE 9



FIRST FLOOR FRAMING PLAN

### First Floor Framing Plan

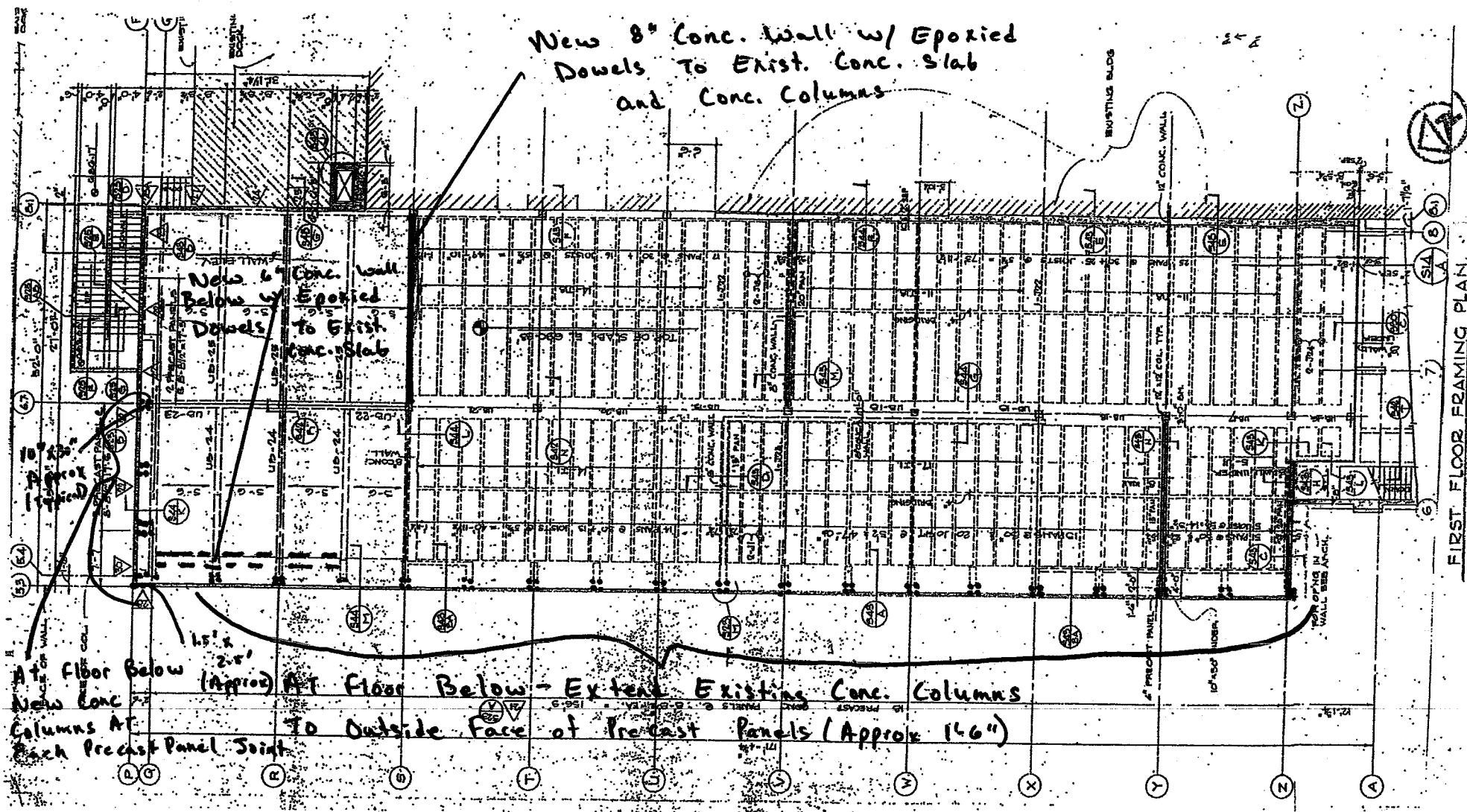
RUTHERFORD & CHEKENE a california corporation  303 Second Street, Suite 800 North San Francisco, California 94107	CONSULTING ENGINEERS  (415)495-4222	Palomar Medical Center- Conceptual Retrofit Scheme #1 for McLeod Tower East Extension			Sheet 2 of 3
		Job No.: 98148S	By: BRR	Scale: NTS	Date: SEPT 1999

FIGURE 10





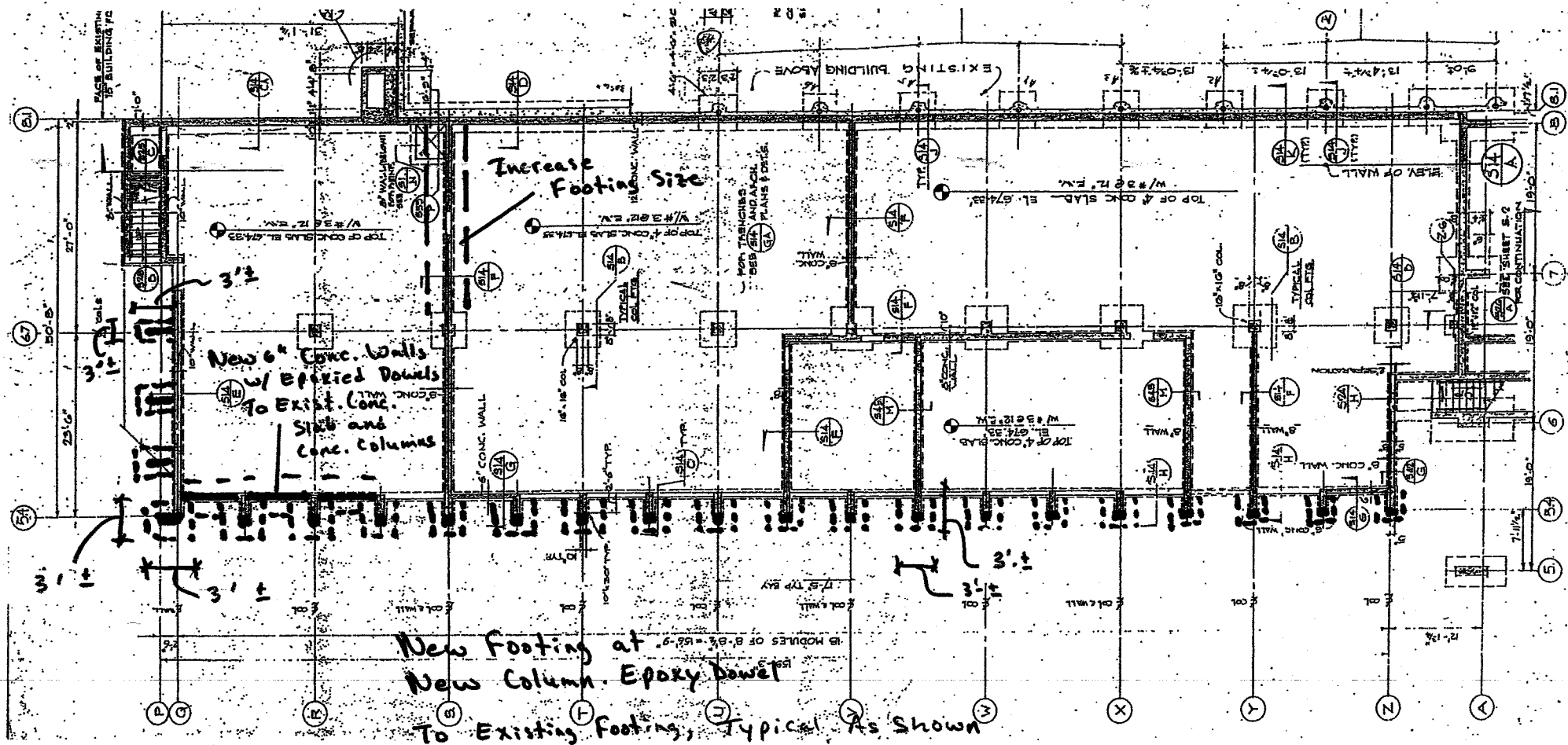




## First Floor Framing Plan

RUTHERFORD & CHEKENE a california corporation	CONSULTING ENGINEERS	Palomar Medical Center- Conceptual Retrofit Scheme #2 for McLeod Tower East Extension		Sheet 2 of 3
303 Second Street, Suite 800 North San Francisco, California 94107	(415)495-4222	Job No.: 98148S	By: BRR	Scale: NTS
		Date: SEPT 1999		

FIGURE 13

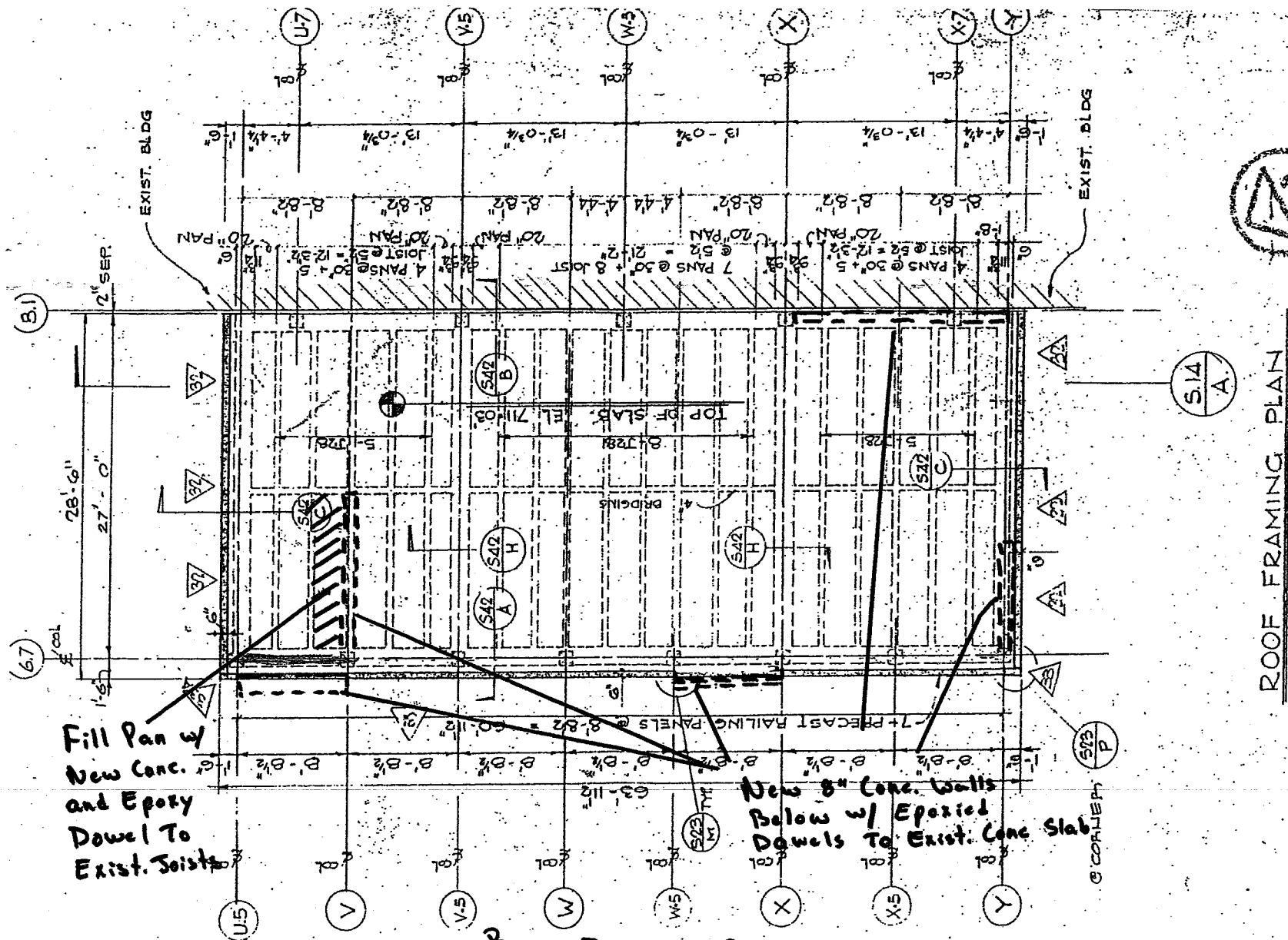


Foundation Plan

### Foundation Plan

<b>RUTHERFORD &amp; CHEKENE</b> a california corporation	<b>CONSULTING ENGINEERS</b>	Palomar Medical Center- Conceptual Retrofit Scheme #2 for McLeod Tower East Extension		Sheet 3 of 3
303 Second Street, Suite 800 North San Francisco, California 94107		Job No.: 98148S	By: BRR	Scale: NTS
(415)495-4222				Date: SEPT 1999

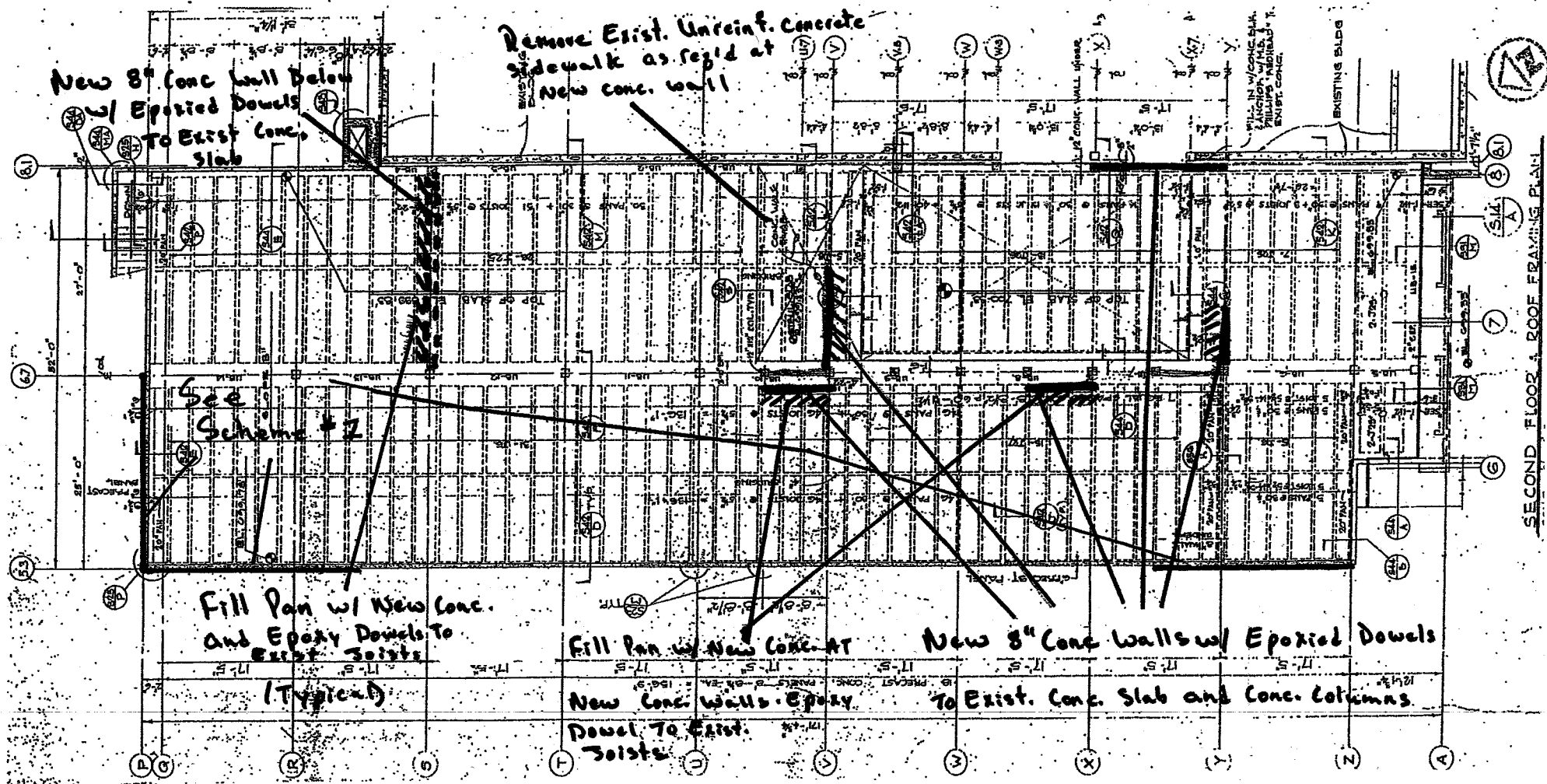
FIGURE 14



# Roof Framing Plan

RUTHERFORD & CHEKENE a california corporation	CONSULTING ENGINEERS	Palomar Medical Center- Conceptual Retrofit Scheme #3 for McLeod Tower East Extension	Sheet 1 of 4
303 Second Street, Suite 800 North San Francisco, California 94107	(415)495-4222	Job No.: 98148S By: BRR	Scale: NTS
Date: SEPT 1999			

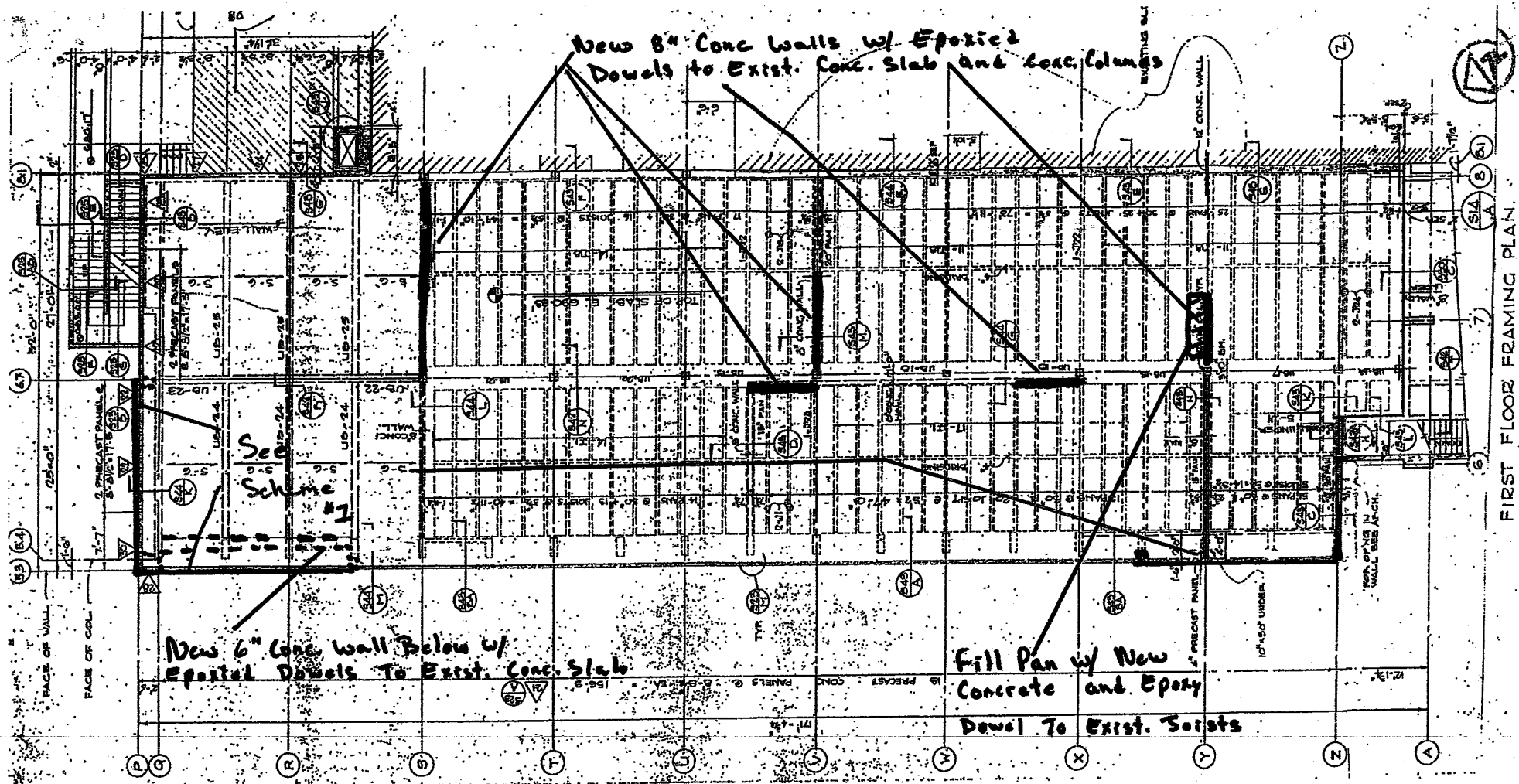
FIGURE 15



## Second Floor and Roof Framing Plan

RUTHERFORD & CHEKENE a california corporation	CONSULTING ENGINEERS	Palomar Medical Center- Conceptual Retrofit Scheme #3 for McLeod Tower East Extension		Sheet 2 of 4
303 Second Street, Suite 800 North San Francisco, California 94107		Job No.: 98148S	By: BRR	Scale: NTS
(415)495-4222				Date: SEPT 1999

FIGURE 16

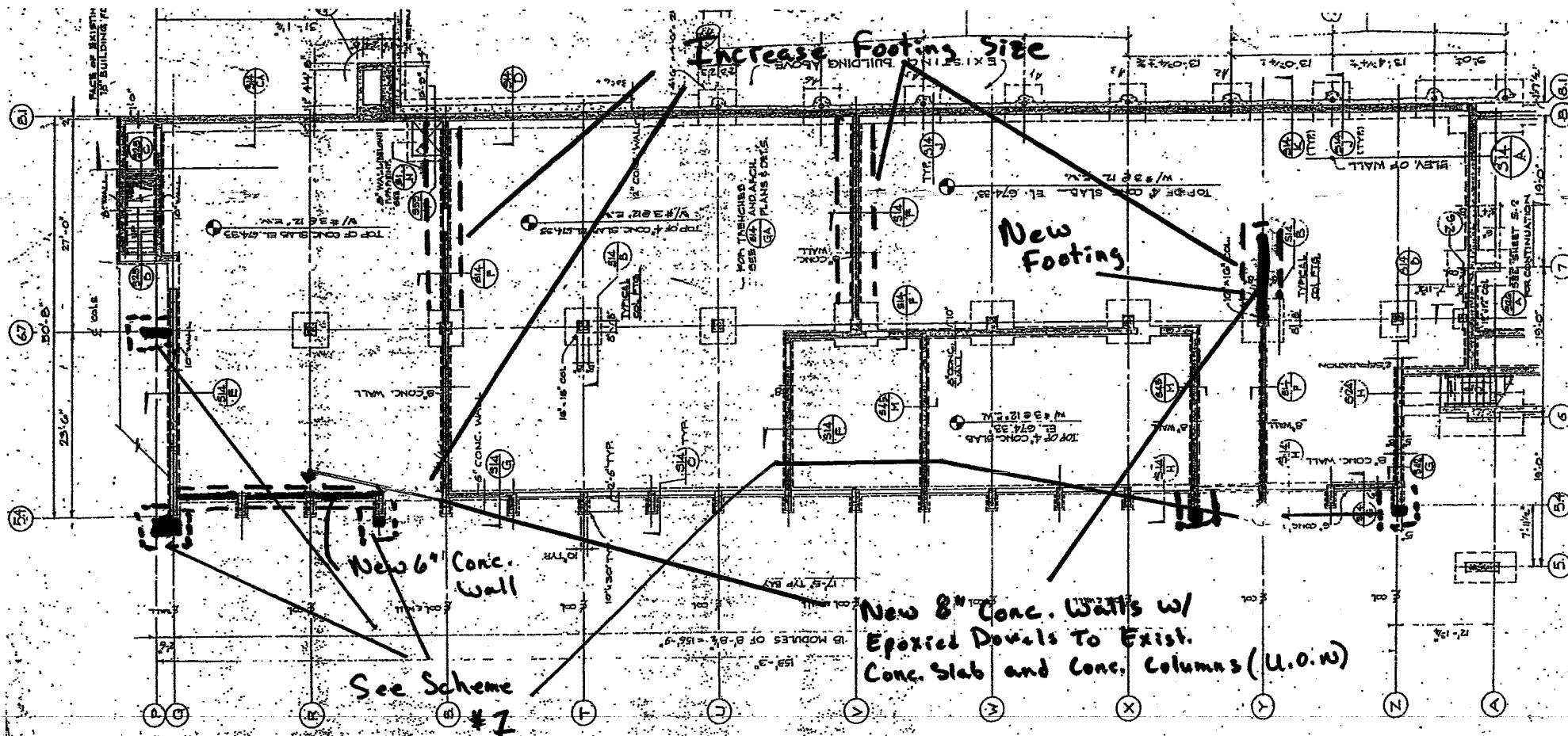


First Floor Framing Plan

<b>RUTHERFORD &amp; CHEKENE CONSULTING</b> a california corporation <b>ENGINEERS</b> 303 Second Street, Suite 800 North San Francisco, California 94107 (415)495-4222	Palomar Medical Center- Conceptual Retrofit Scheme #3 for McLeod Tower East Extension			Sheet 3 of 4
	Job No.: 98148S	By: BRR	Scale: NTS	Date: SEPT 1999

FIGURE 17





## Foundation Plan

<b>RUTHERFORD &amp; CHEKENE   CONSULTING</b> a california corporation <b>ENGINEERS</b>	Palomar Medical Center- Conceptual Retrofit Scheme #3 for McLeod Tower East Extension	Sheet 4 of 4
303 Second Street, Suite 800 North San Francisco, California 94107 (415)495-4222	Job No.: 98148S By: BRR	Scale: NTS Date: SEPT 1999

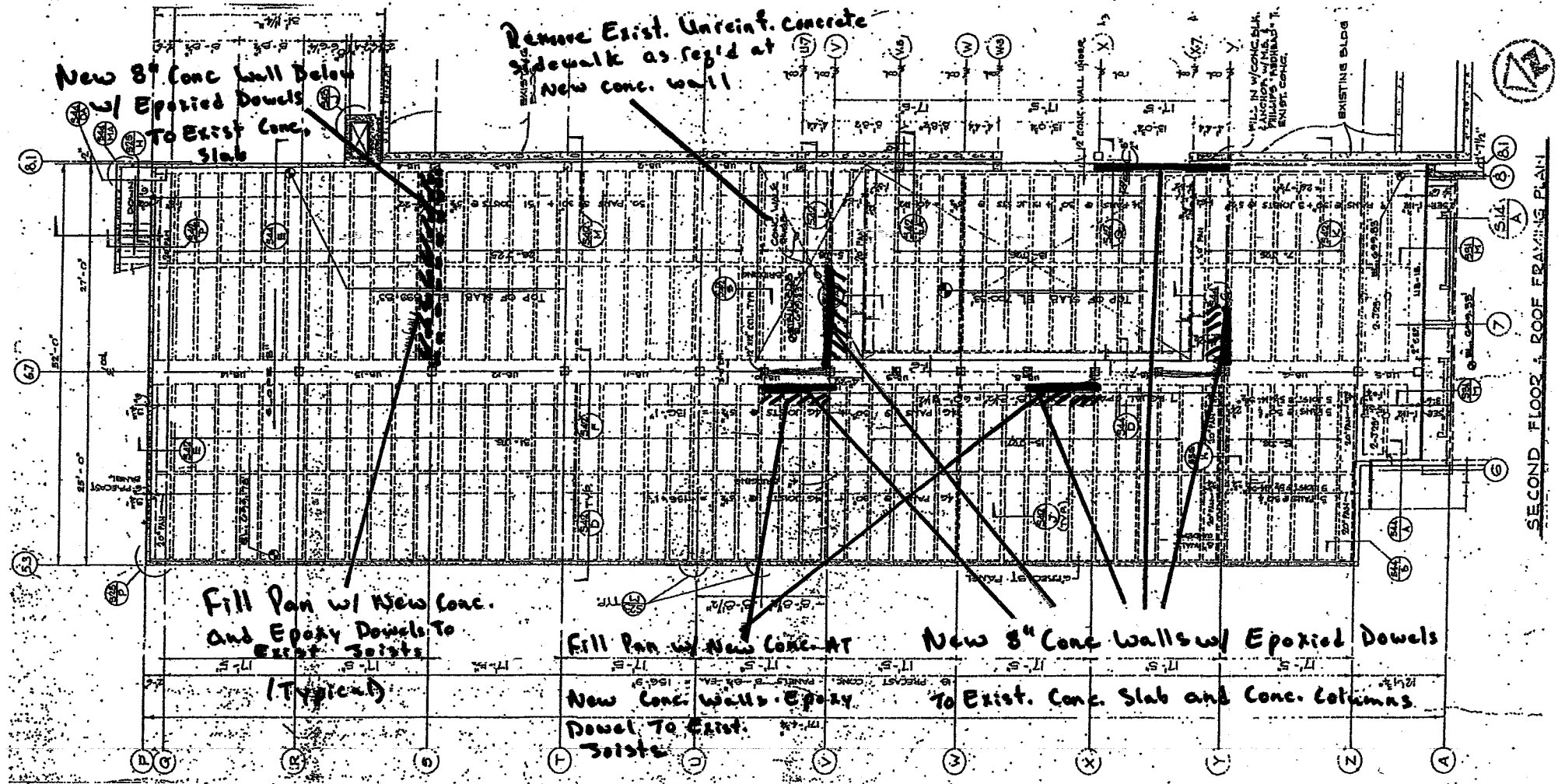
FIGURE 18





## Roof Framing Plan

FIGURE 19



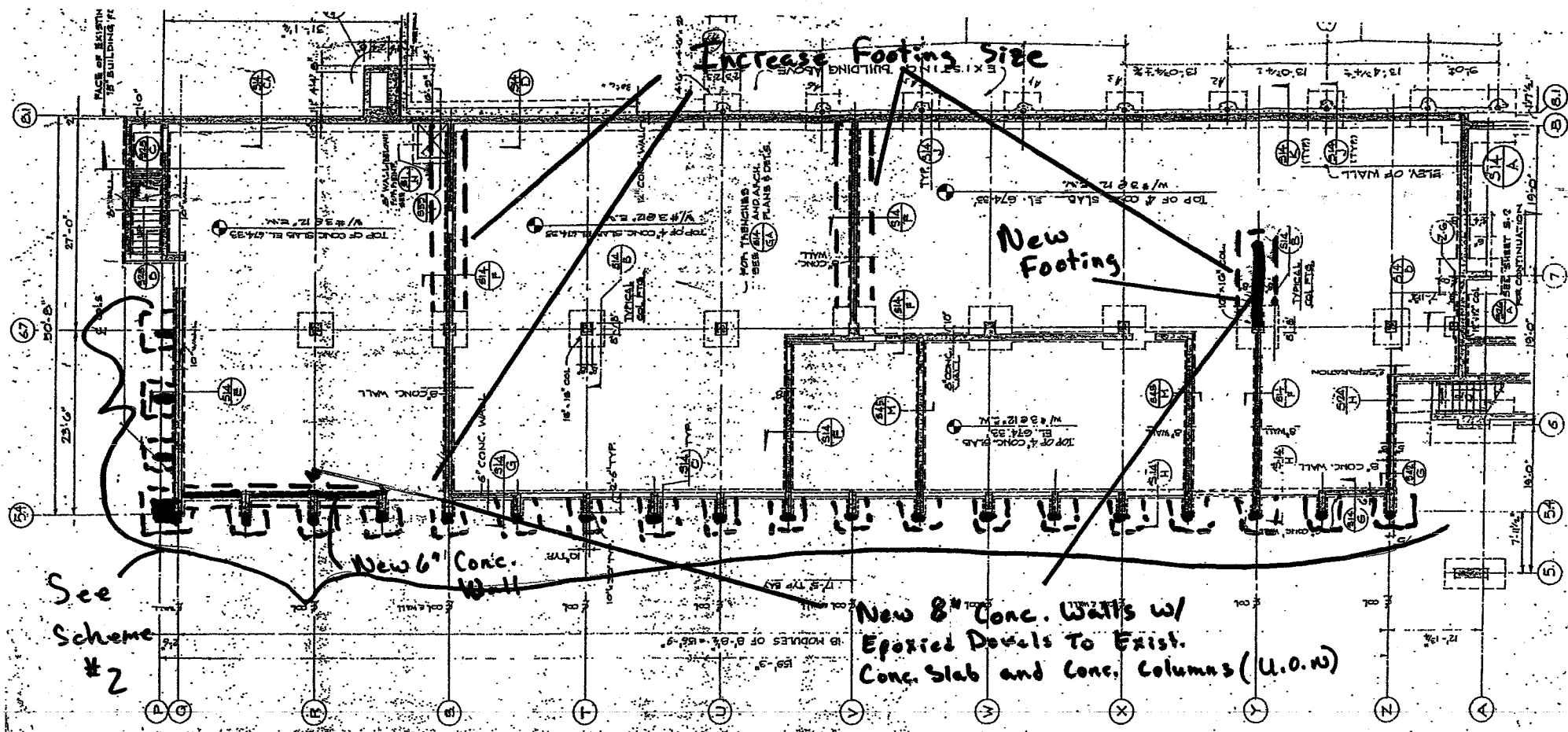
SECOND FLOOR - ROOF FRAMING PLAN

## Second floor Framing Plan

RUTHERFORD & CHEKENE	CONSULTING ENGINEERS	Palomar Medical Center- Conceptual Retrofit Scheme #4 for McLeod Tower East Extension	Sheet 2 of 4
303 Second Street, Suite 800 North San Francisco, California 94107	(415)495-4222	Job No.: 98148S By: BRR Scale: NTS	Date: SEPT 1999

FIGURE 20

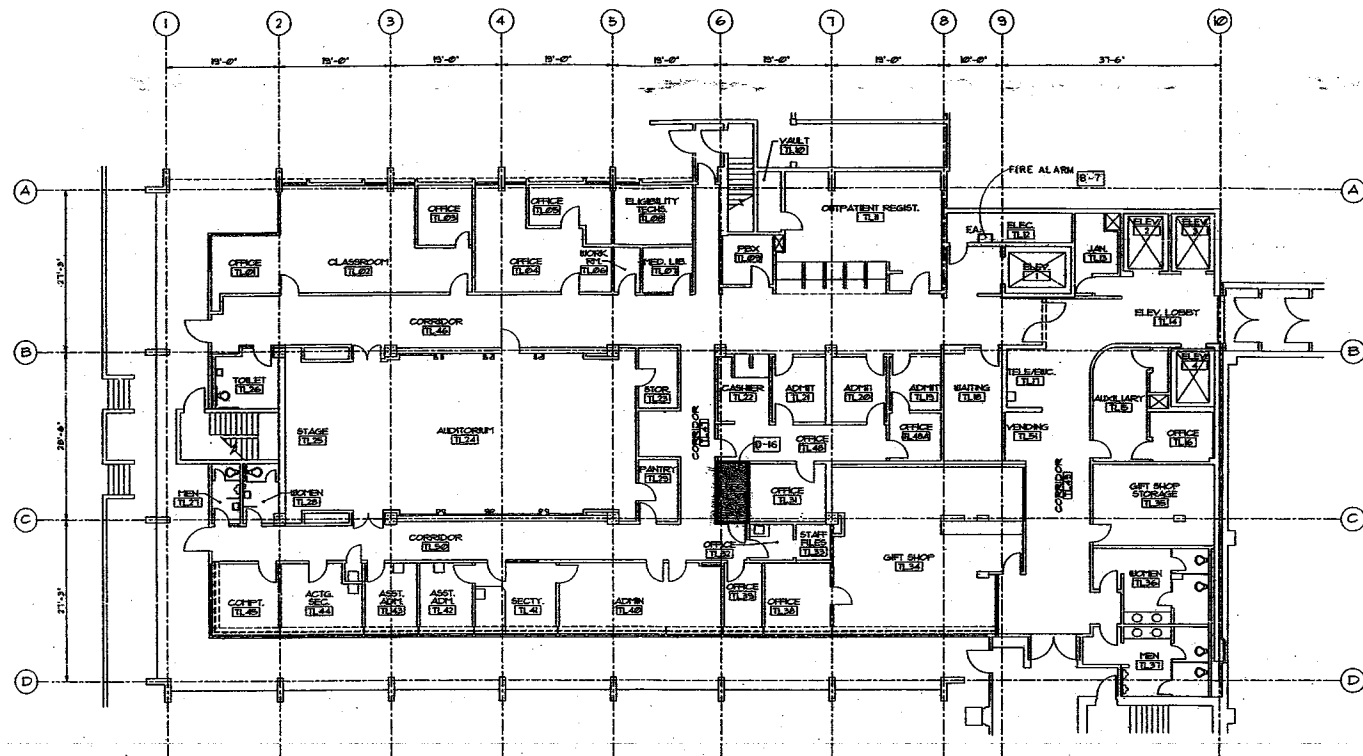




## Foundation Plan

RUTHERFORD & CHEKENE a california corporation		CONSULTING ENGINEERS		Palomar Medical Center- Conceptual Retrofit Scheme #4 for McLeod Tower East Extension		Sheet 4 of 4	
303 Second Street, Suite 800 North San Francisco, California 94107		(415)495-4222		Job No.: 98148S	By: BRR	Scale: NTS	Date: SEPT 1999

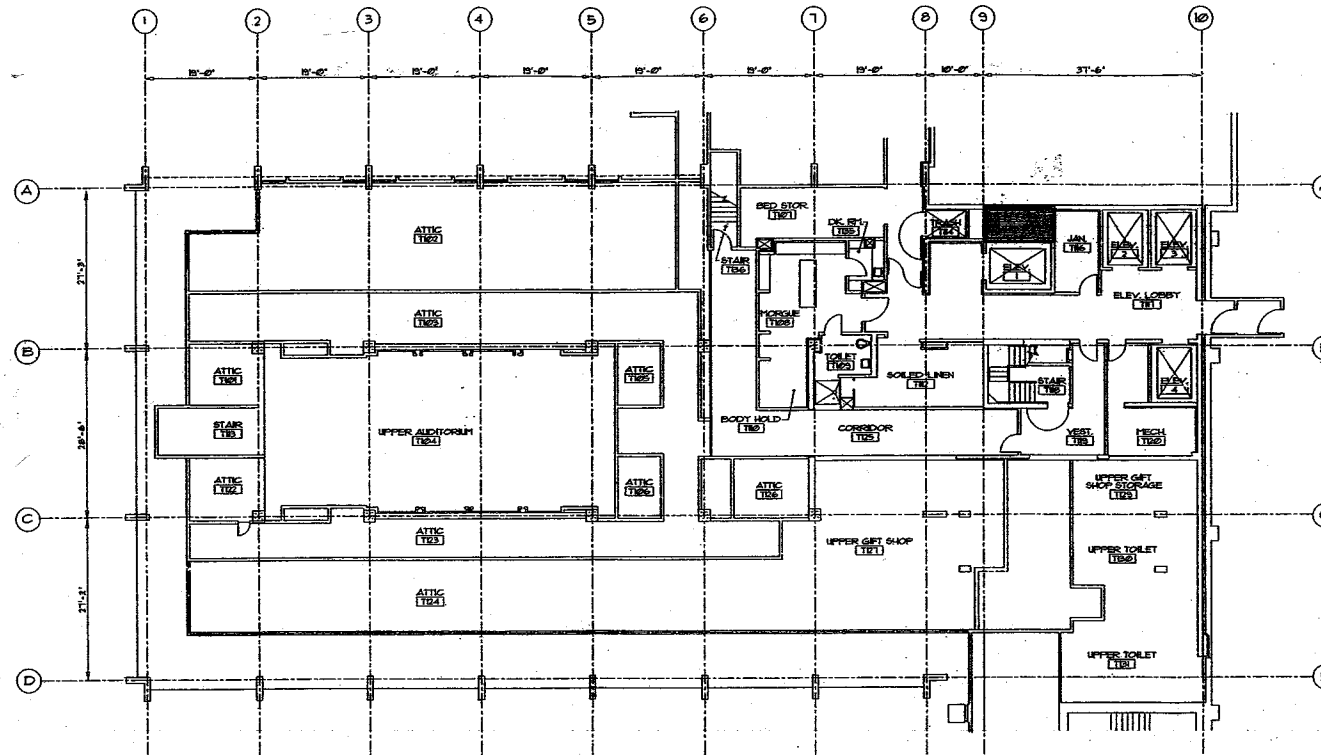
FIGURE 22



- NOTES:
1. SHADED AREA: NPCB AREA.
  2. SHADED AREA HATCHED: NPCB AREA CHASE PERMITTER.
  3. 10-15
- TABLE ITEM IN TABLE



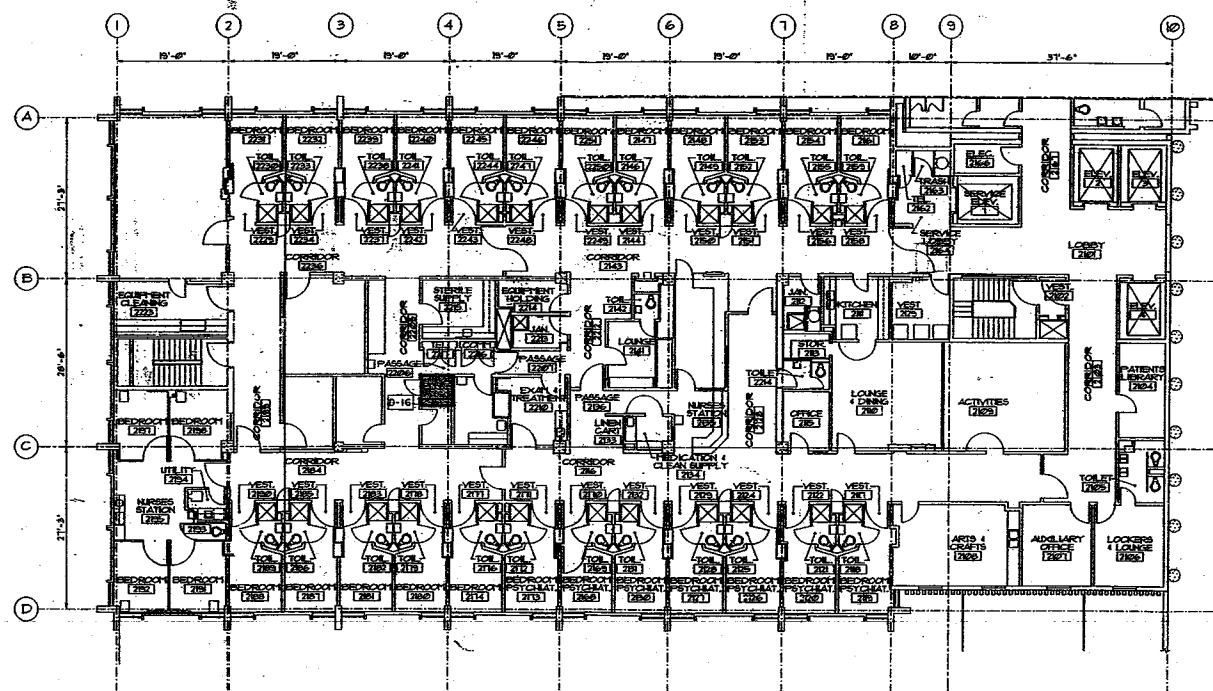
FIGURE 23



- NOTES:
1. SHADED AREA: NPC'S AREA
  2. SHADED AREA HATCHED: NPC'S AREA OSHPD PERMITTED
  3. [Symbol] ITEM IN TABLE

N

FIGURE 24



- NOTES:
1. SHADED AREA : NPCB AREA.
  2. SHADED AREA HATCHED : NPCB AREA OSHPD PERMITTED.
  - 3- [D-1] ITEM IN TABLE

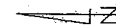


FIGURE 25

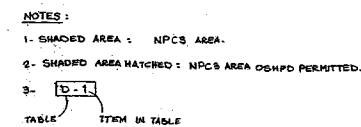
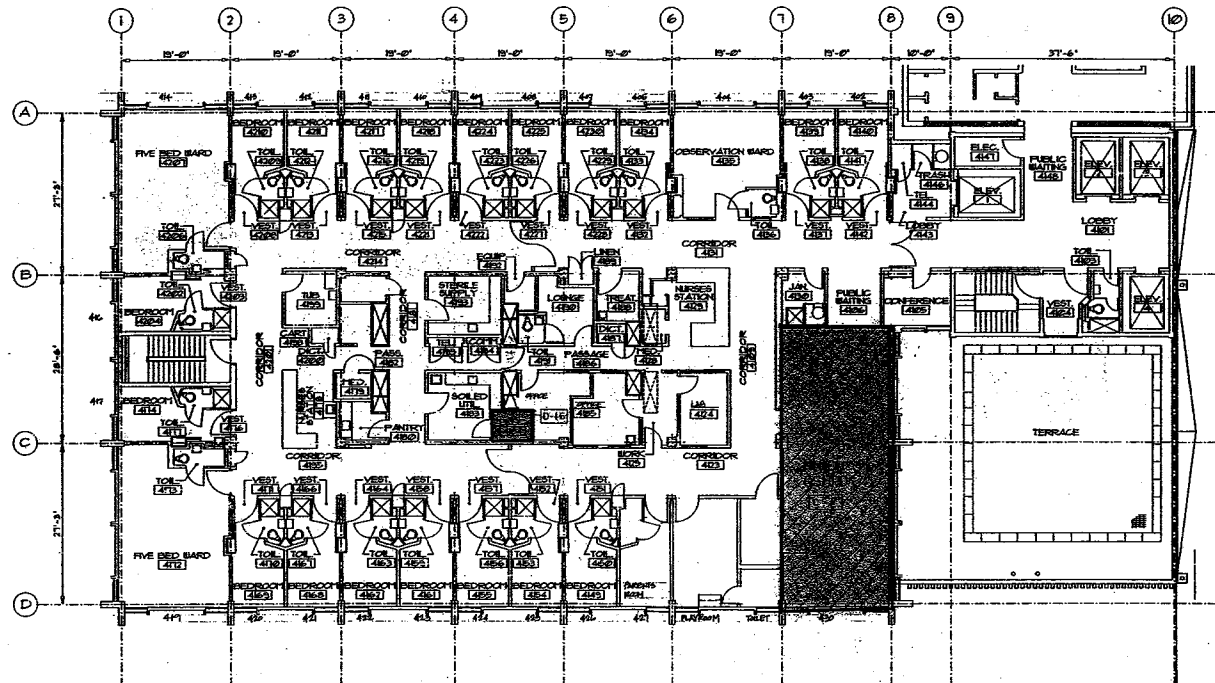

[illegible]

FIGURE 26





- NOTES:
1. SHADED AREA : NPC'S AREA.
  2. SHADED AREA HATCHED : NPC'S AREA QSHPD PERMITTED.
  3.  ITEM IN TABLE

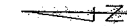
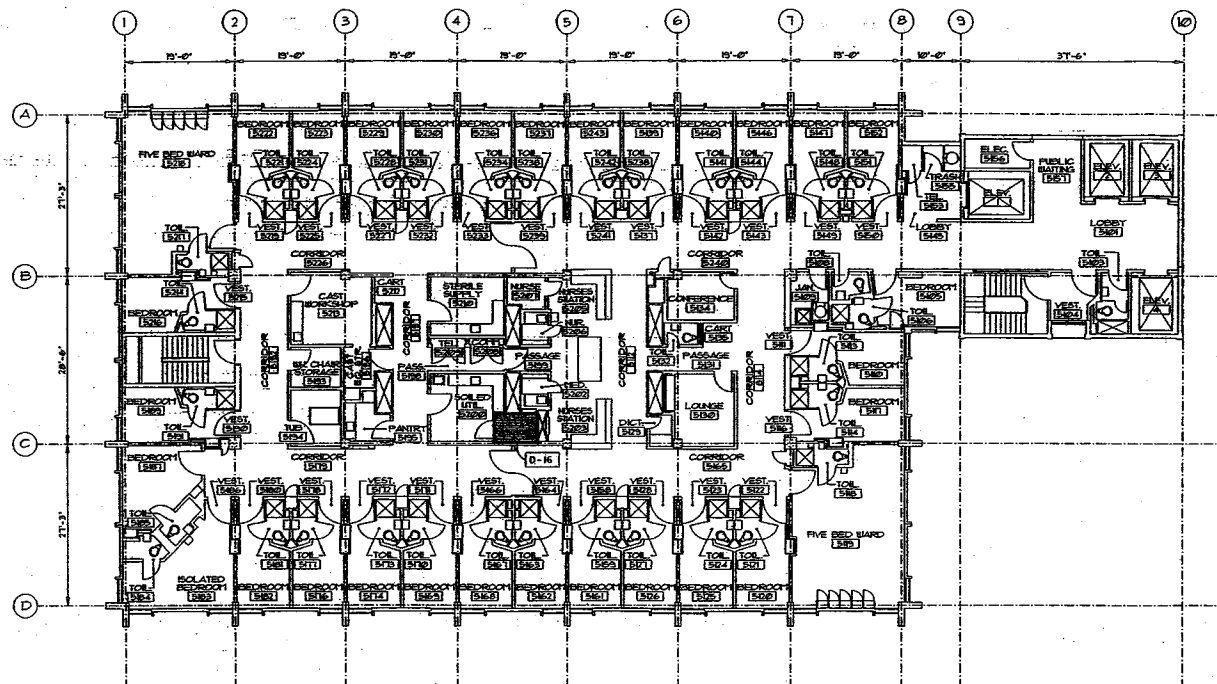


FIGURE 27



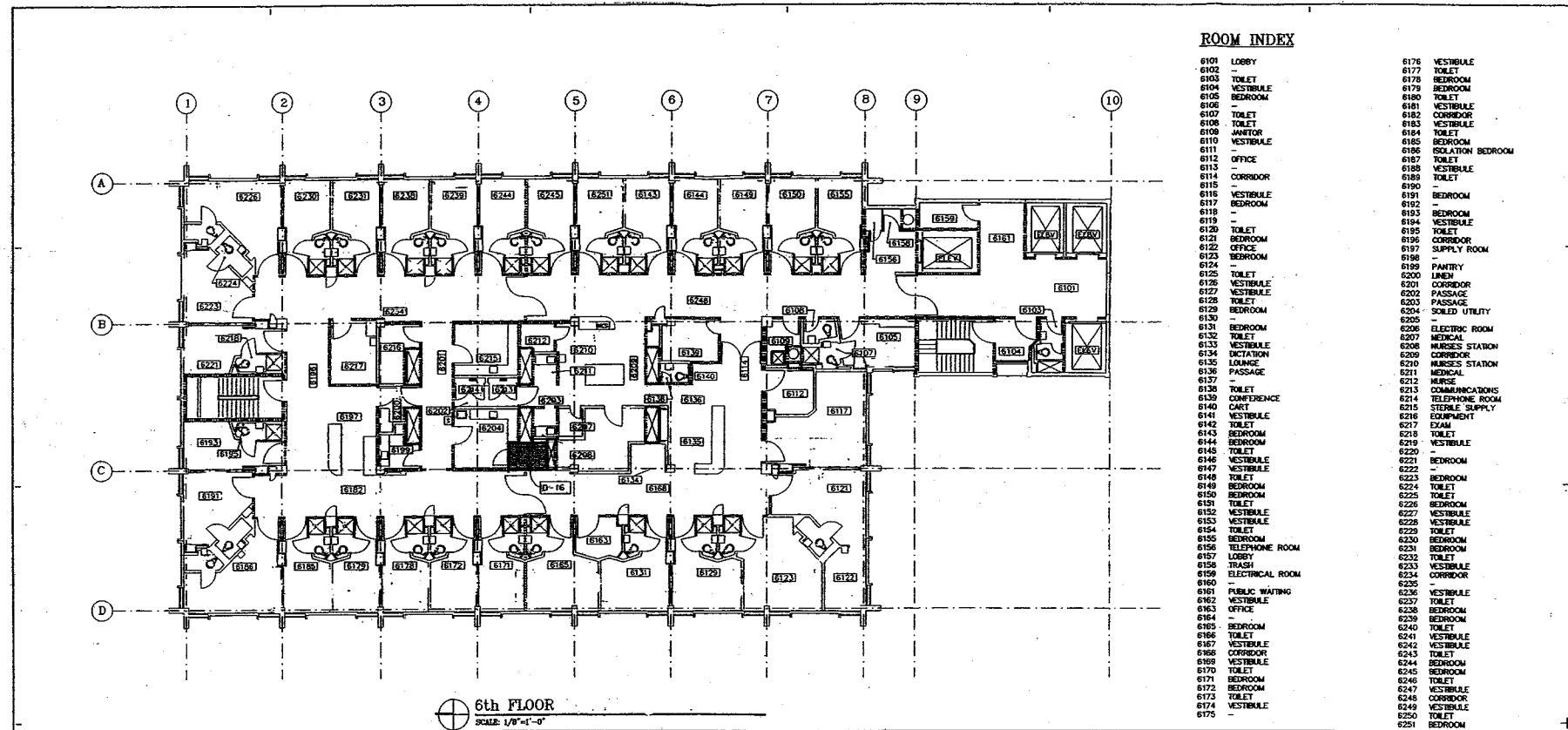
- NOTES:
1. SHADED AREA: NPC3 AREA.
  2. SHADED AREA HATCHED: NPC3 AREA OSHPD PERMITTED.
  - 3- 

0-1
-----

 ITEM IN TABLE



FIGURE 28



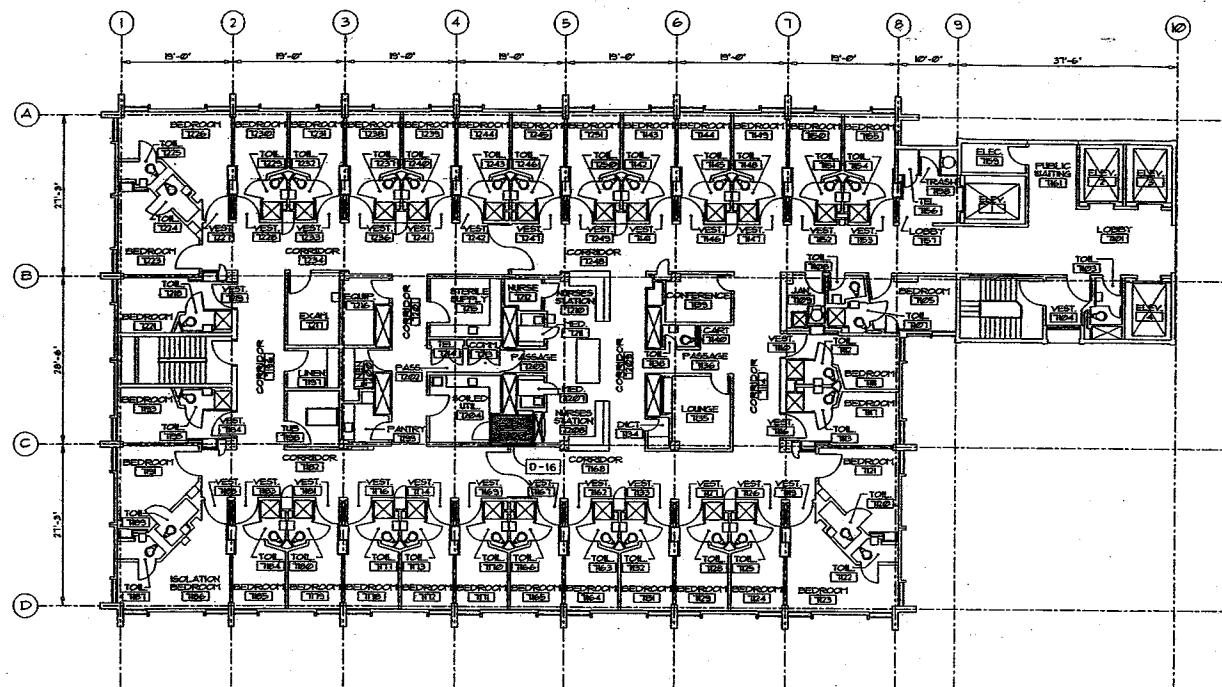
- NOTES:
1. SHADED AREA: NPC'S AREA.
  2. SHADED AREA HATCHED: NPC'S AREA OSHPD PERMITTED.
  3. D-1 ITEM IN TABLE



INCLUDED TOWER  
LEVEL 6

MC.6

FIGURE 29



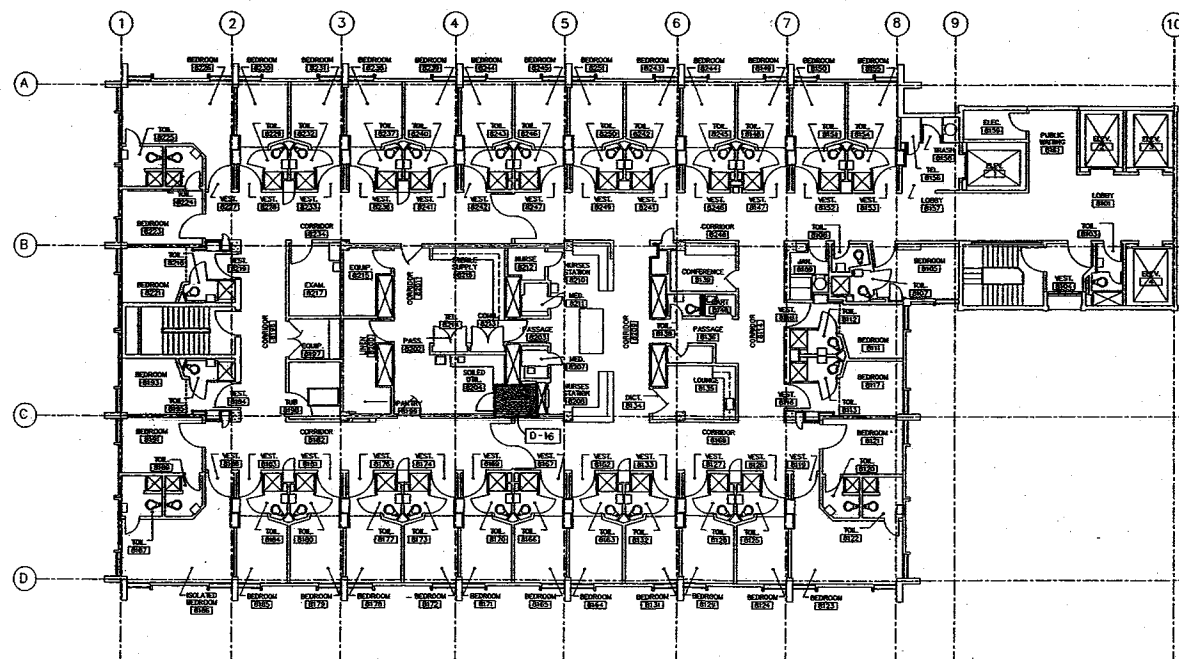
# NOTES:

1. SHADED AREA : NPCB AREA.
2. SHADED AREA HATCHED : NPCB AREA OSWPD PERMITTED.
3. 

Q-1
-----

 ITEM IN TABLE





NOTES:

1. SHADED AREA : NPC3 AREA.
2. SHADED AREA HATCHED : NPC3 AREA OSHPD PERMITTED.

3. D-1  
TABLE      ITEM IN TABLE



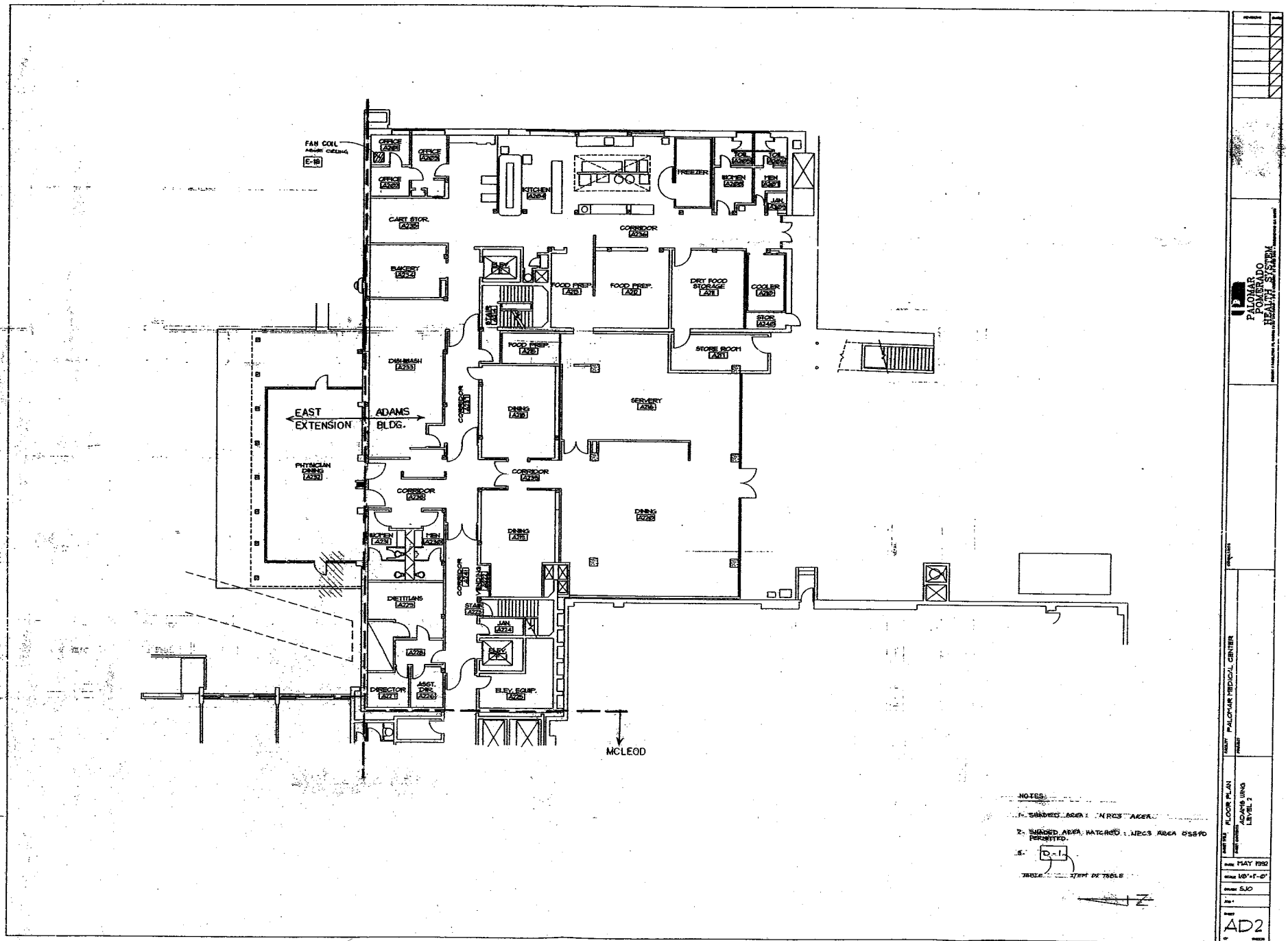
FLOOR PLAN  
MC8  
LEVEL 8

MC8

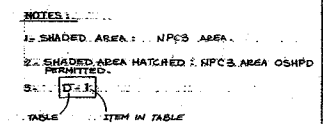
FIGURE 31









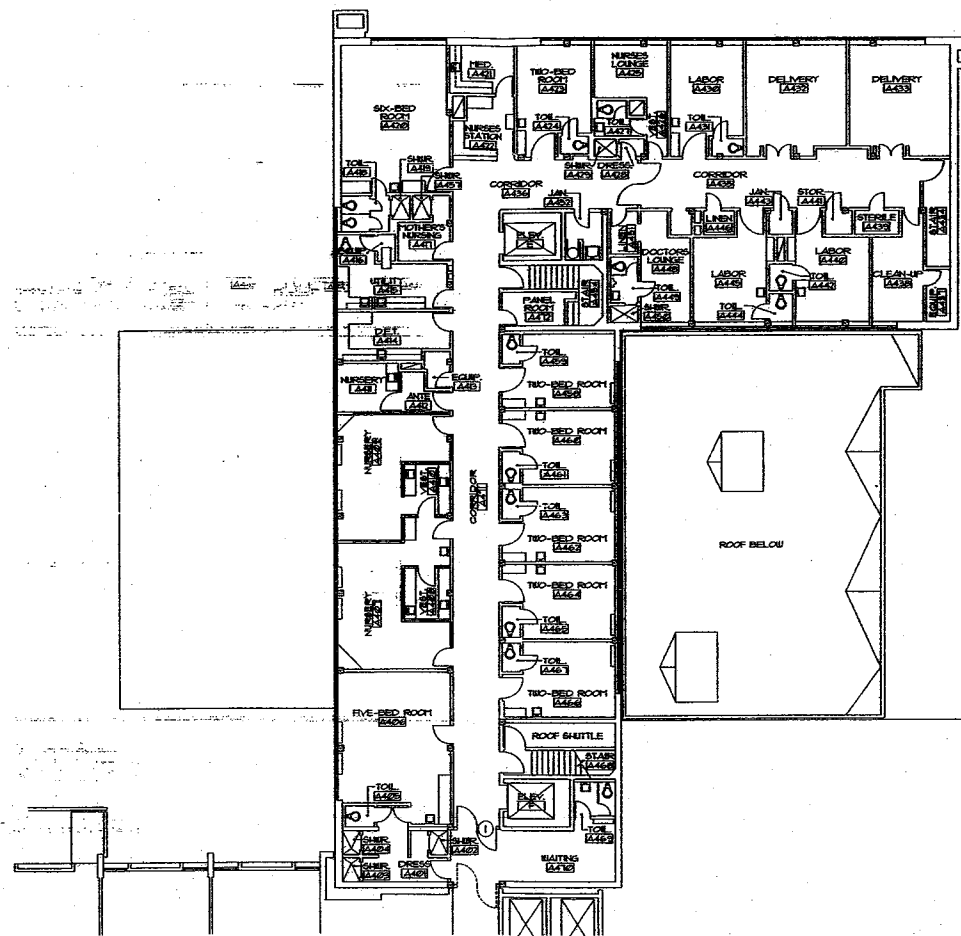


DATE	MAY 1992
SCALE	1/8" = 1'-0"
OWNER	SJO
JOB #	
PROJECT	AD3

EAST SIDE FLOOR PLAN

ADAMS WING  
LEVEL 3

FIGURE 35



- NOTES:
- 1. SHADDED AREA: NPCE AREA
  - 2. SHADDED AREA: HATCHED: NPCE AREA: OSHPD PERMITTED
  - 3. 10-11:00 AM: OSHPD PERMITTED
  - 4. TABLE: 10-11:00 AM: OSHPD PERMITTED



PALOMAR PALOMAR MEDICAL CENTER		DATE: MAY 1990	
PROJECT: PALOMAR MEDICAL CENTER		SCALE: 1/8" = 1'-0"	
DRAWING: AD4		SHEET: 010	
DESIGNED BY: AD4		CHECKED BY: AD4	
DRAWN BY: AD4		APPROVED BY: AD4	

FIGURE 36

## PHOTOGRAPHS

**Campus**      **Palomar Medical Center**

Photo # PAL-	Building	Location/Area	Description
1-0A	Adams	Electrical Room	Transformer
1-1A	Adams	Vacuum Pump Room	Air compressor
1-2A	Adams	Vacuum Pump Room	Condensate Receiver
1-3A	Adams	Vacuum Pump Room	Vacuum tank
1-4A, 1-5A	Adams	Vacuum Pump Room	Piping
1-6A	Adams	Vacuum Pump Room	Air handling switch gear
1-7A, 1-8A, 1-9A	Outside	East of Adams Bldg.	3000 Gallon Liquid Oxygen tank
1-10A, 1-11A	Outside	East of Adams Bldg.	Nitrous Oxide Cylinders (blue cylinders)
1-12A, 1-13A	Outside	East of Adams Bldg.	Nitrogen gas Cylinders (black cylinders)
1-14A	Outside	East of Adams Bldg.	Lab. Gas Cylinders
1-16, 1-17, 1-18	Outside	East of Adams Bldg.	Cooling Tower #1 (Marley)
1-19, 1-20	Outside	East of Adams Bldg.	Cooling Tower #2 (Evapco)
1-21-1-22	Outside	East of Adams Bldg.	Cooling Tower #3 (Ceramic)
1-23, 1-24	Adams	On top of roof	Air Handler (AC25A)
1-25, 2-1, 2-2	McLeod	3 <sup>rd</sup> Flr. X-ray room-6	X-ray machine Stratomatic
2-3,2-4, 2-5,2-7	McLeod	Electrical room(Bus Duct)	Electrical Panels & transformers on trapeze (except on 3 <sup>rd</sup> )
2-6	McLeod	3 <sup>rd</sup> Flr.	Cat scan Equipment
2-8, 2-9, 2-10	McLeod	Elevator Penthouse	Elev. #10 Hoist
2-11, 2-12, 2-13	McLeod	Mech. Penthouse (10 <sup>th</sup> Flr.)	Exhaust fans
2-14, 2-15, 2-16	McLeod	Mech. Penthouse (10 <sup>th</sup> Flr.)	Exhaust fans switch gears
2-17	McLeod	Mech. Penthouse (10 <sup>th</sup> Flr.)	Pre- cooling tower circulation pump
2-18, 2-19, 2-20, 2-21	McLeod	Outside of Mech. Penthouse (10 <sup>th</sup> Flr.)	Cooling Tower

## PHOTOGRAPHS

**Campus**      **Palomar Medical Center**

Photo # PAL-	Building	Location/Area	Description
2-22, 2-23	McLeod	Mech. Penthouse	Piping
3-0A, 3-1A	McLeod tower,	9th floor, on west wall of utility room	Fire Alarm Panel
3-2A, 3-3A	McLeod tower,	Lobby, in Elect. room next to elevator)	Fire Alarm Panel 4100 Simplex
3-4A	Outside		Utility bridge
3-5A, 3-6A, 3-8	East Extension	Basement	Emergency Generator (Lawless Detroit Diesel)
3-8	East Extension	Basement	Battery rack
3 - 9	East Extension	Basement	Muffler
3-10, 3-11	East Extension	Basement, Generator Room	Switch gear for McLeod tower
3-12, 3-13	East Extension	Basement, Generator Room	Transformer
3-14	East Extension	Basement, Chiller Room	Domestic Hot Water Flash Heaters
3-15, 3-16, 3-18	East Extension	Basement, Chiller Room	Chillers
3-17	East Extension	Basement, Chiller Room	Silver horizontal tank
3-19	East Extension	Basement, Chiller Room	Condensate receiver
3-20, 3-21	East Extension	Basement, Boiler Room	Boilers (Pawnee Boilers)
3-22	East Extension	Basement, Boiler Room	Medical Air Compressor
3-23	East Extension	Basement, Boiler Room	Condensate Receiver
4-1, 4-2	Cogen Building		Emergency Generators
4-3	Cogen Building		Battery rack
4-4, 4-5	Cogen Building		Muffler

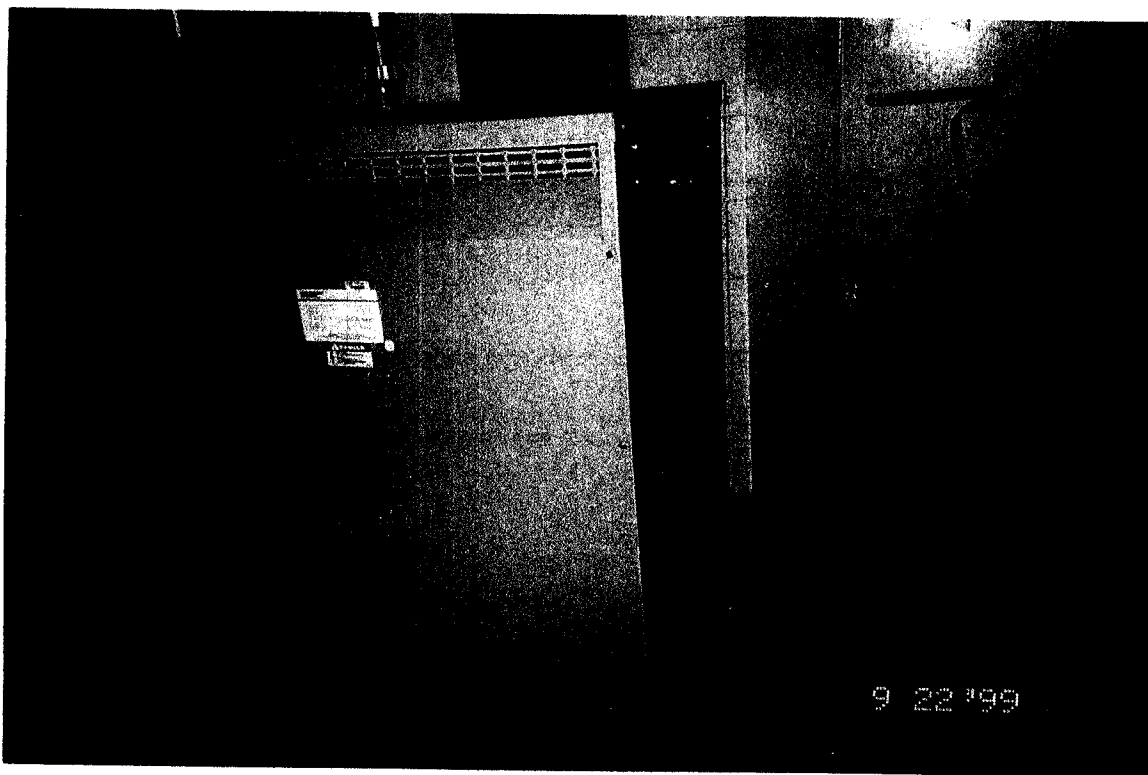


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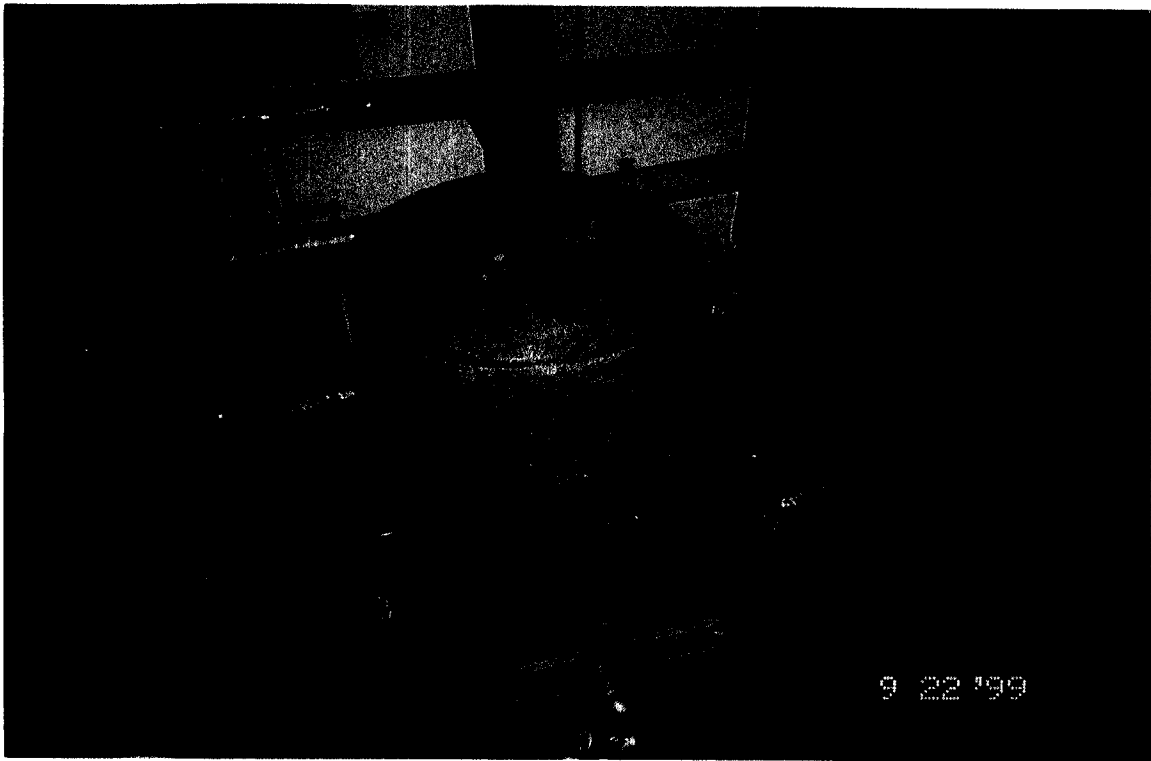


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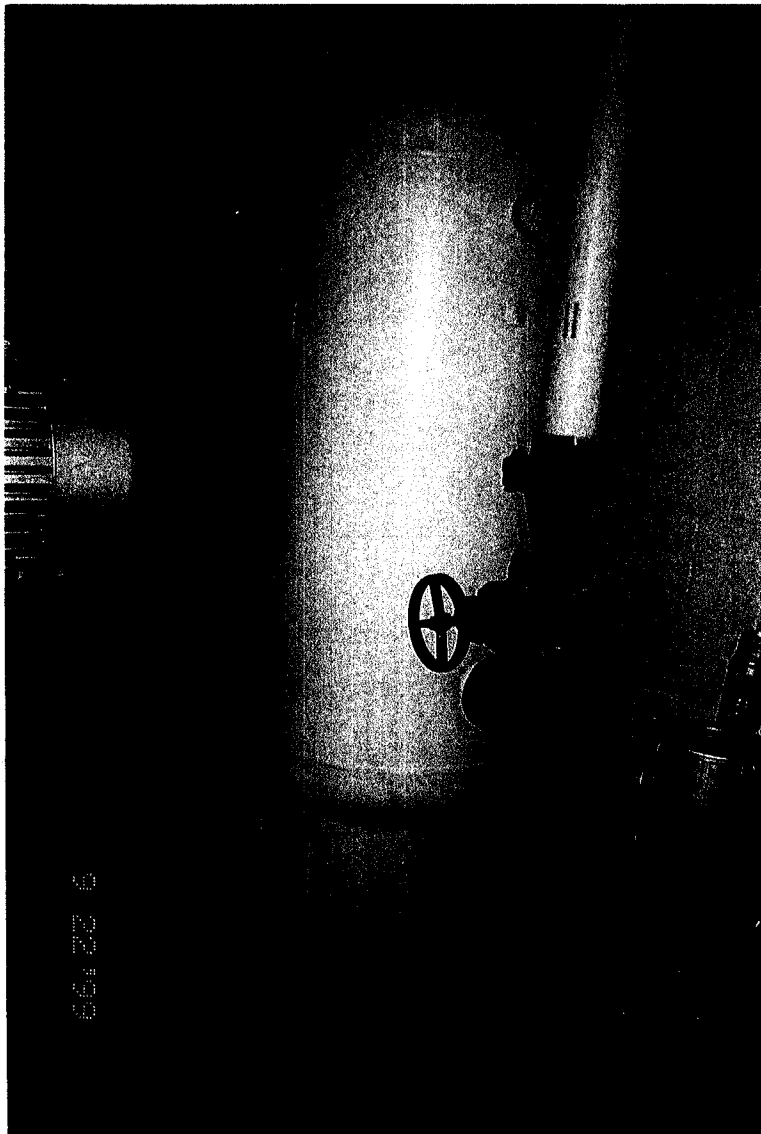


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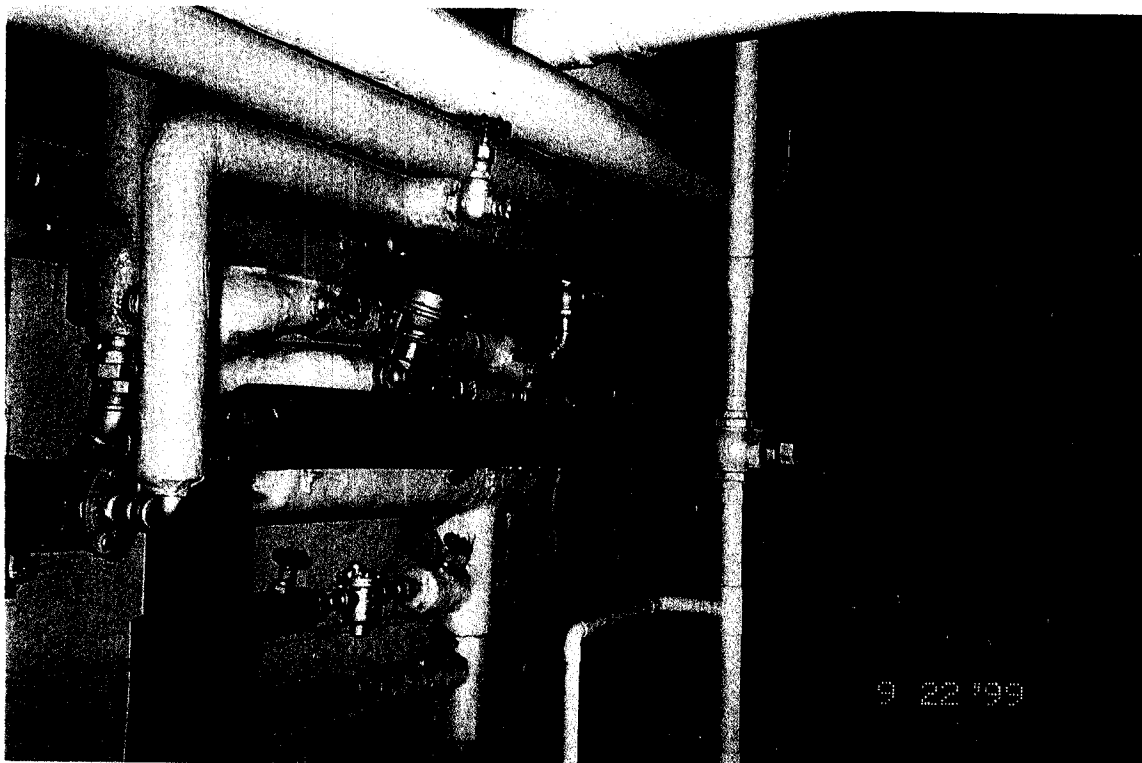


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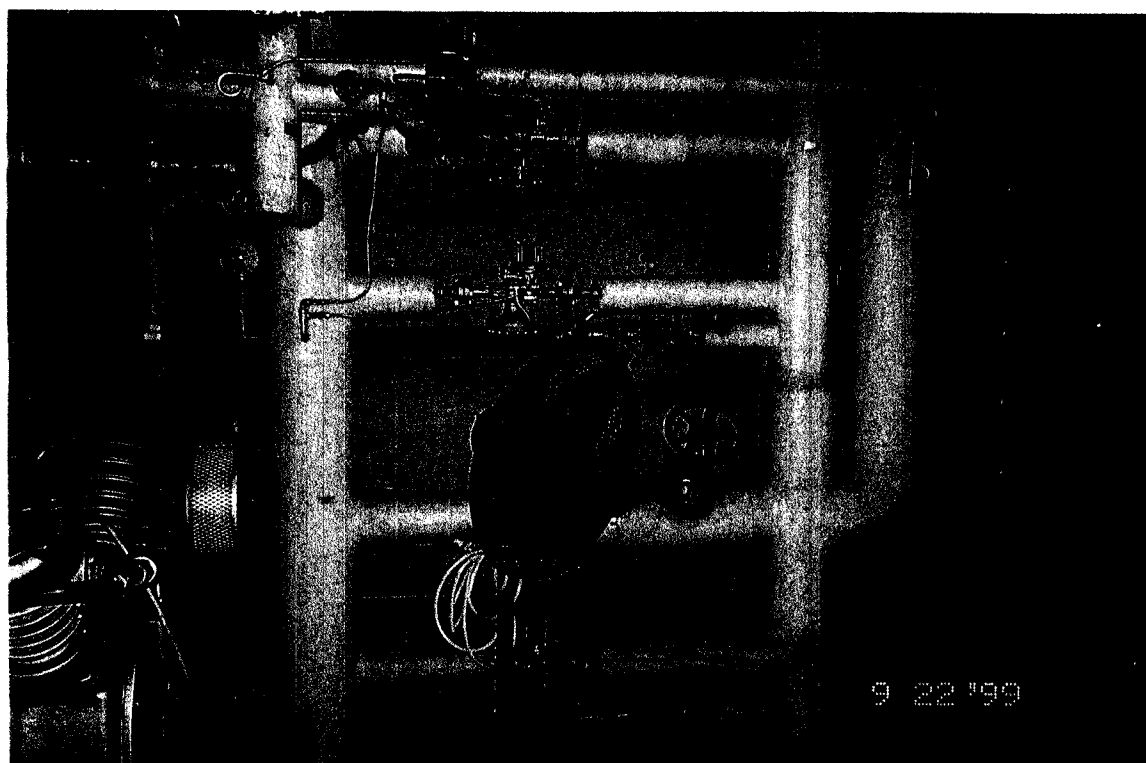


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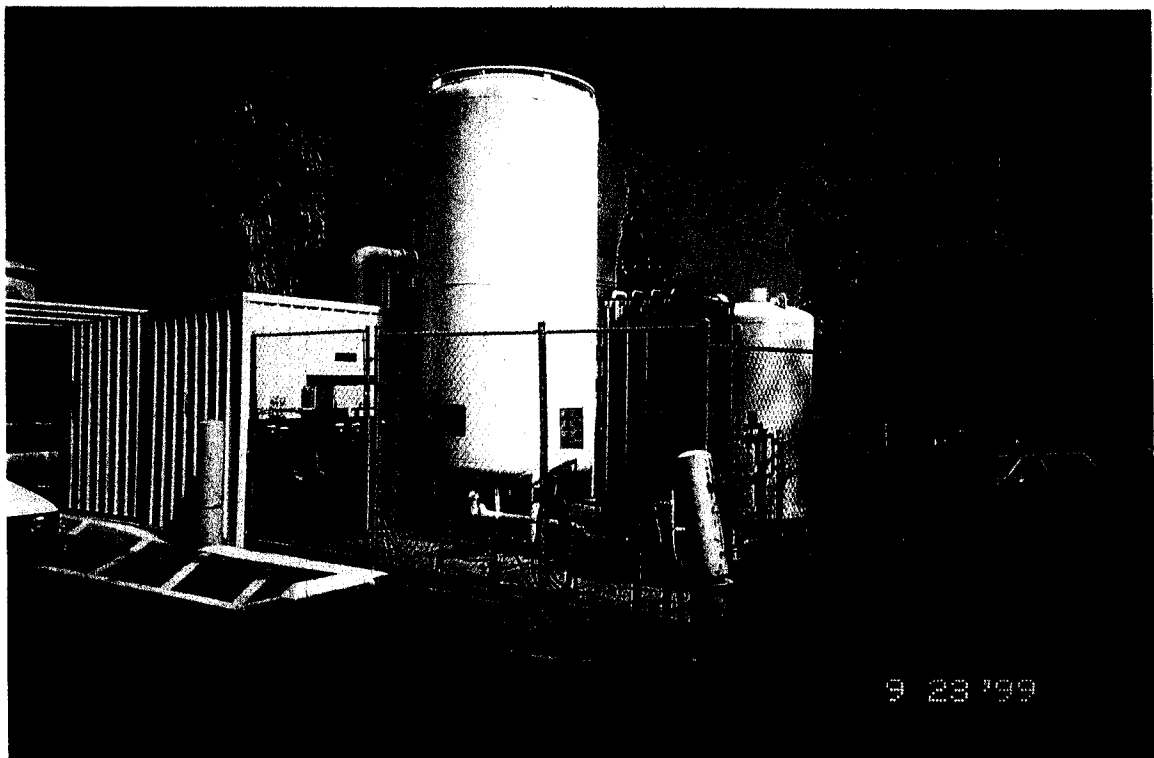


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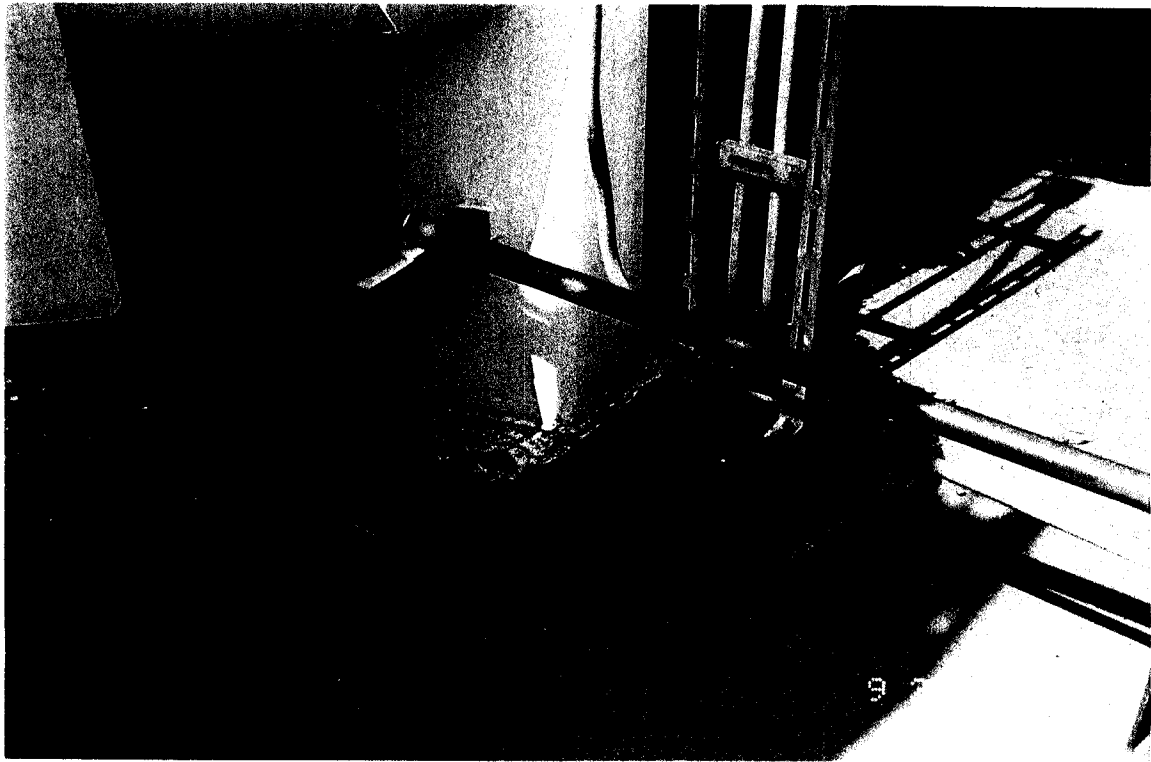


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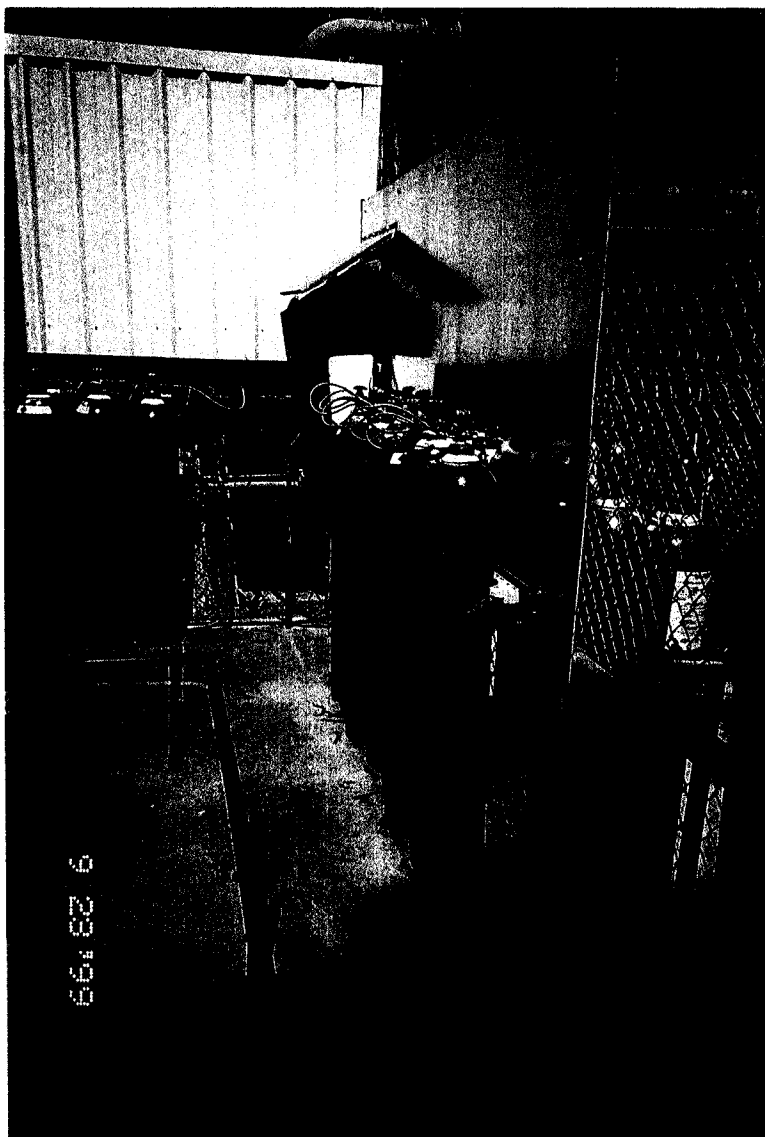


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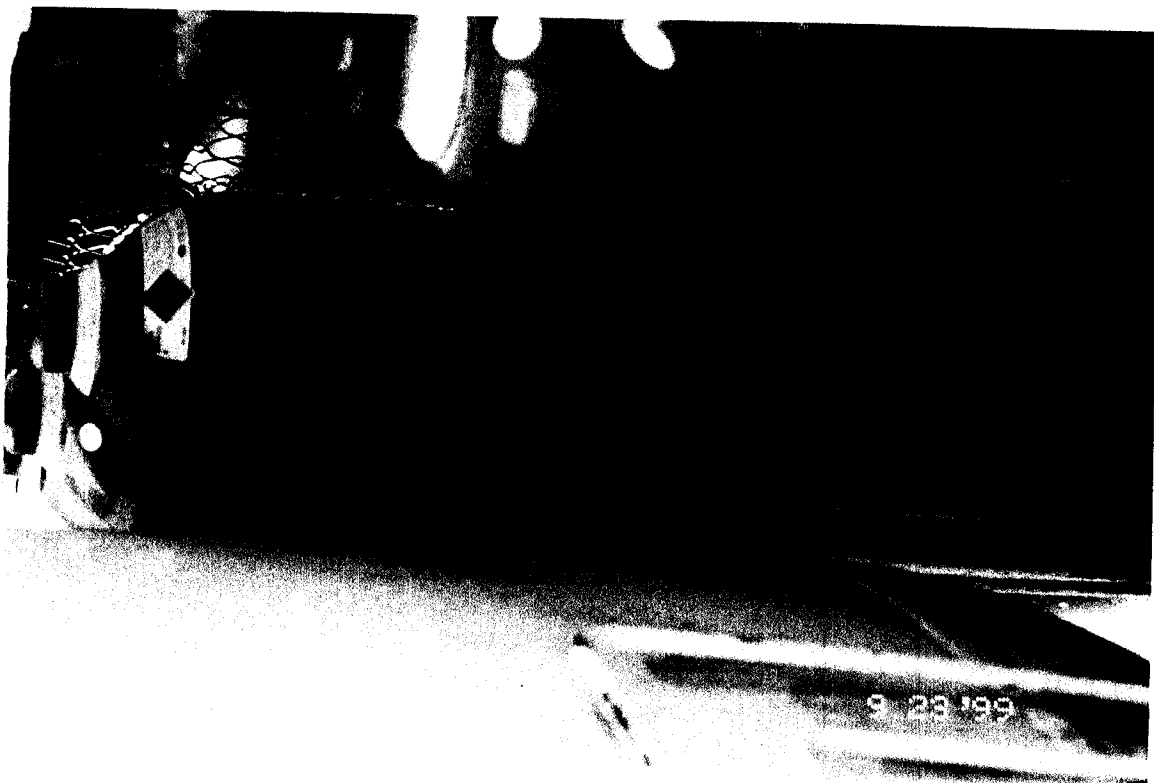


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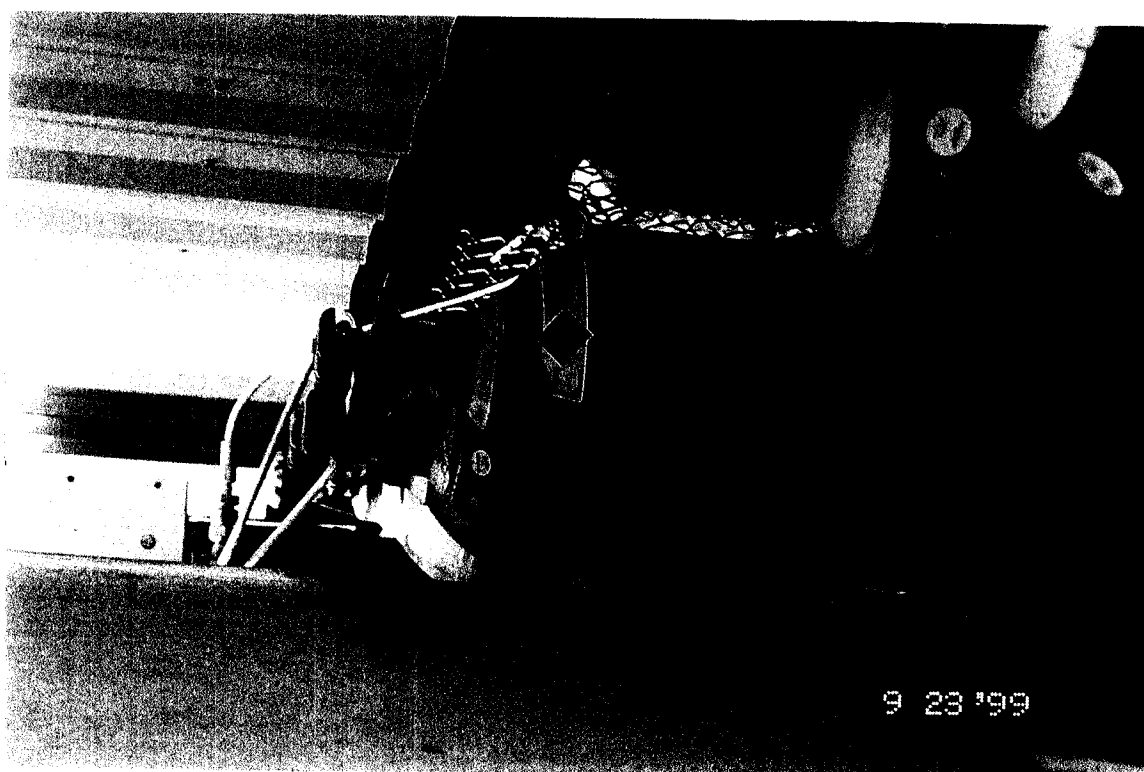


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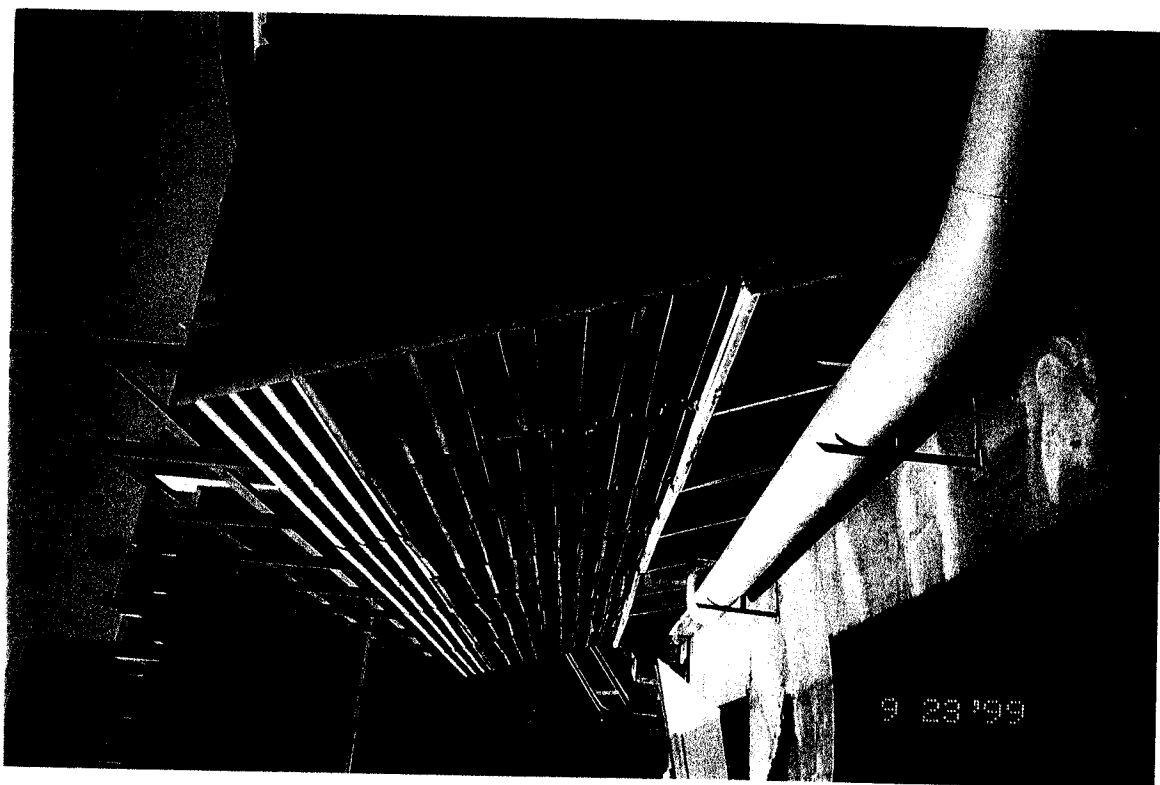


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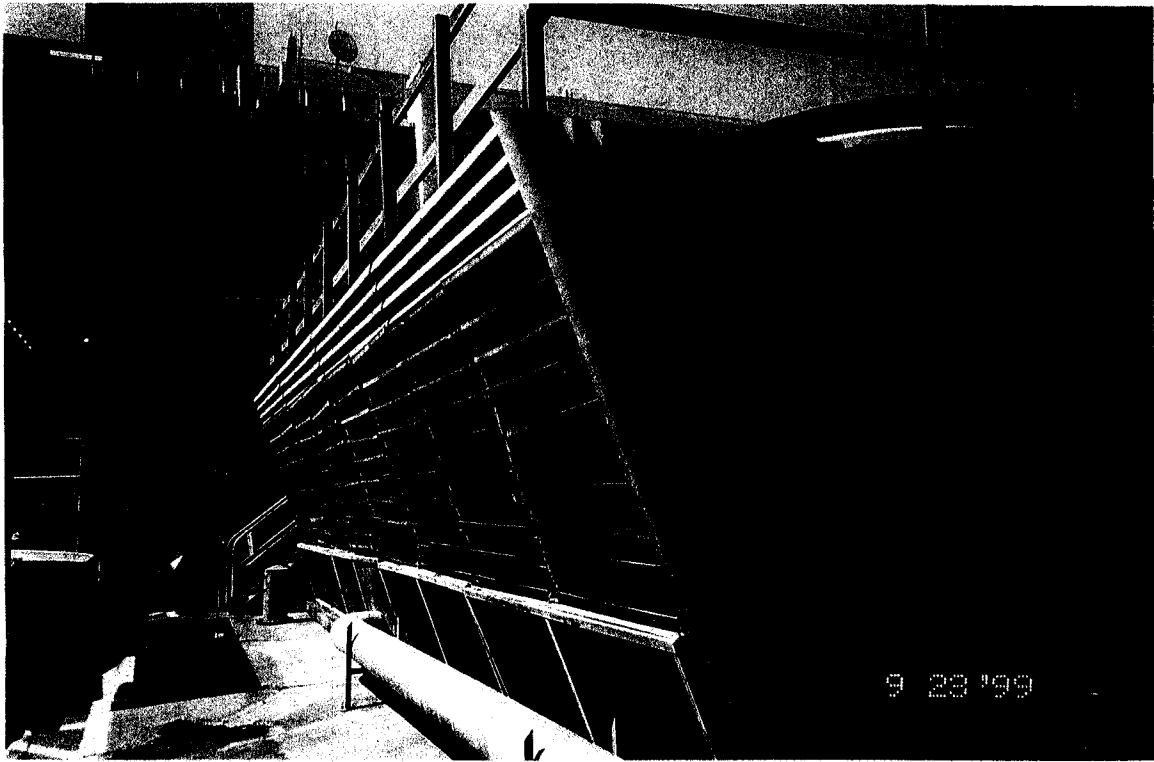


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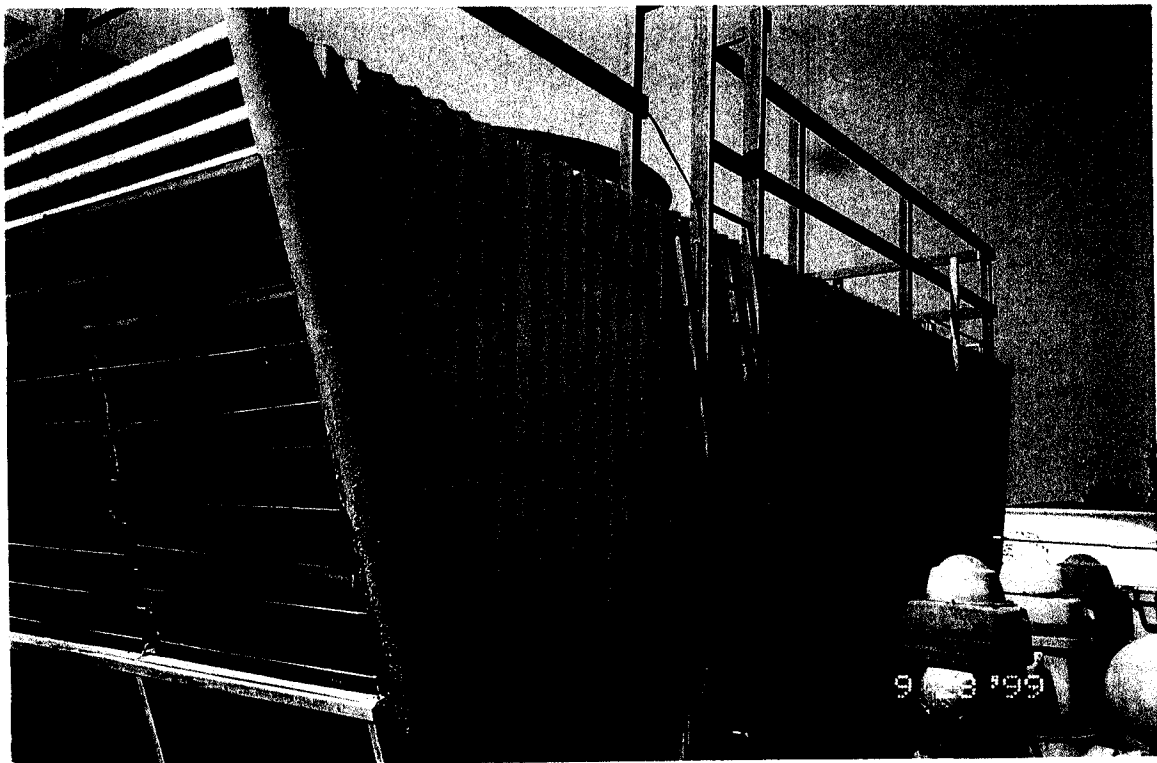


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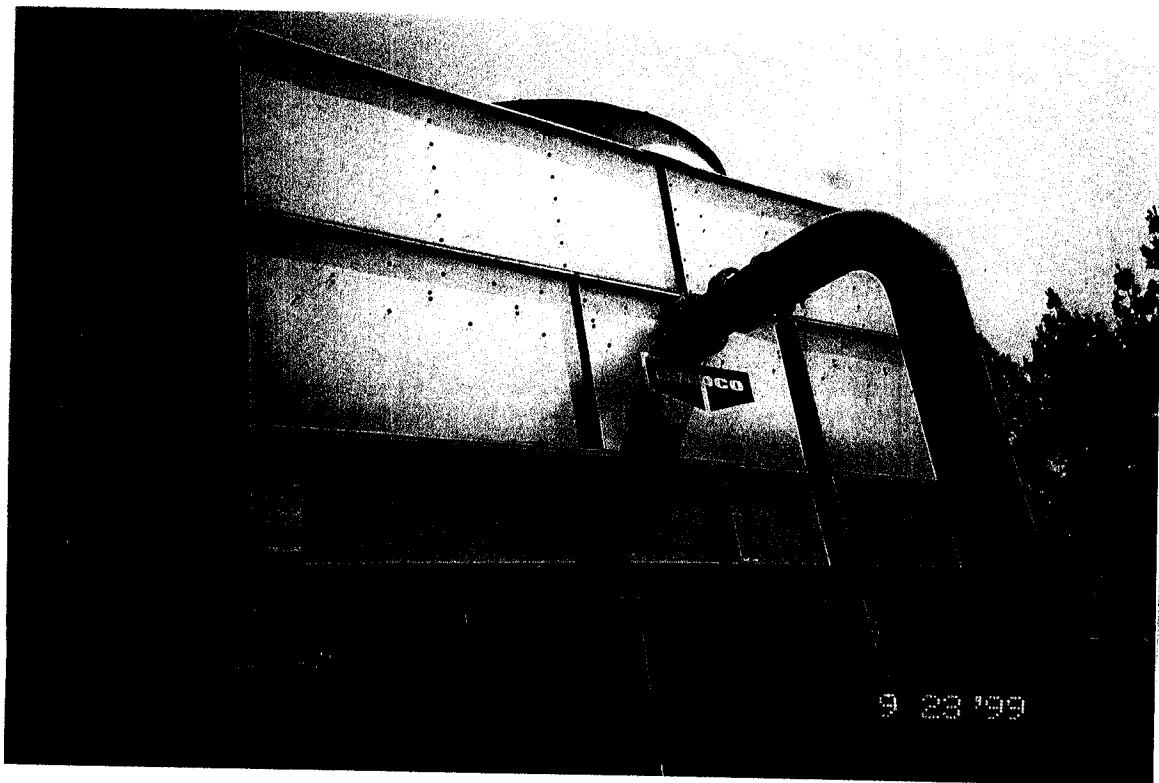


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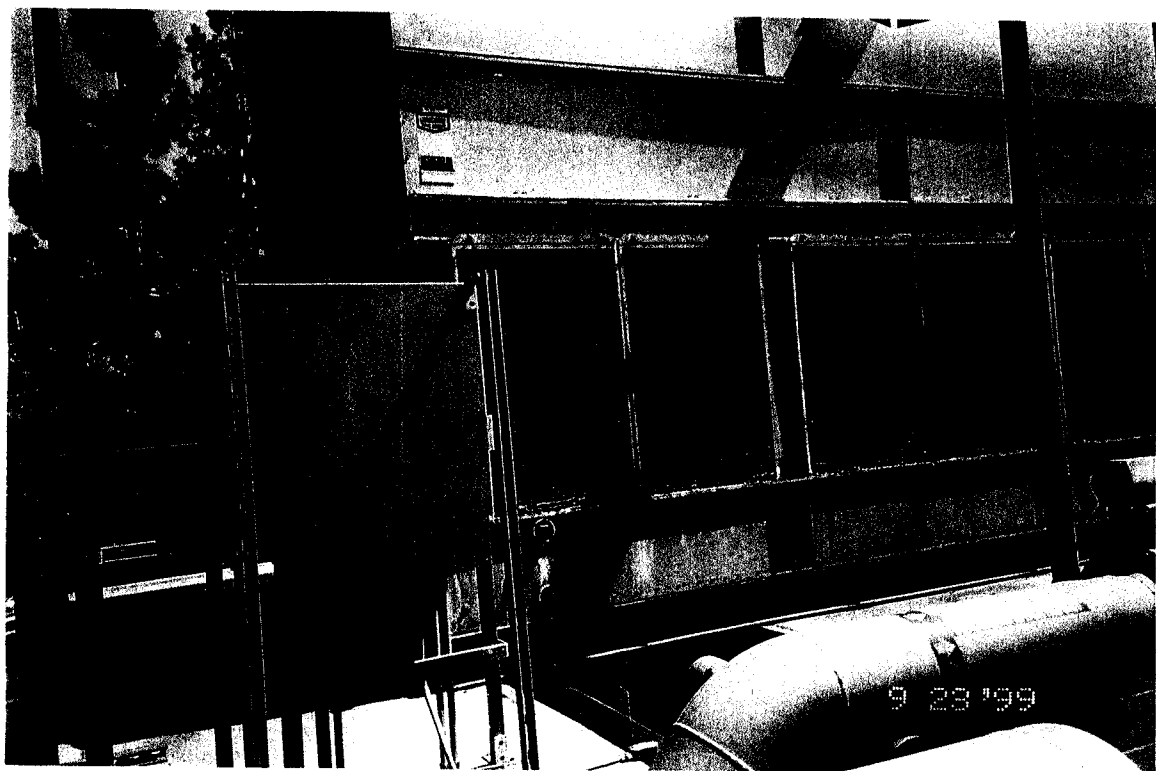


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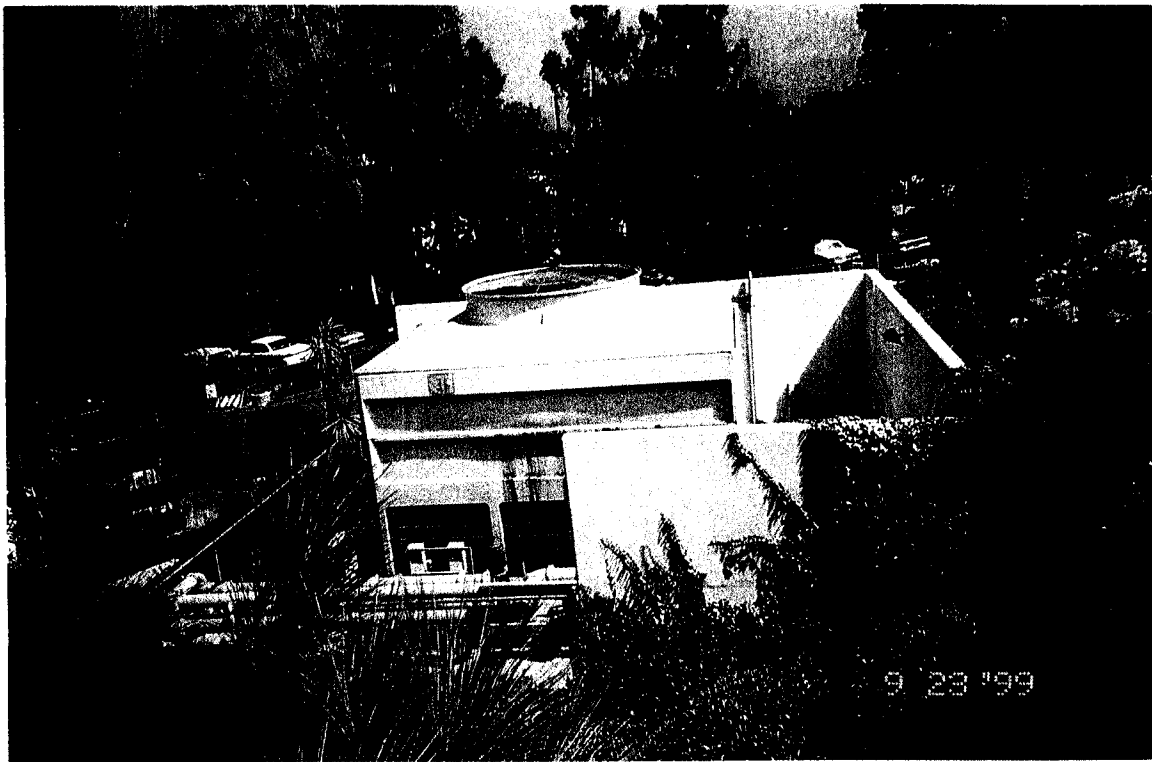


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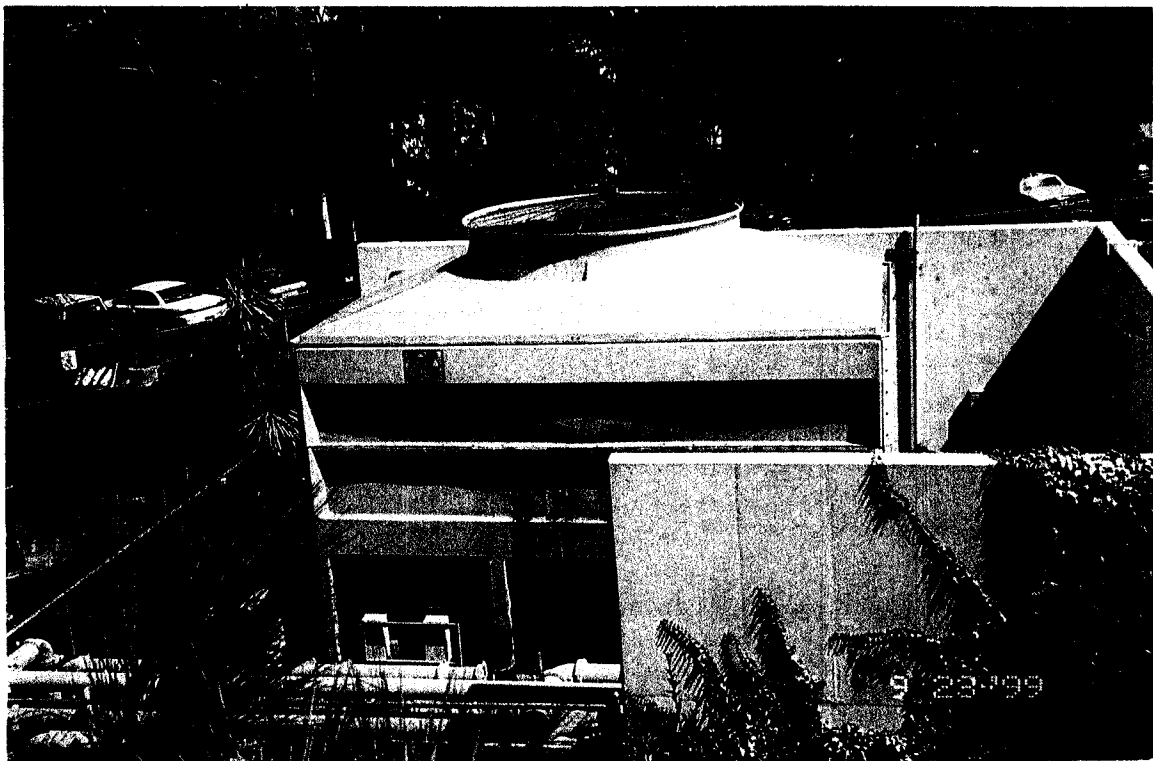


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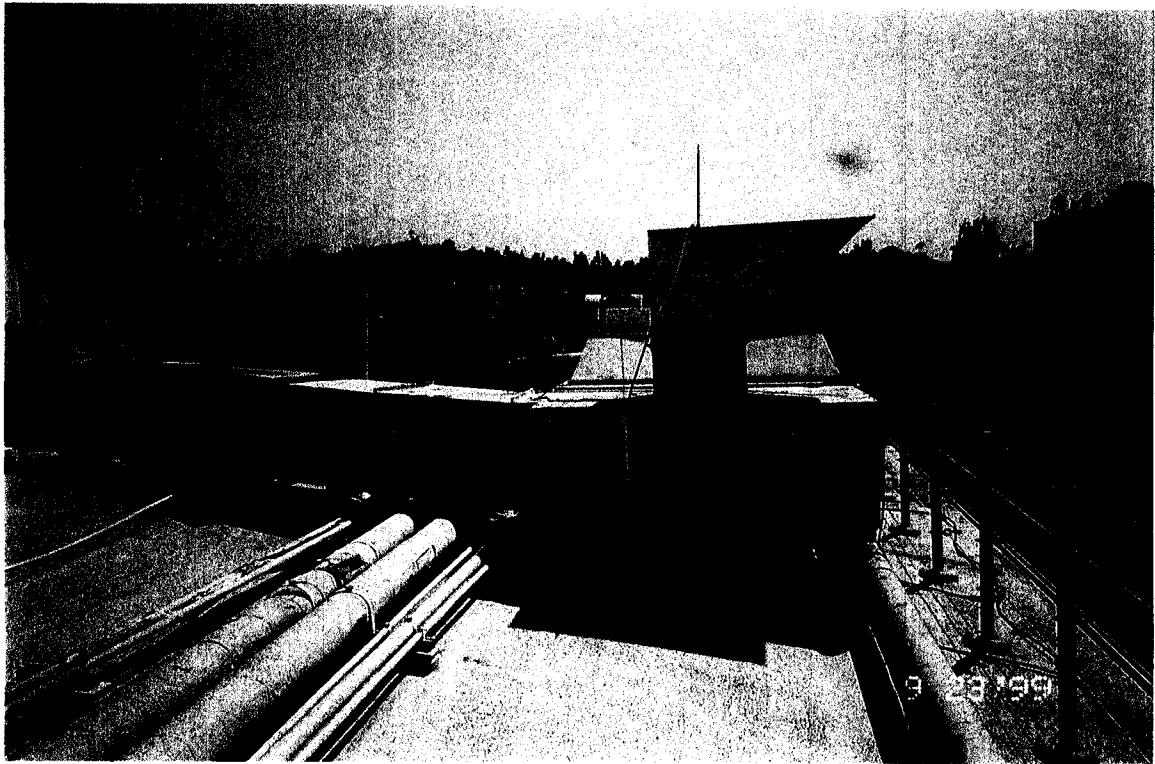


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Photo: PAL 1- 24



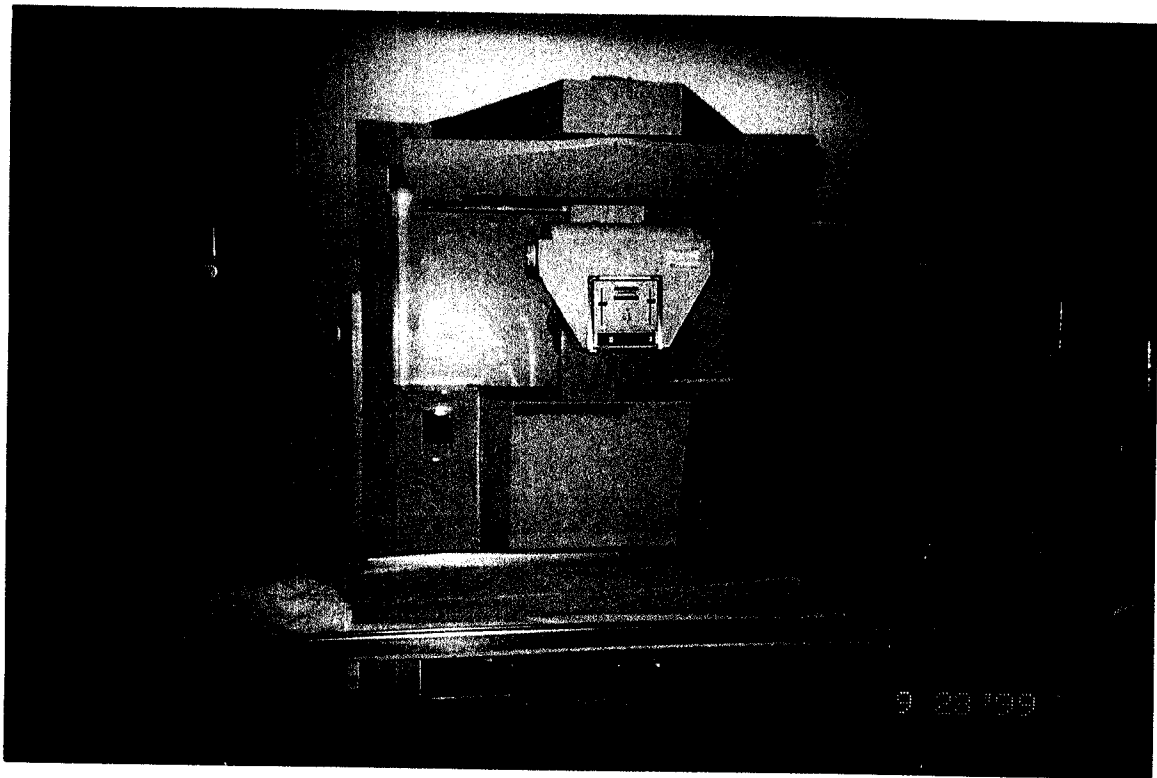


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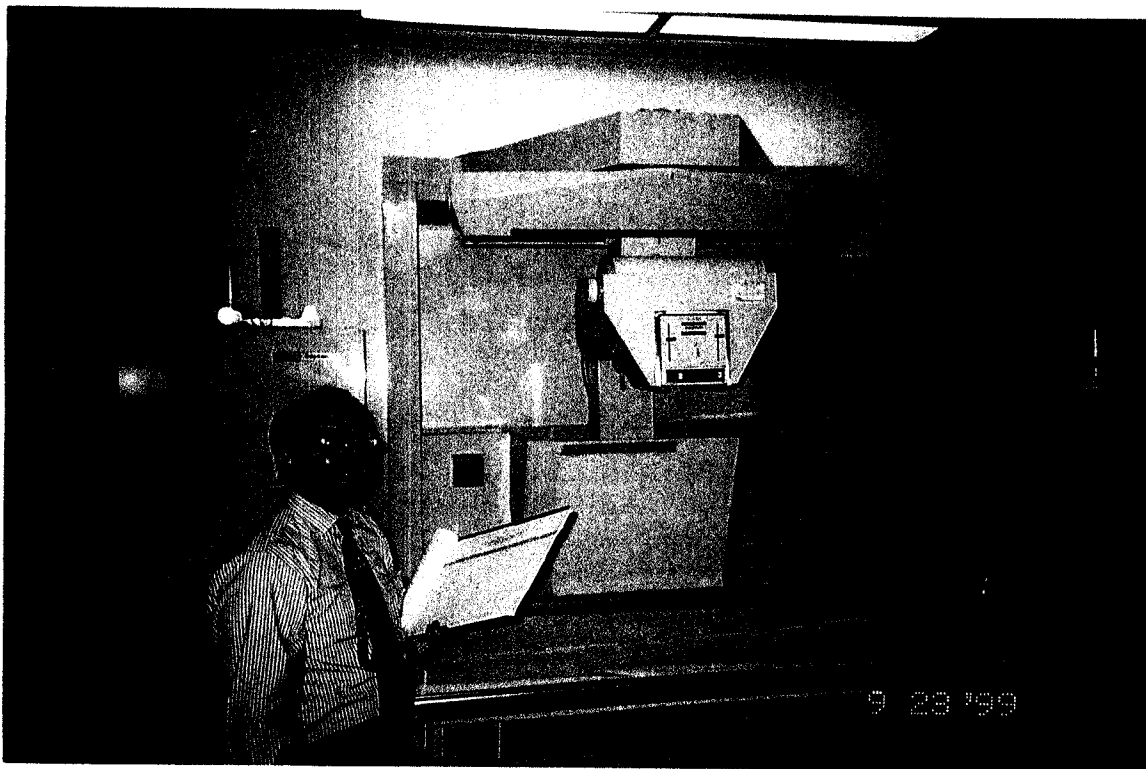


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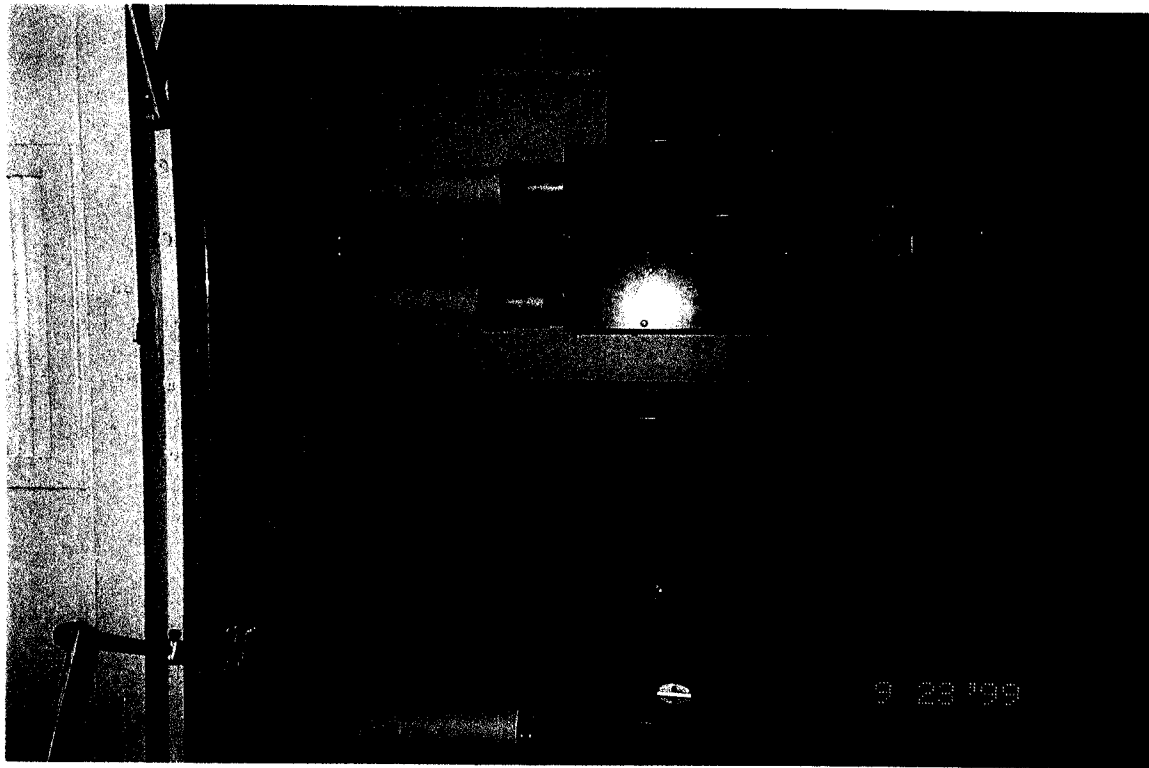


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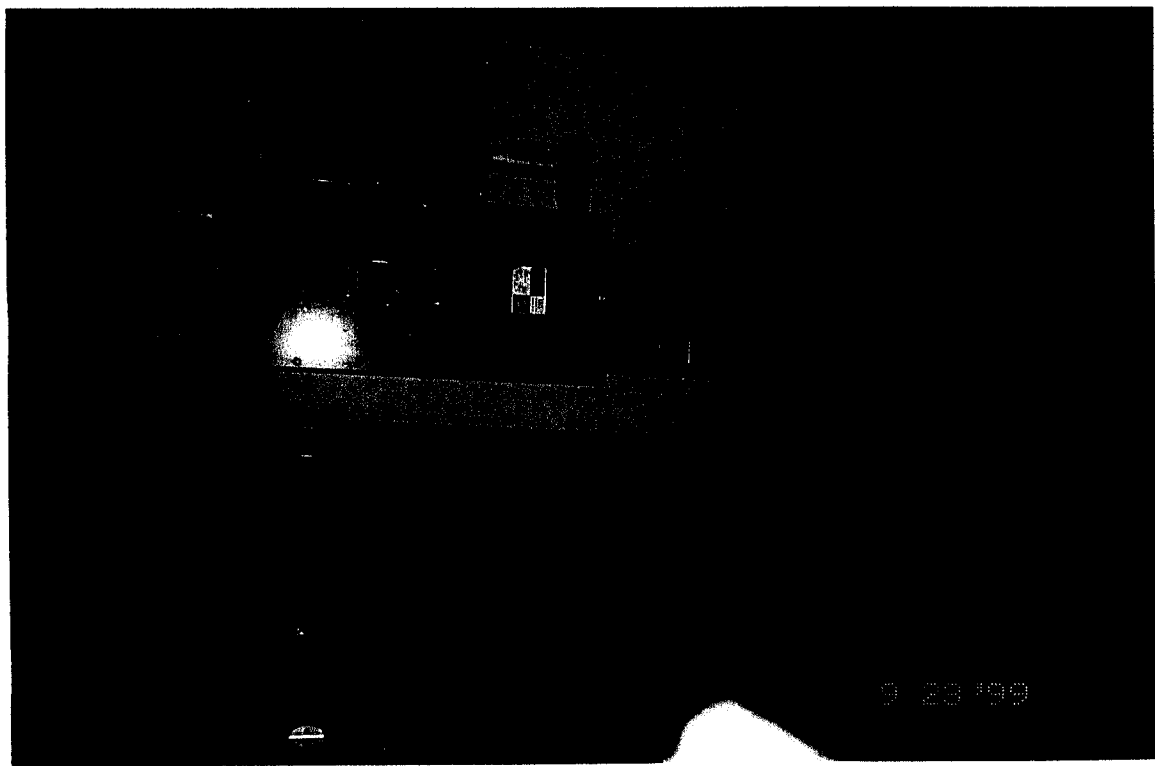


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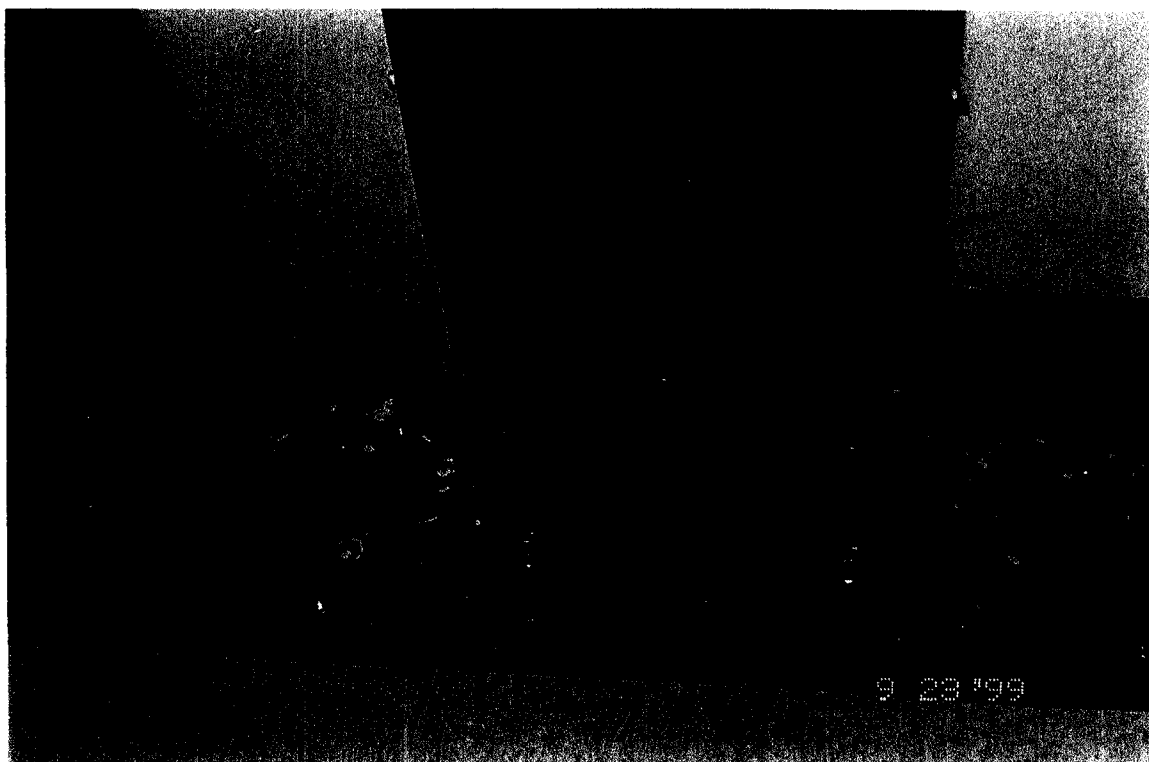


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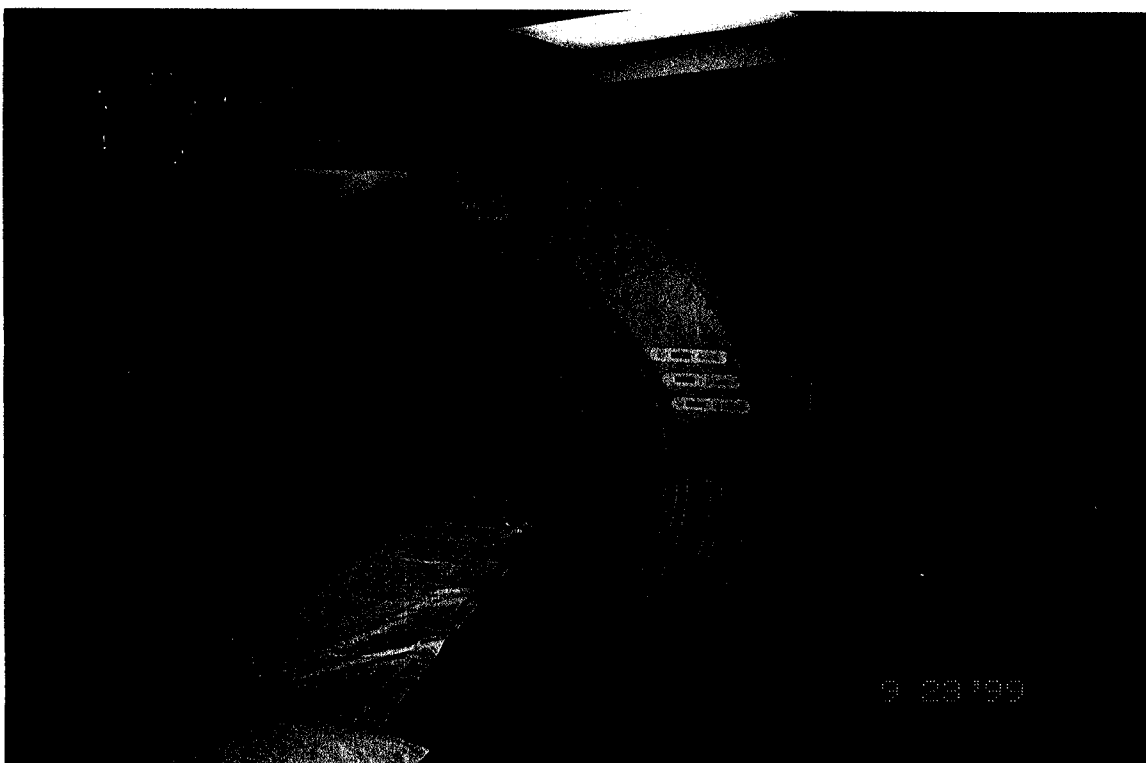


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Photo: PAL 2- 7

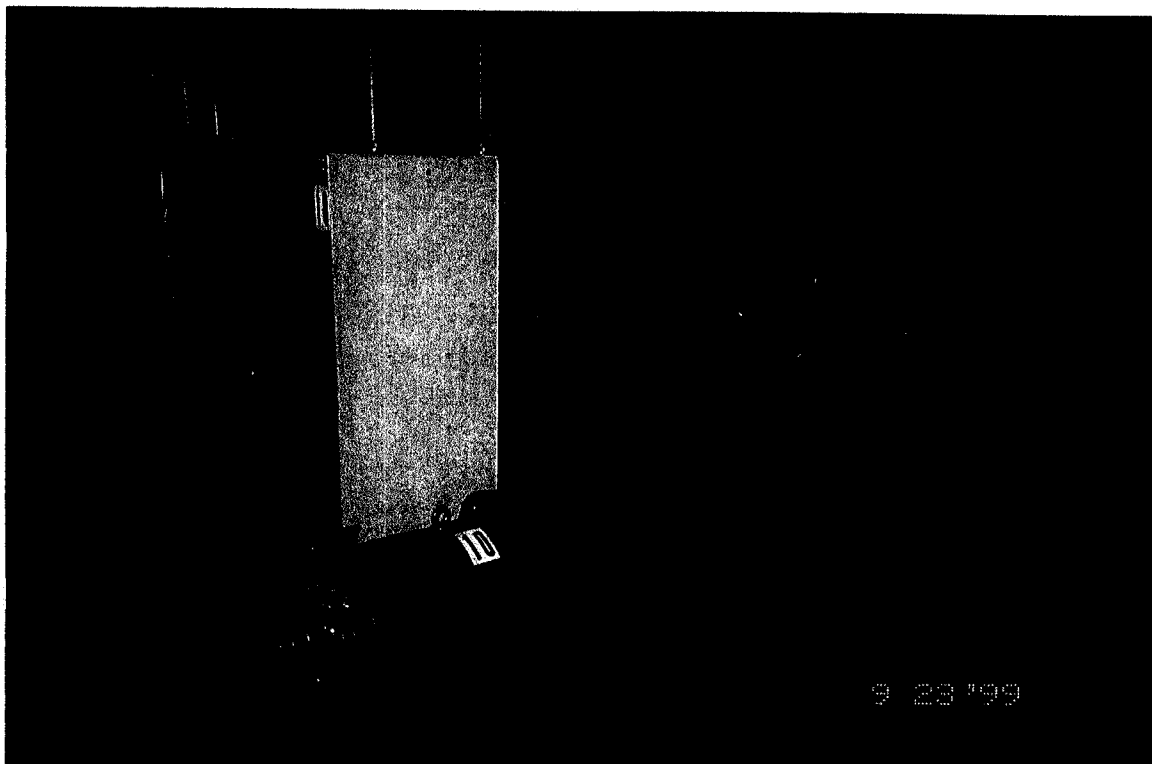


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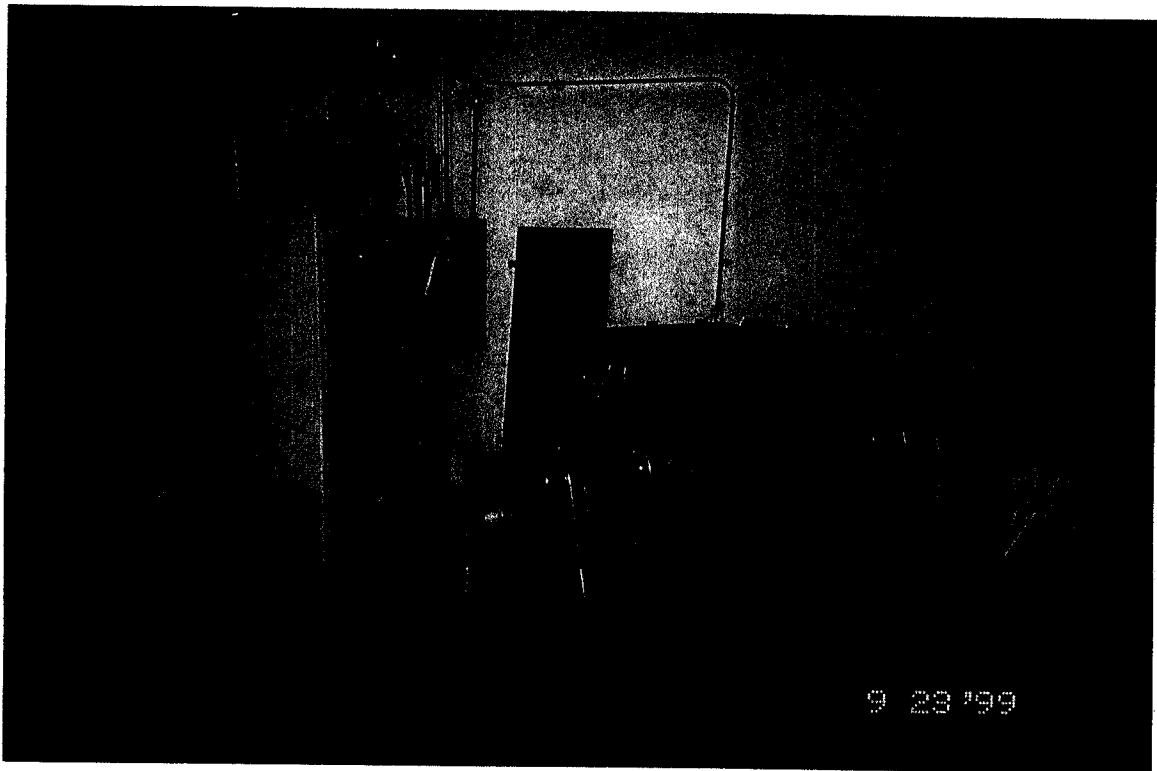


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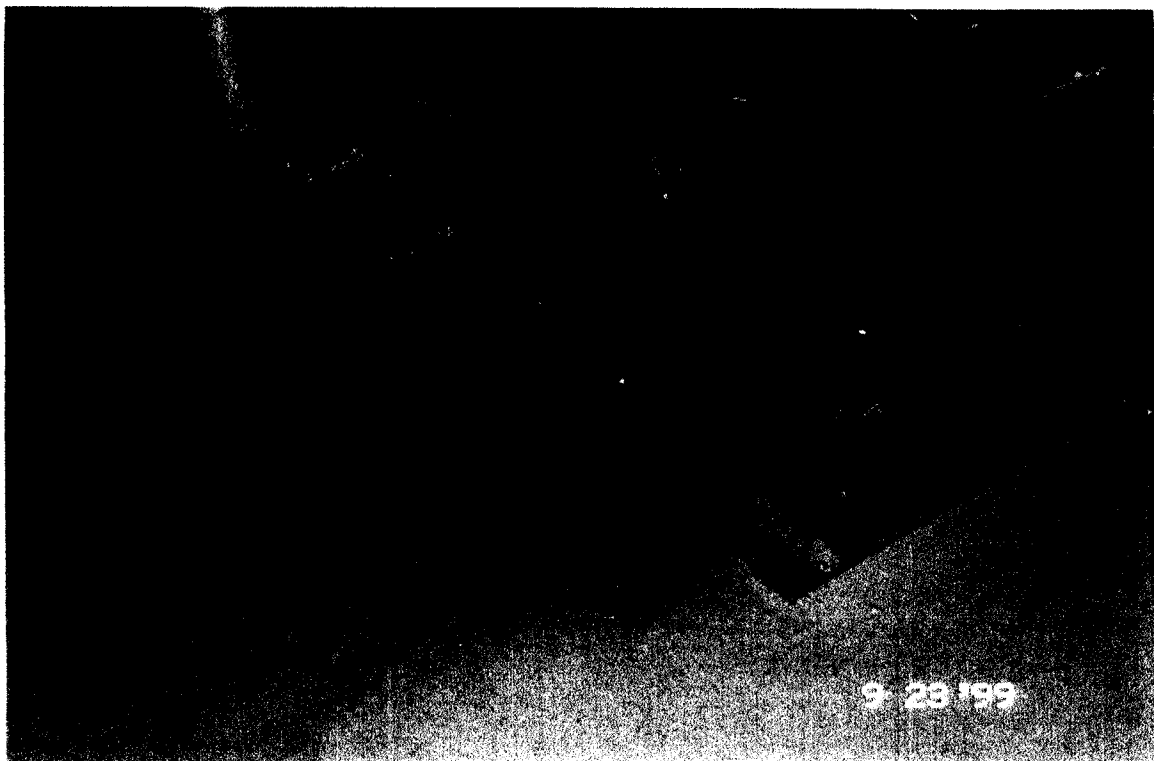


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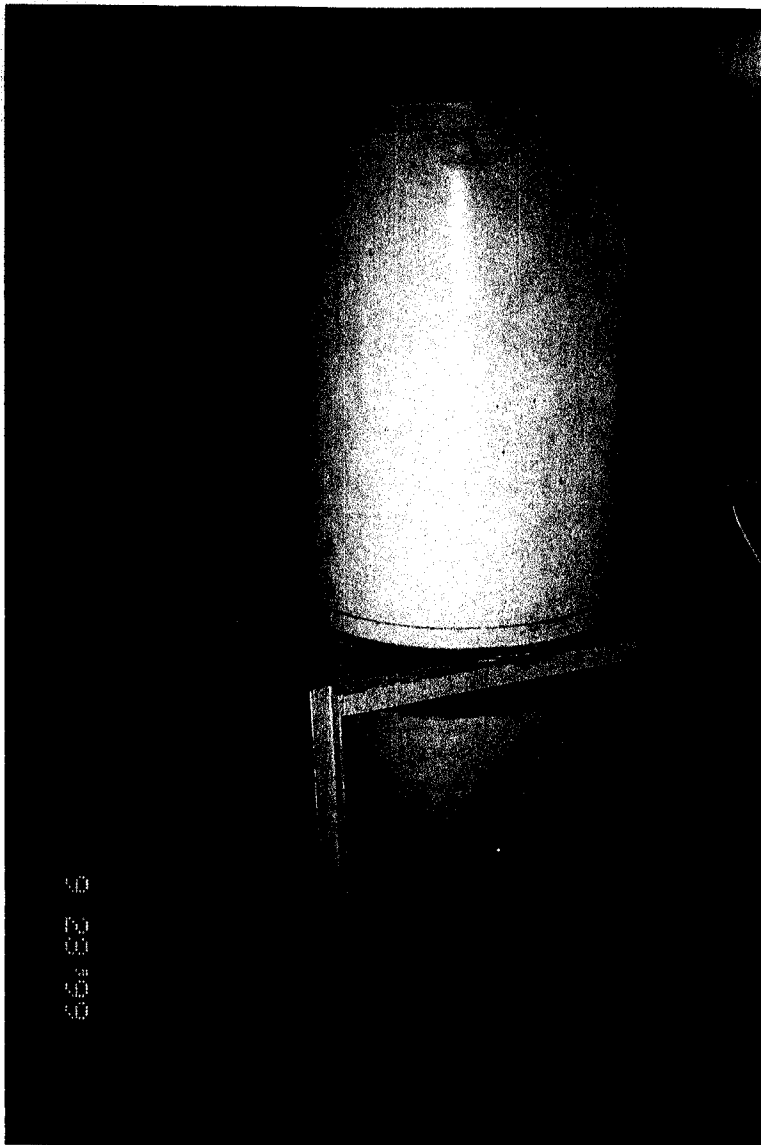


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Photo: PAL 2- 12

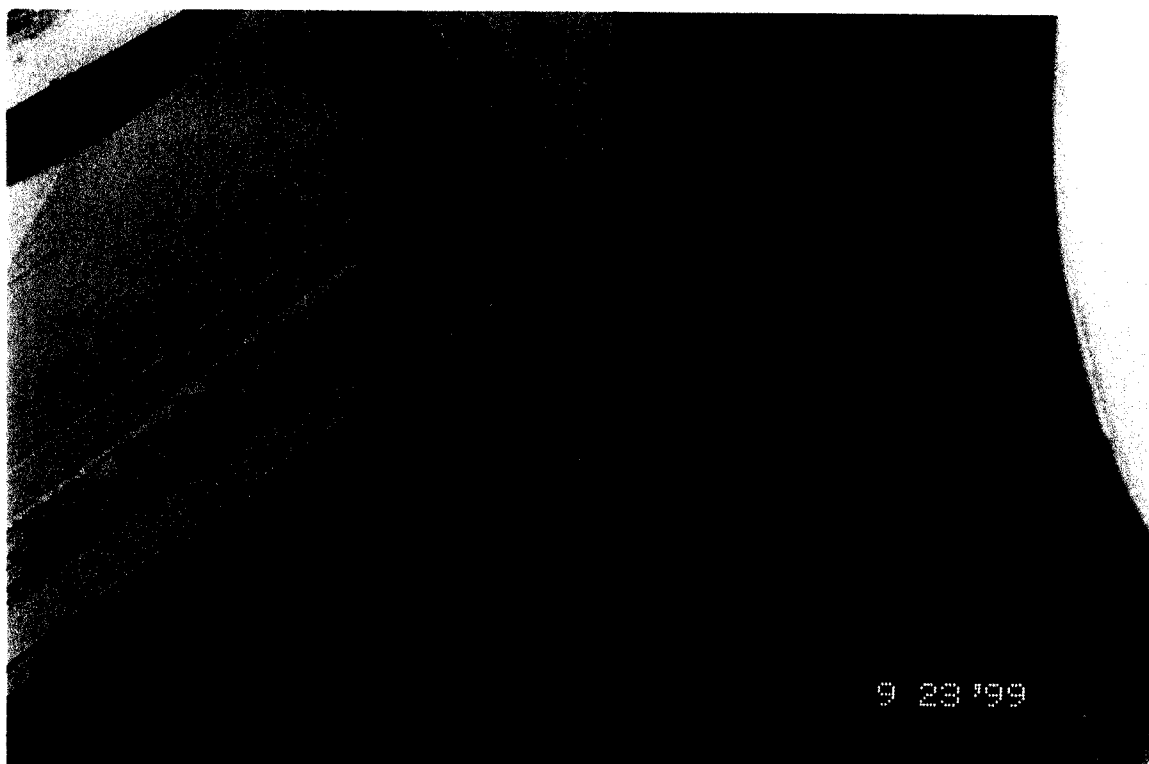


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Photo: PAL 2- 14



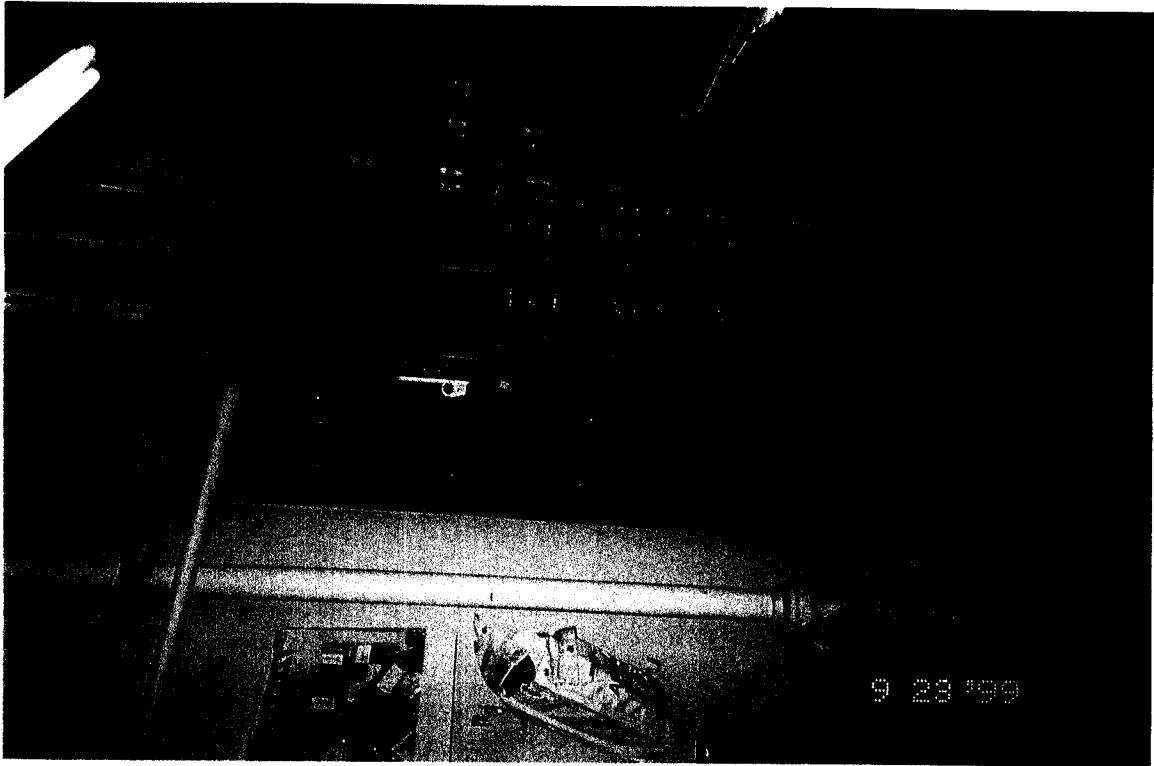


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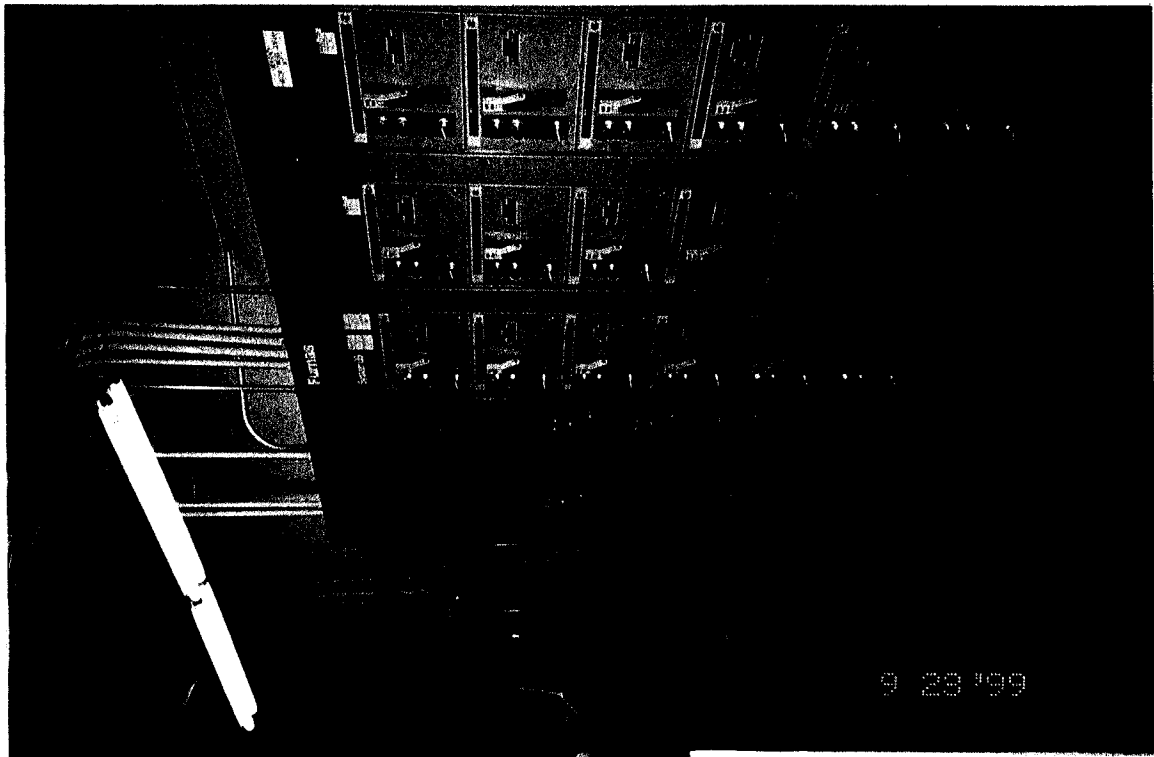


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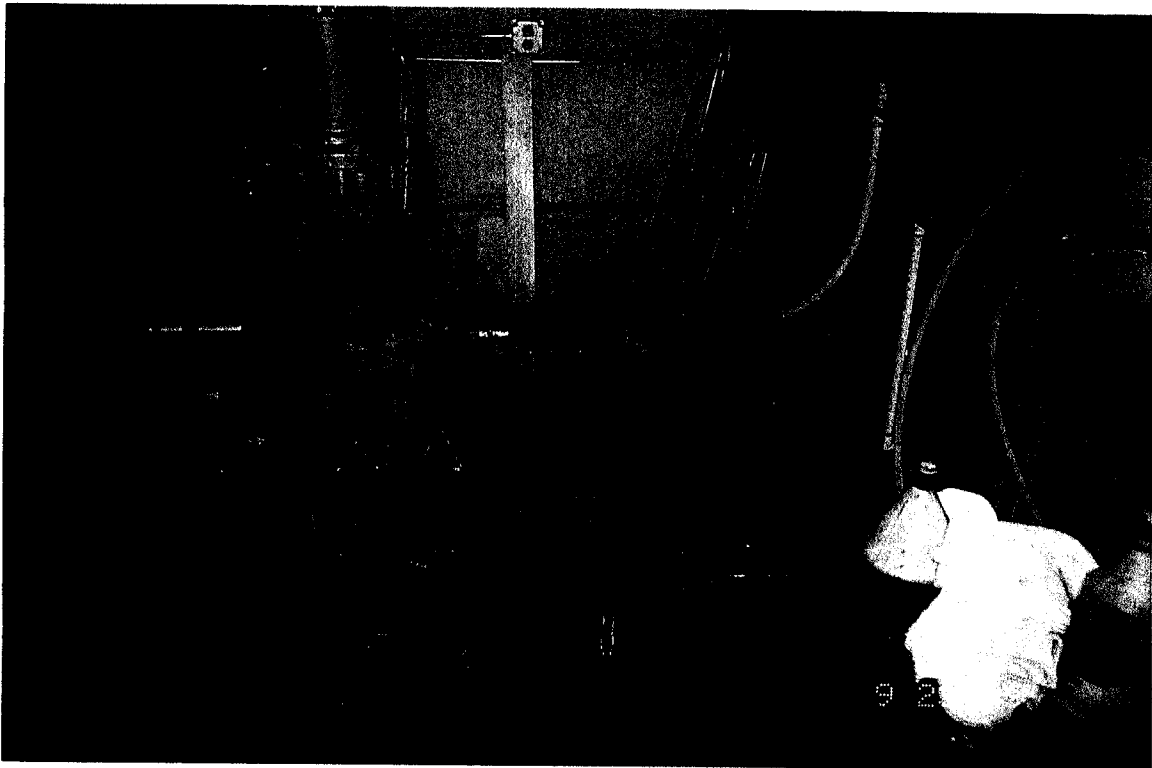


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Photo: PAL 2- 18



Photo: PAL 2-20



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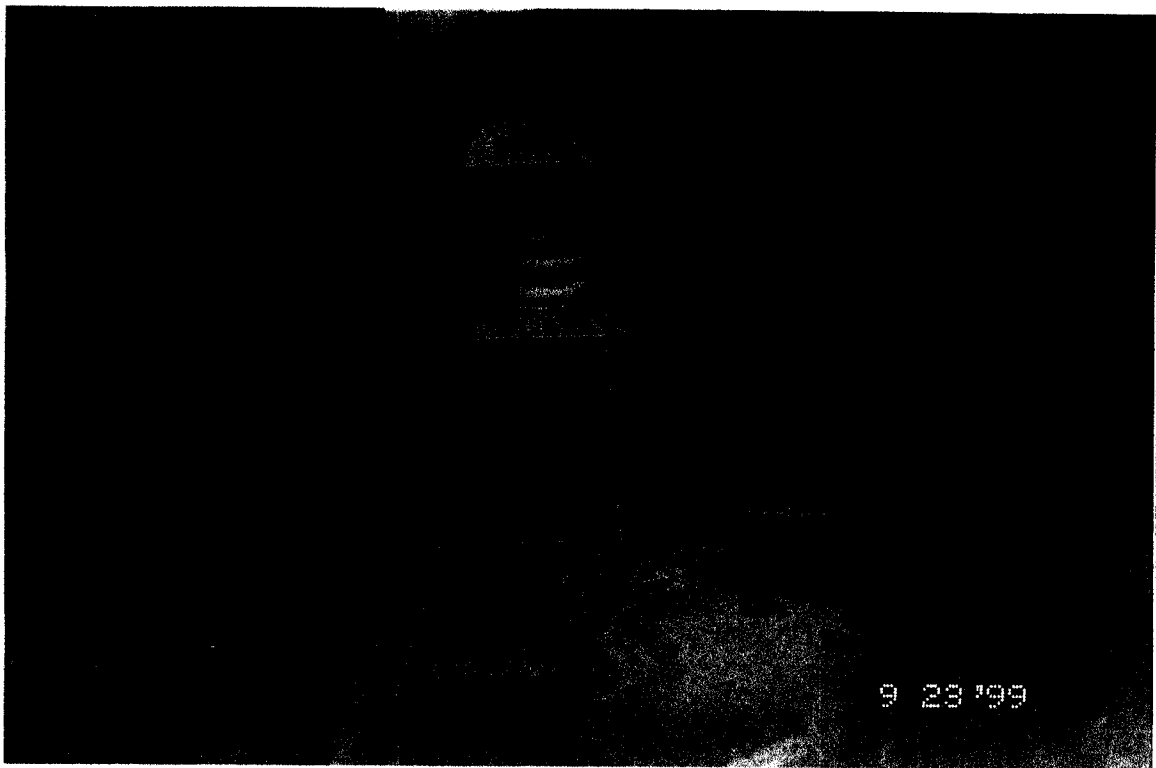


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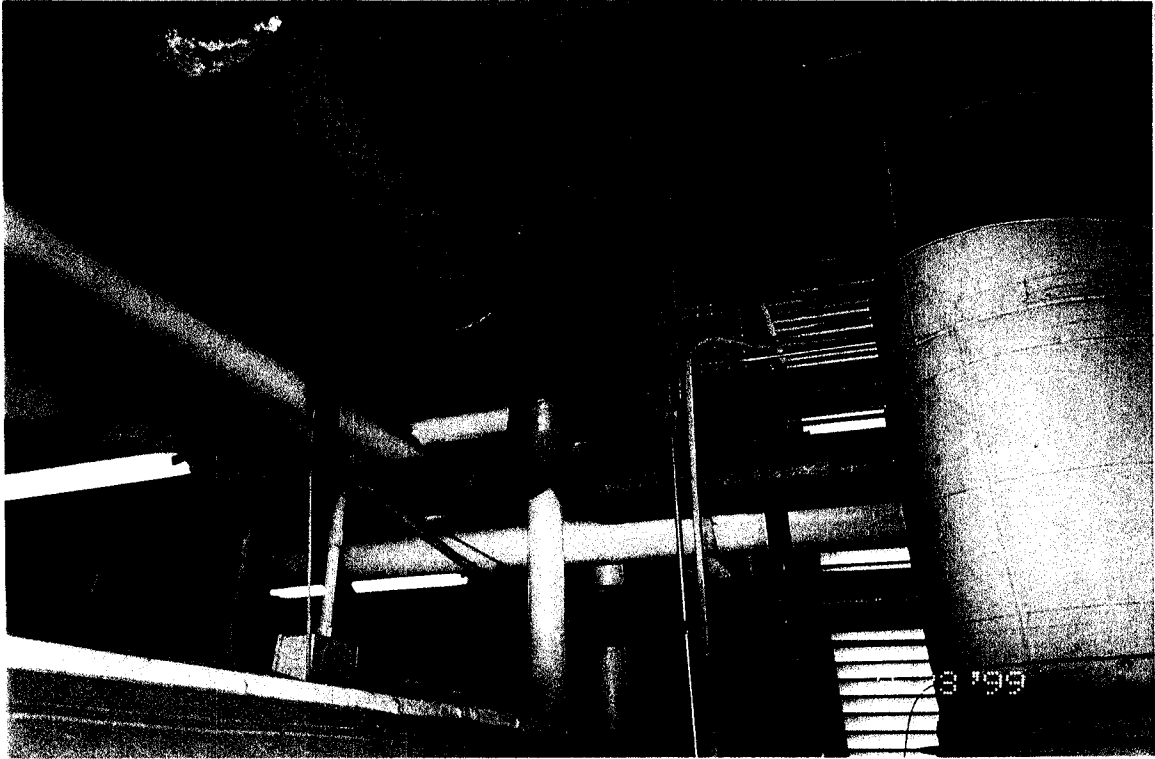


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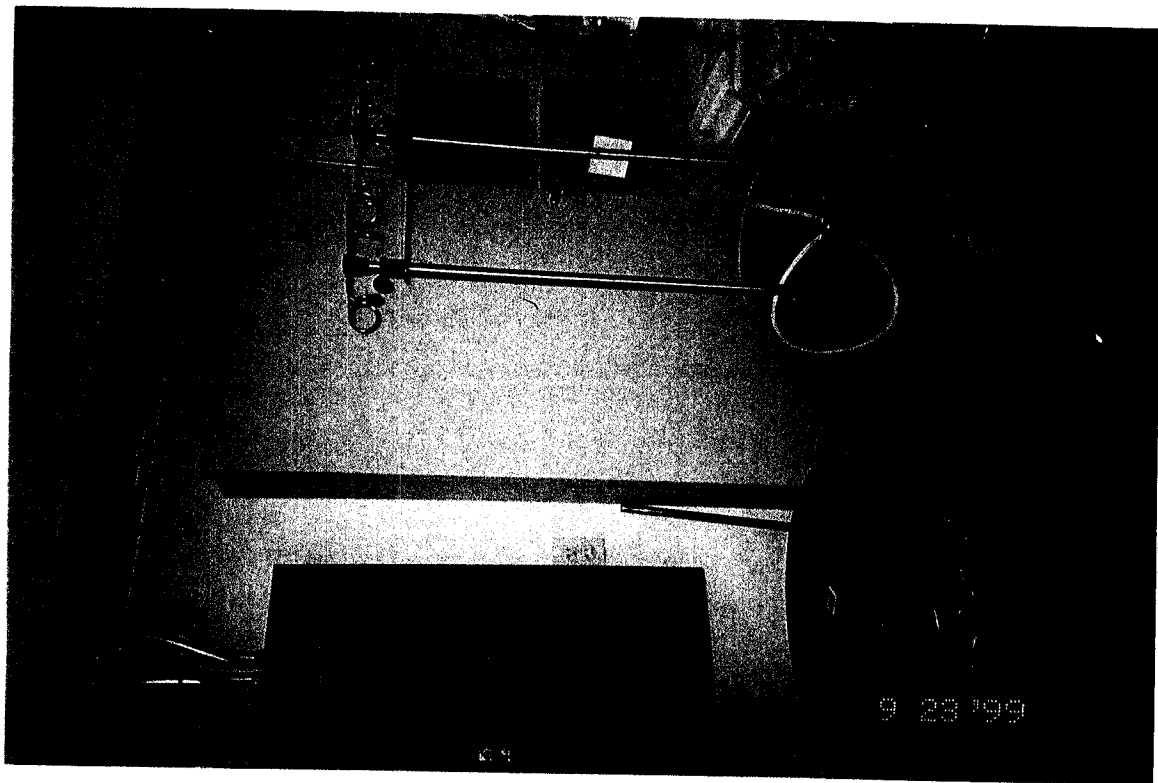


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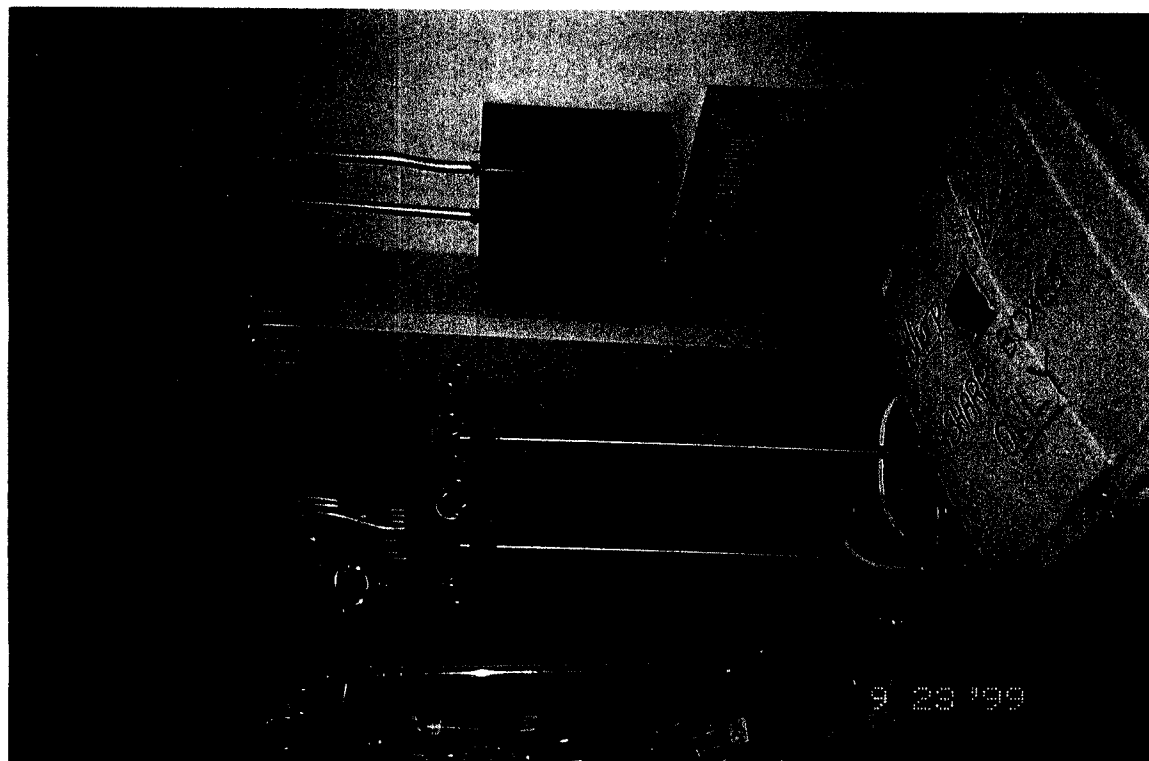


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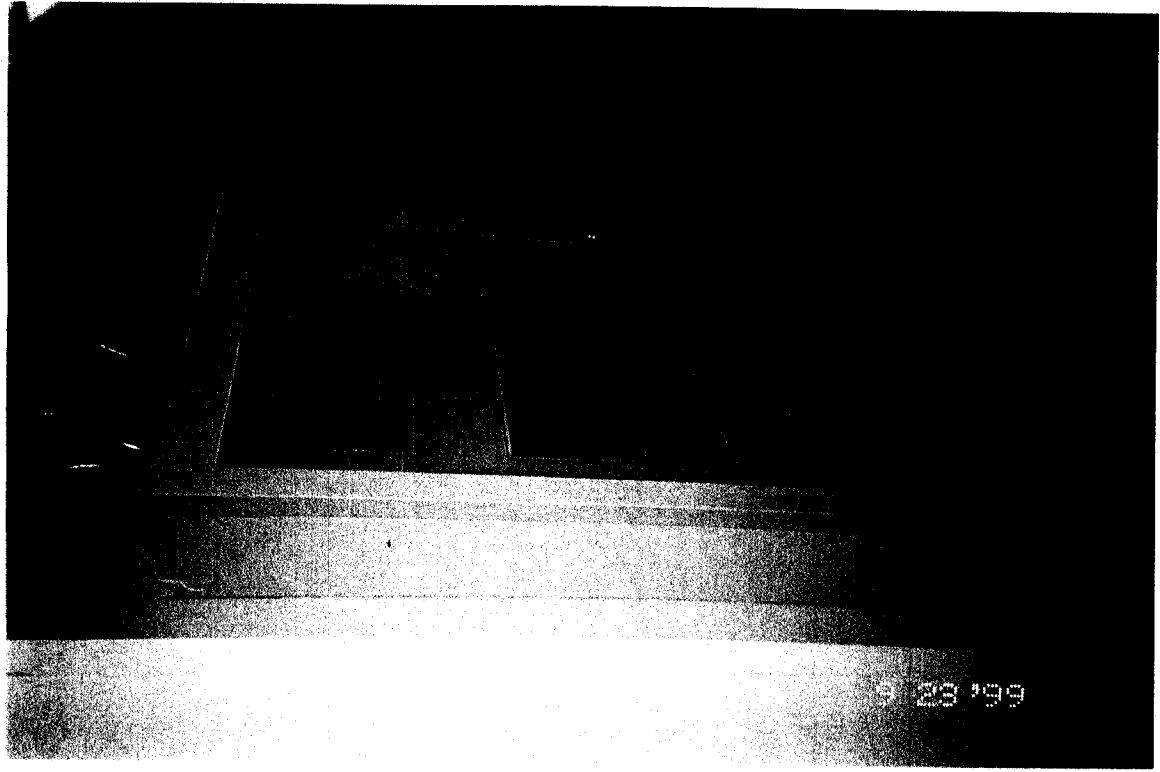


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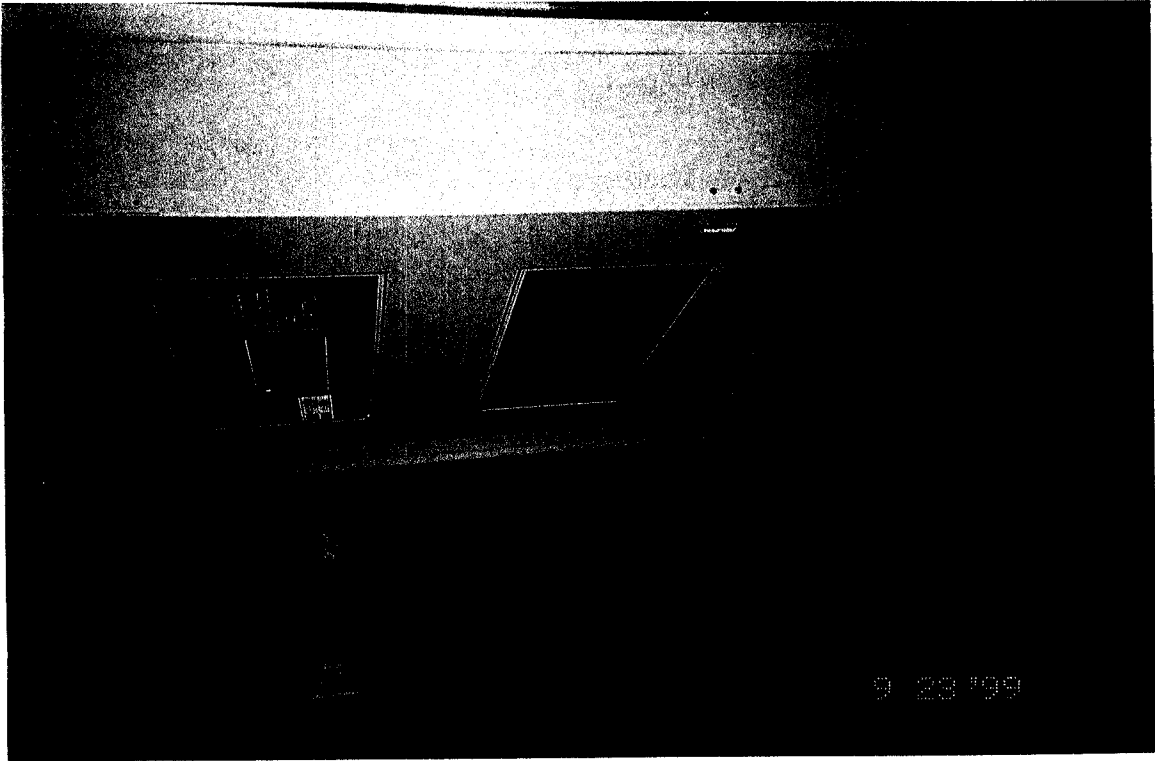


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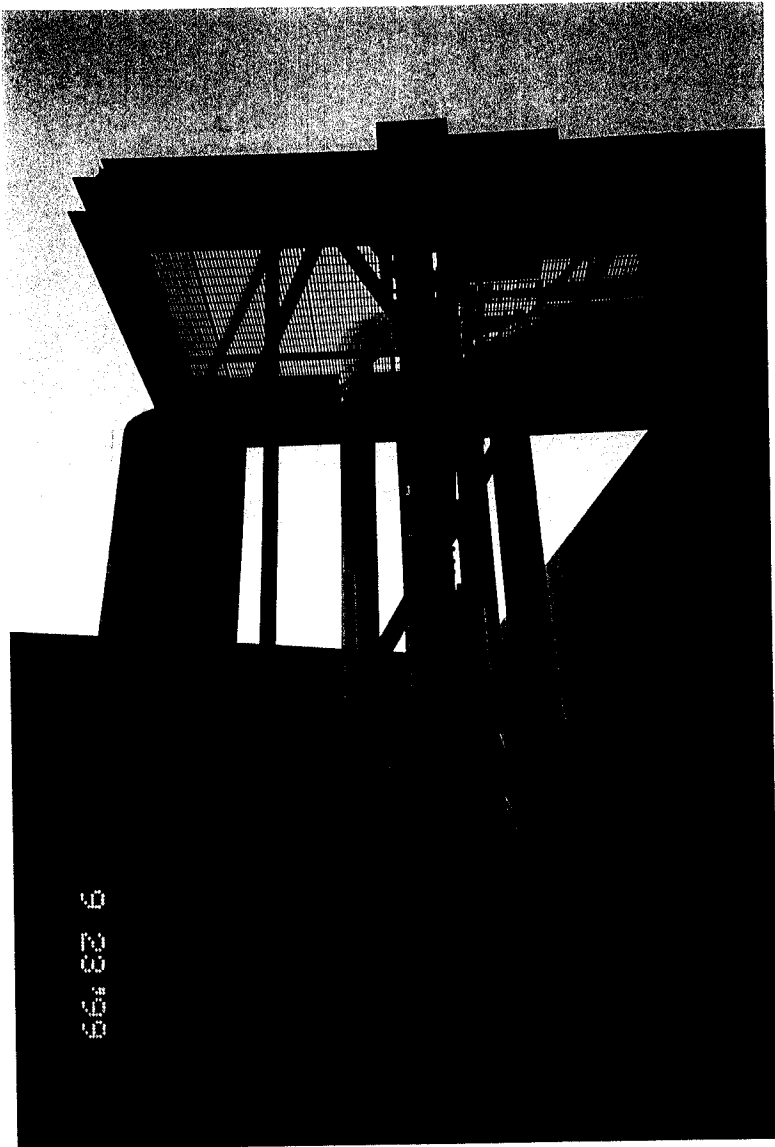


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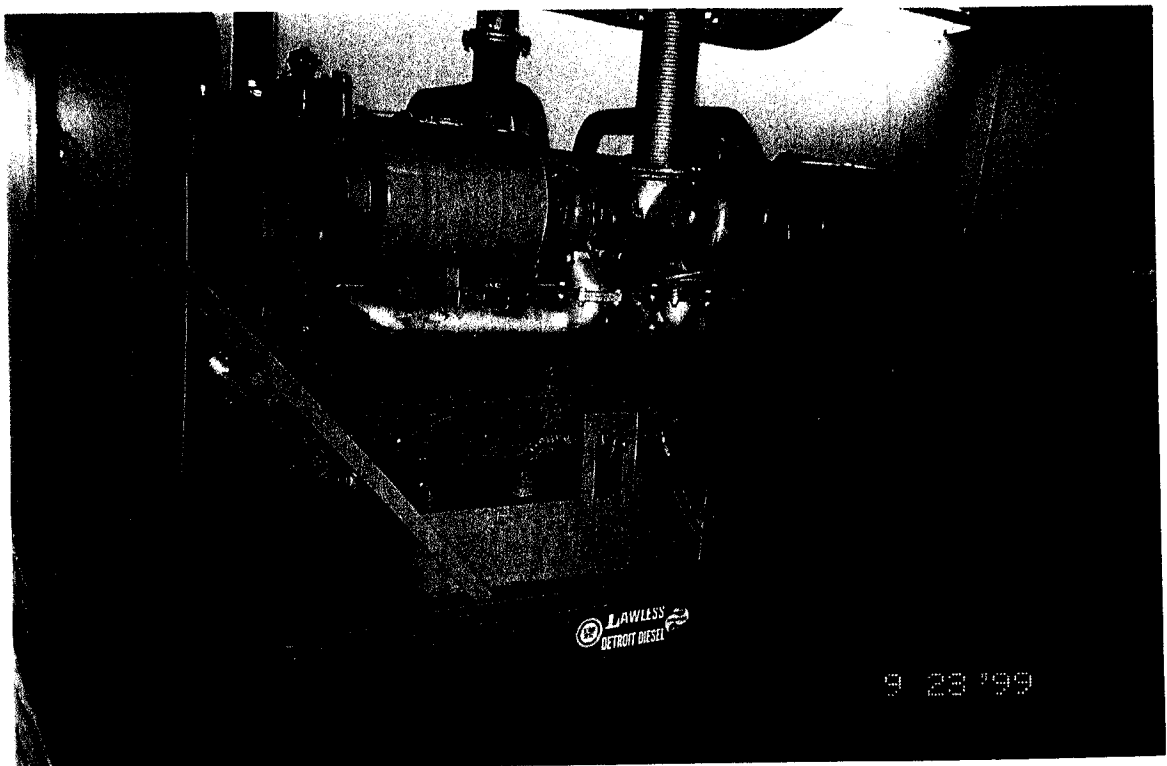


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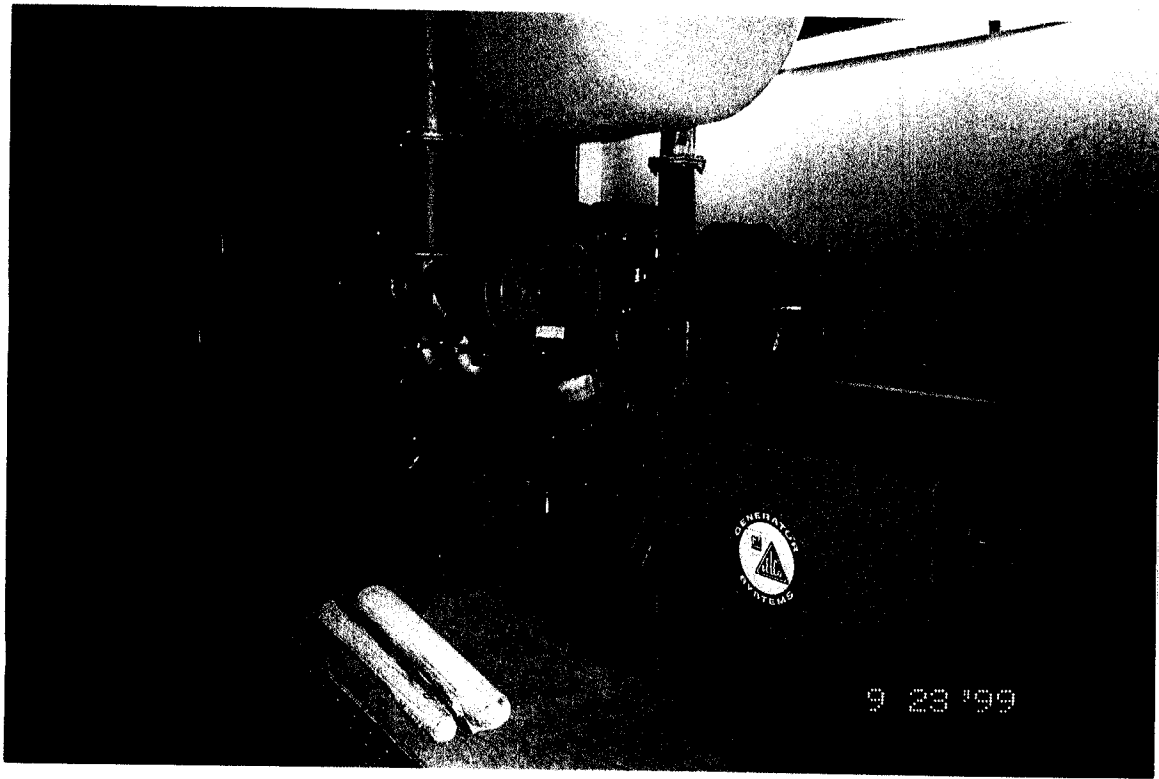


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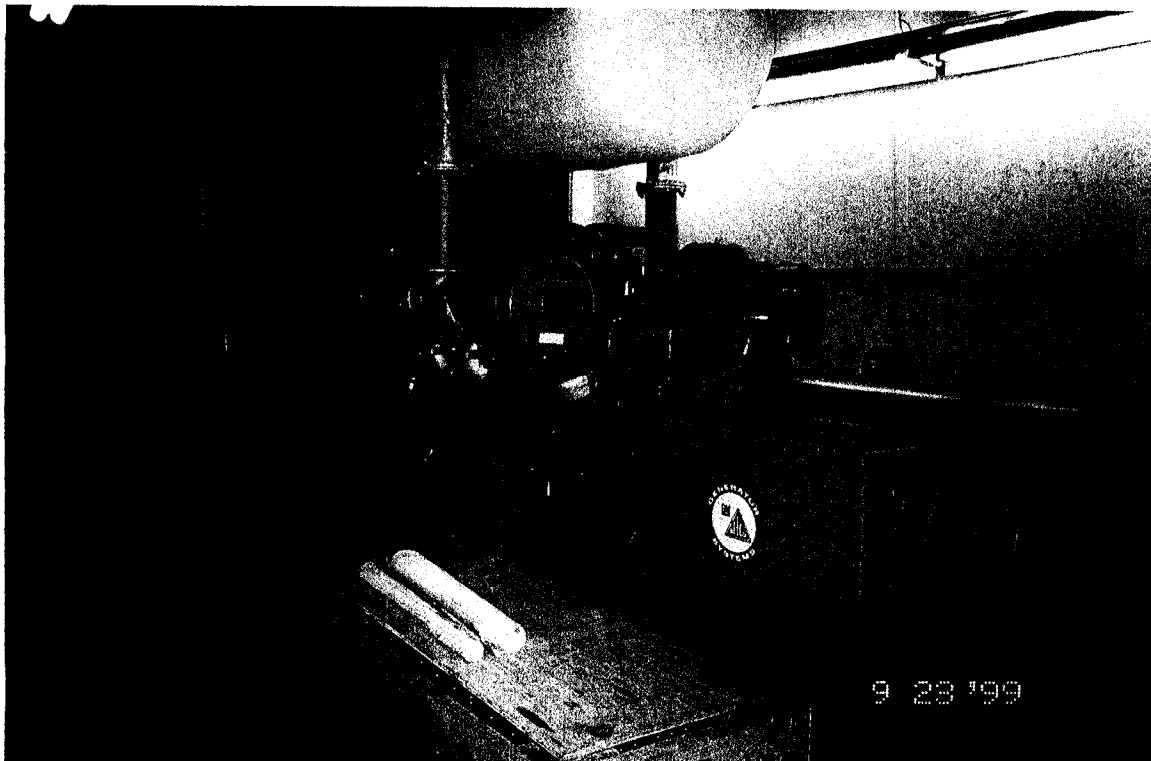


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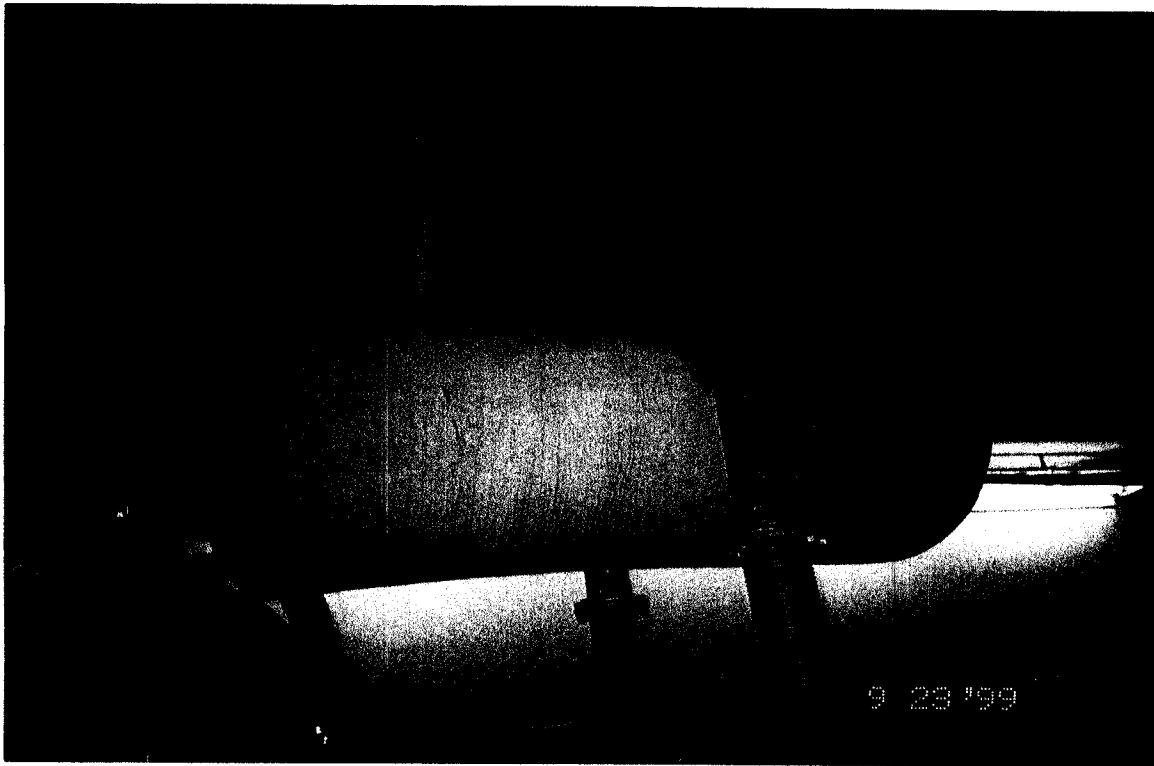


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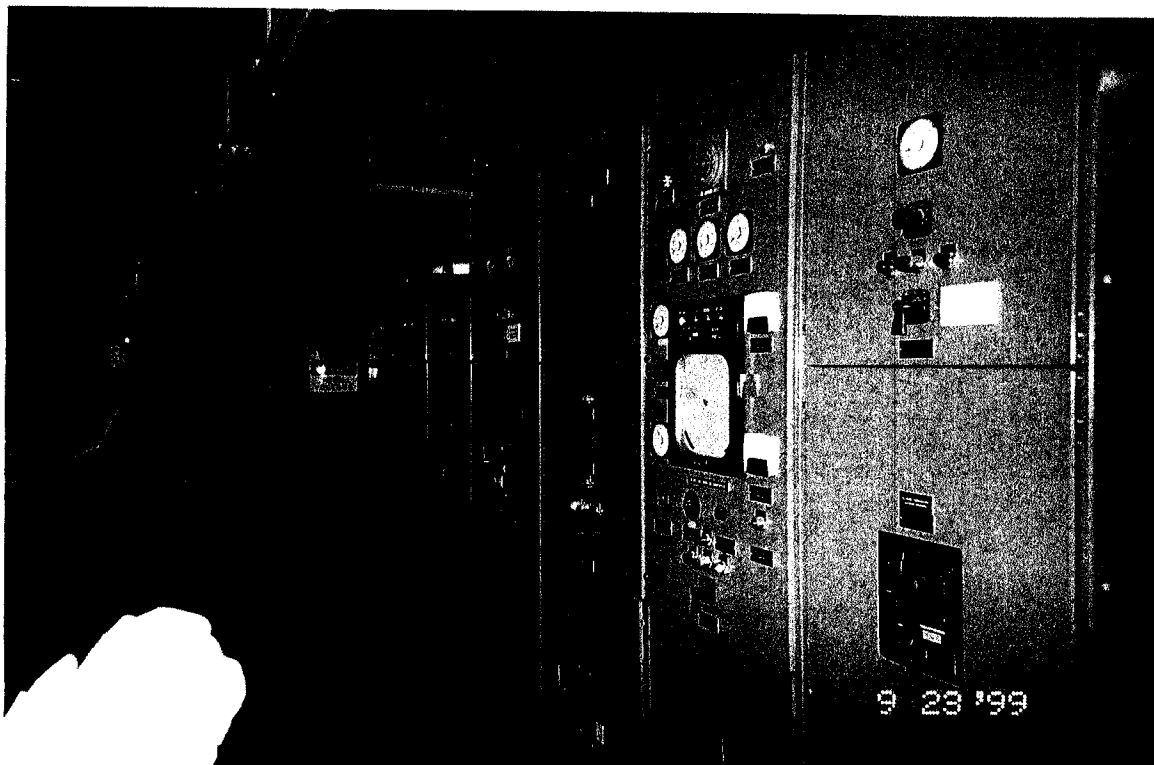


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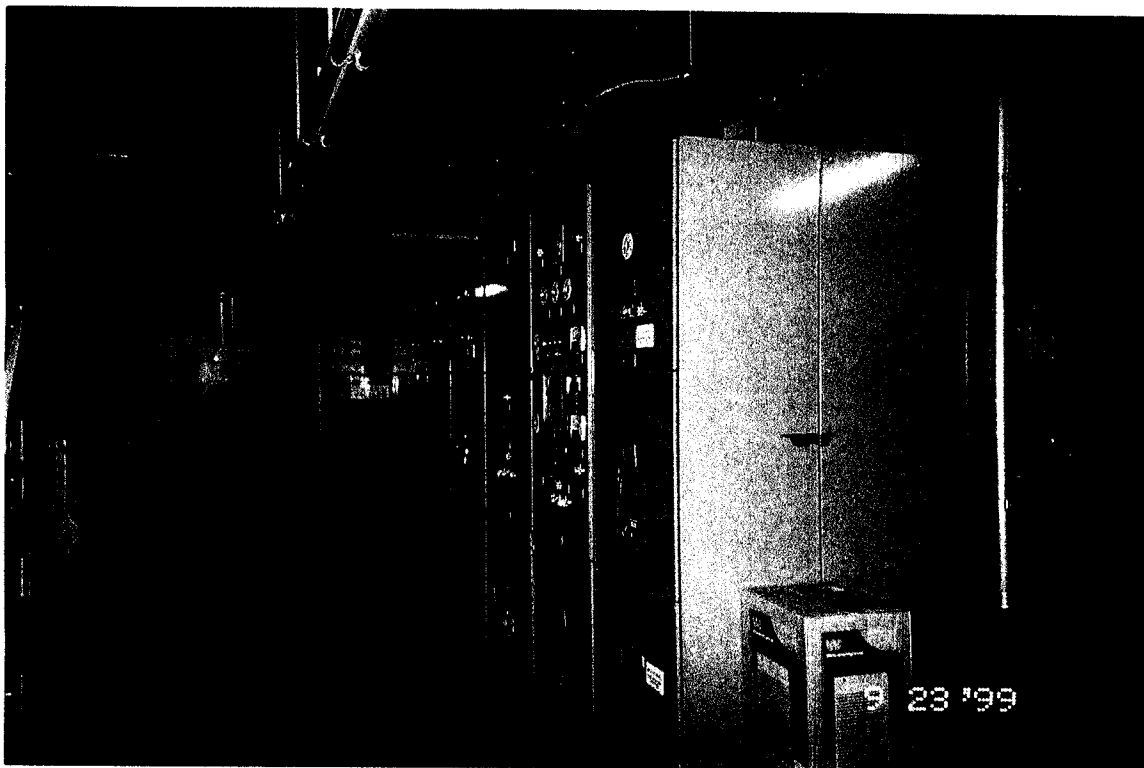


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Photo: PAL 3- 12

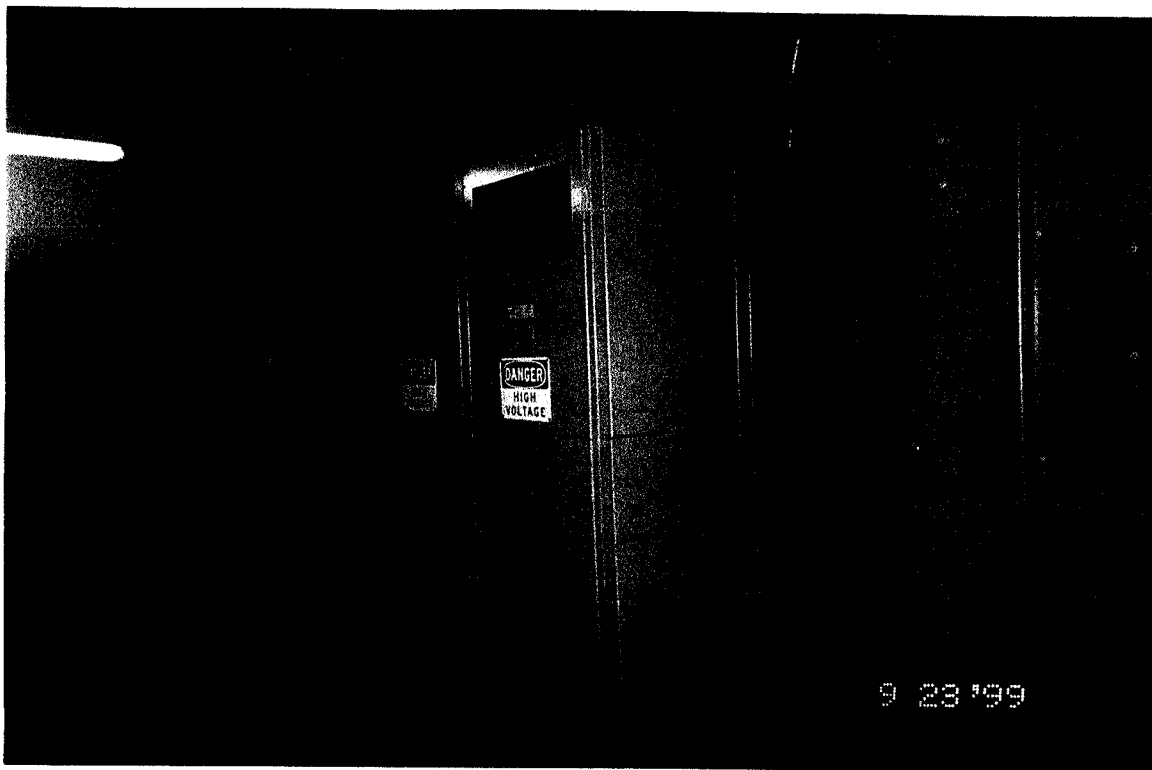


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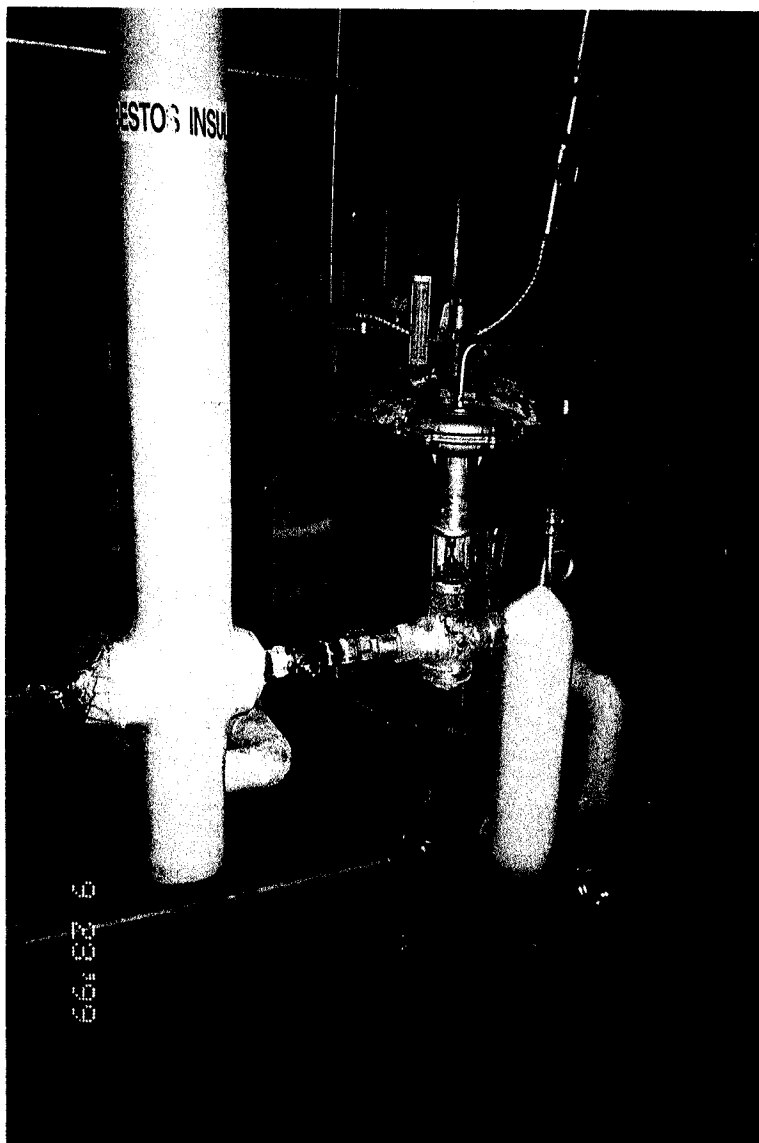


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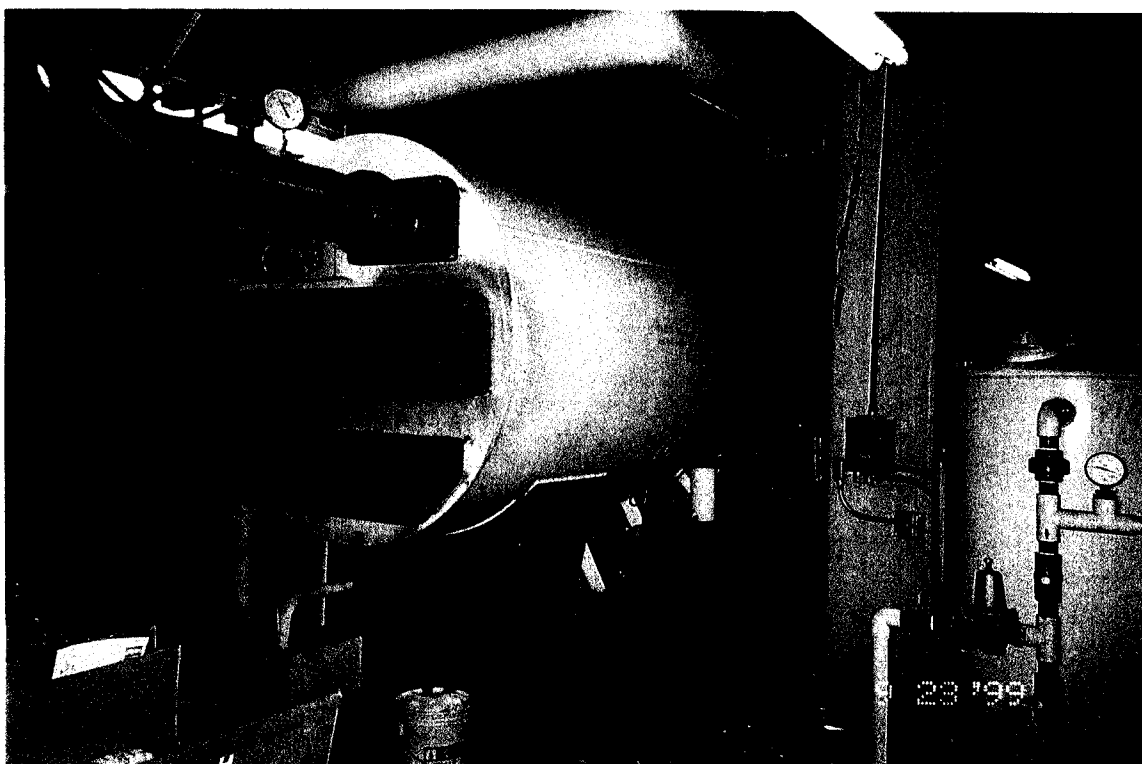


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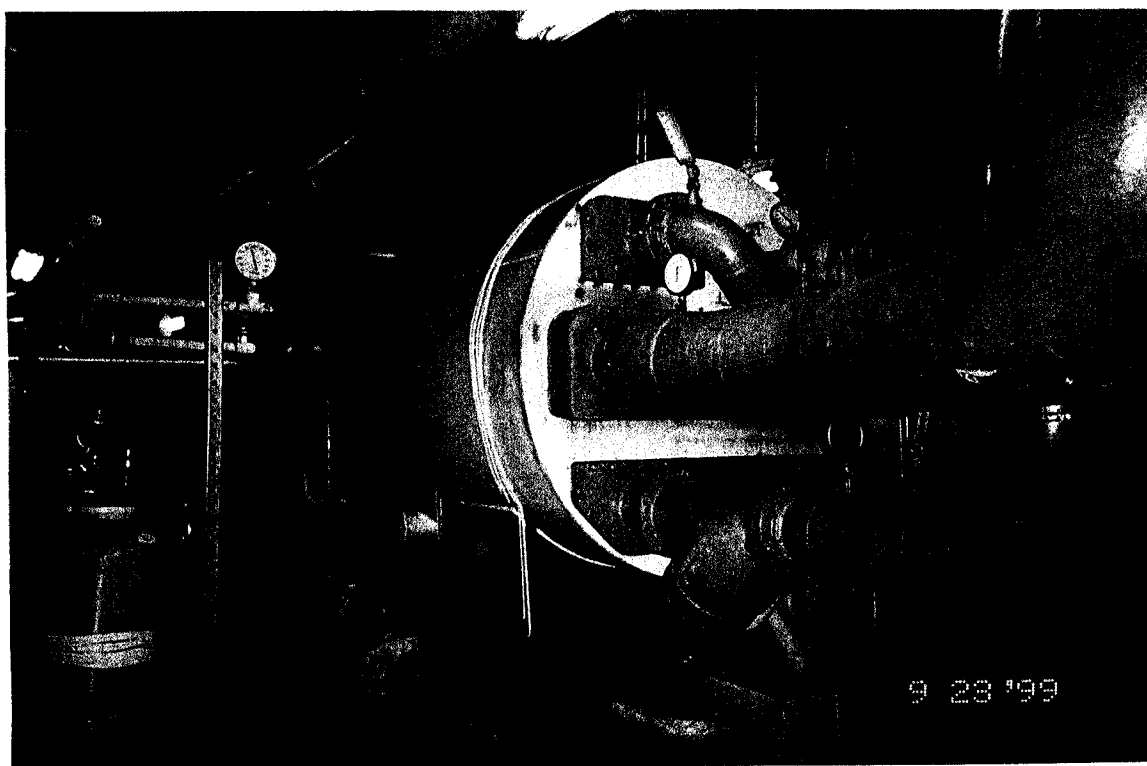


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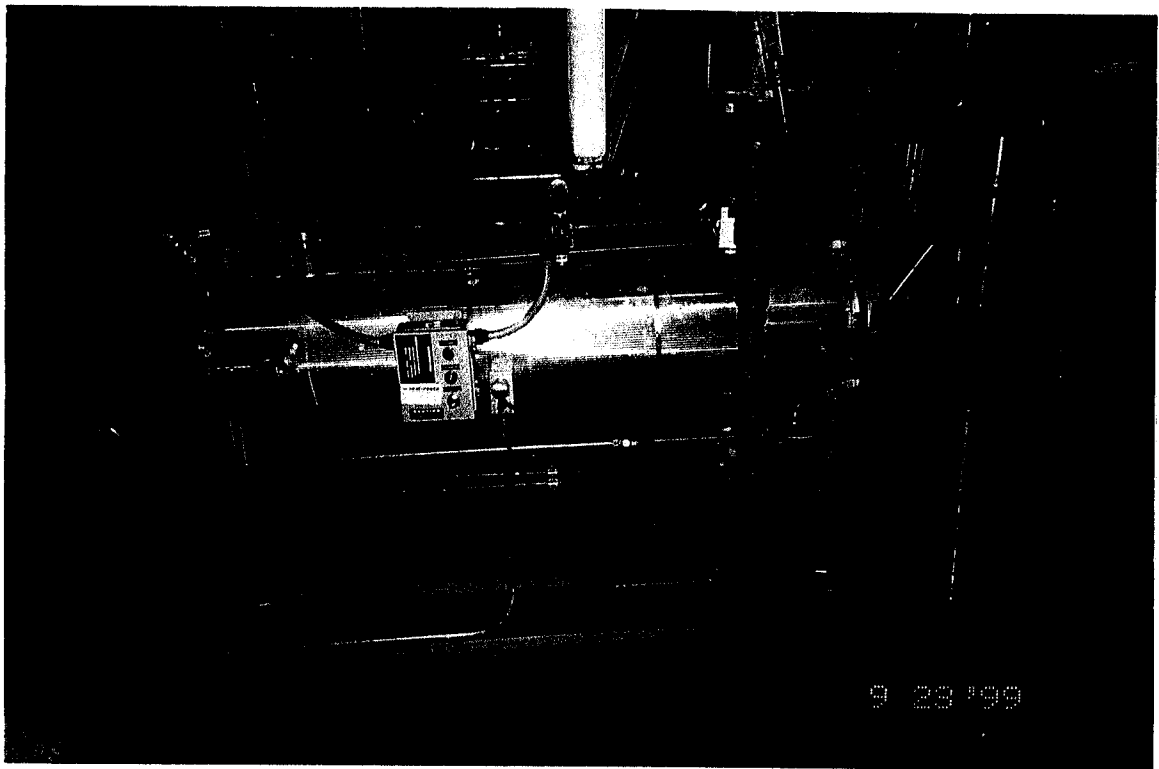


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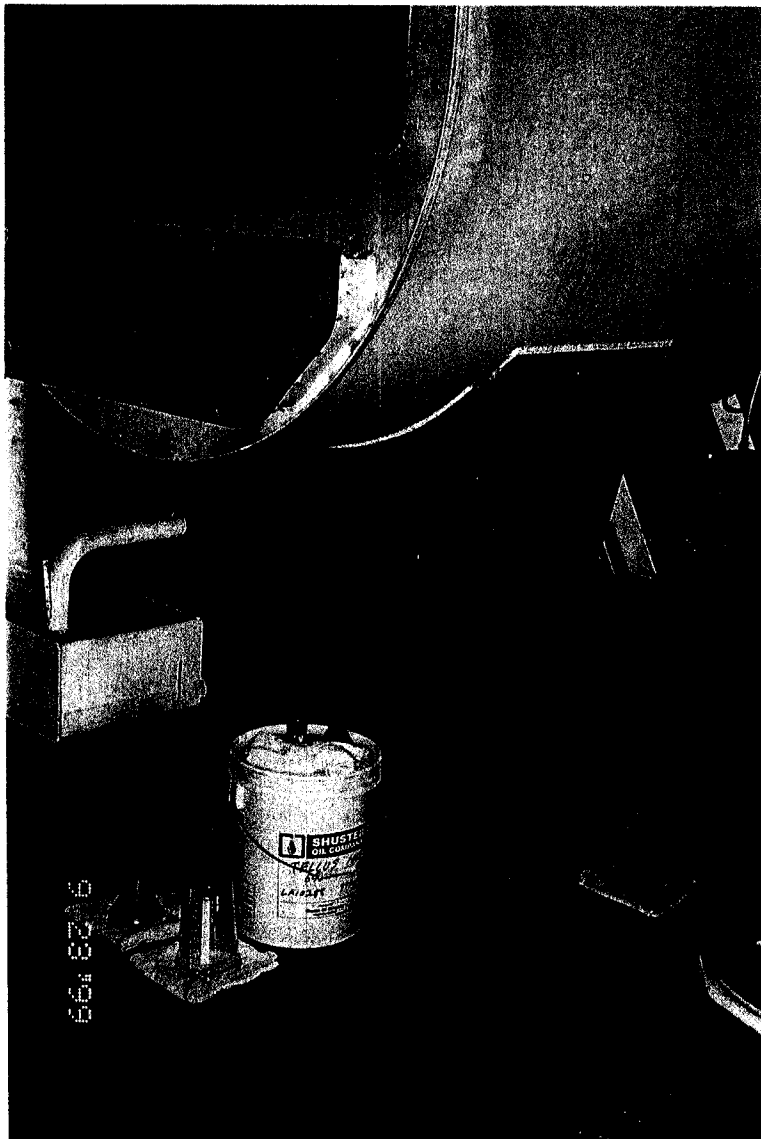


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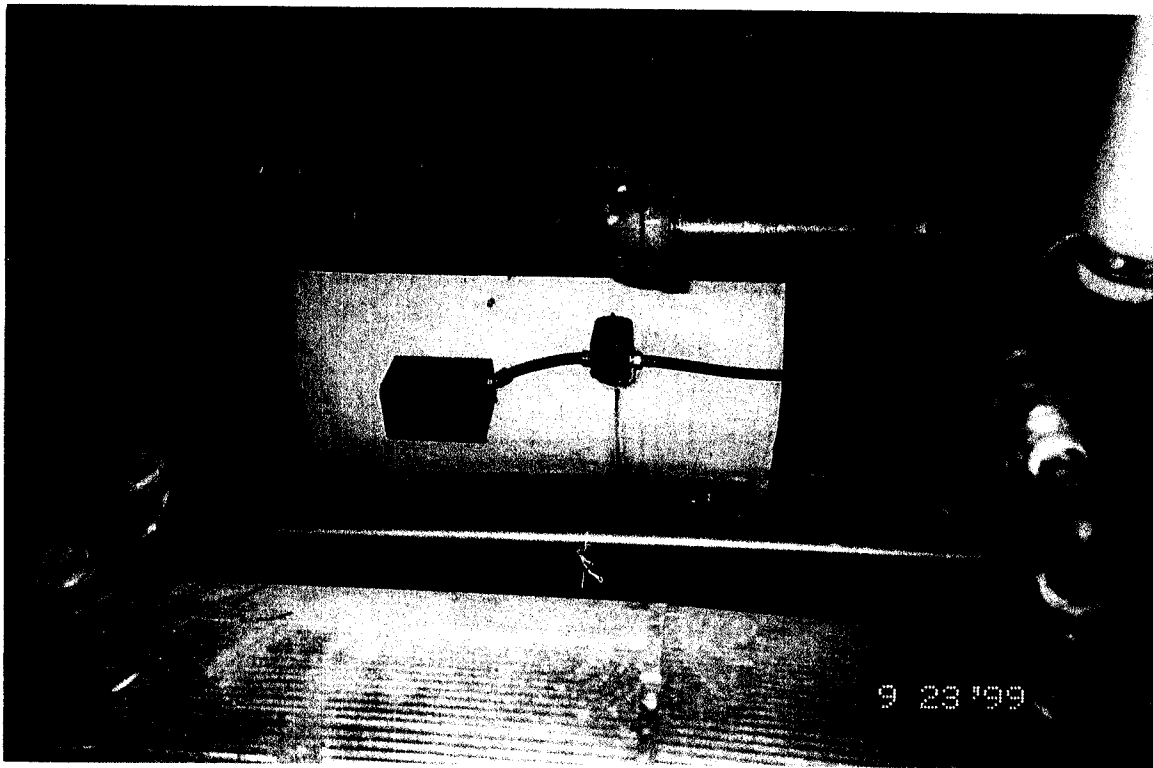


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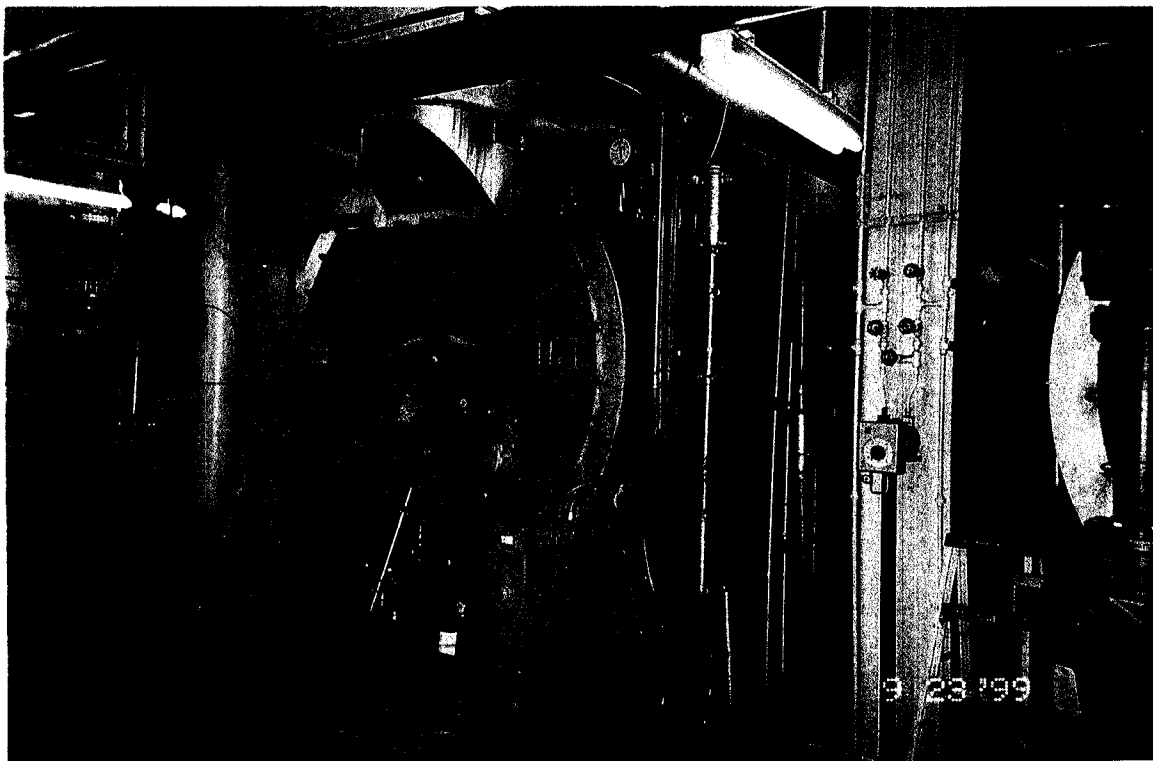


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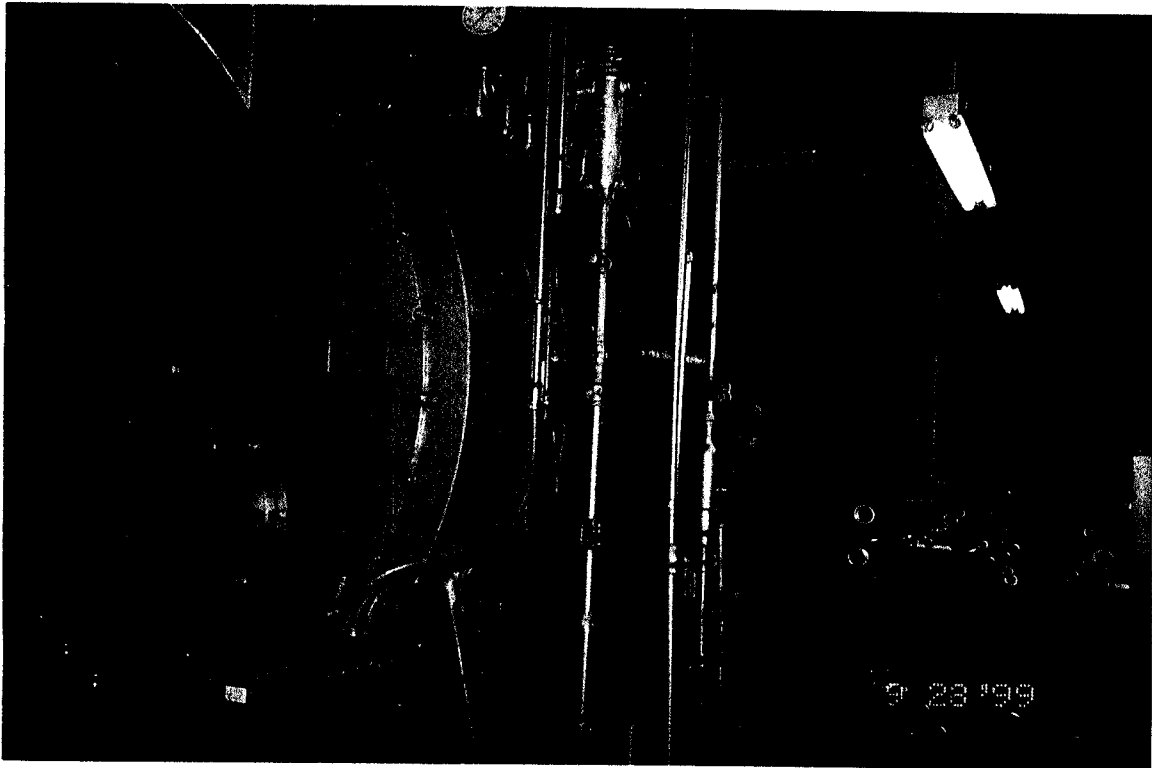


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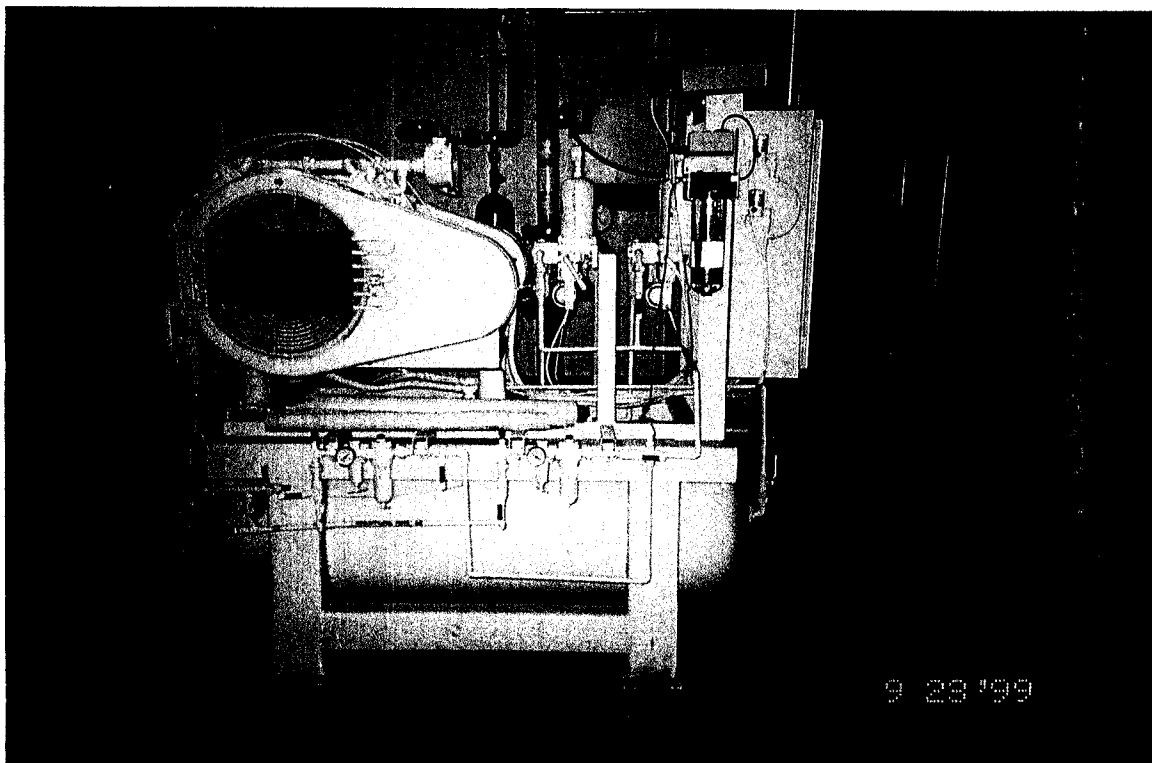


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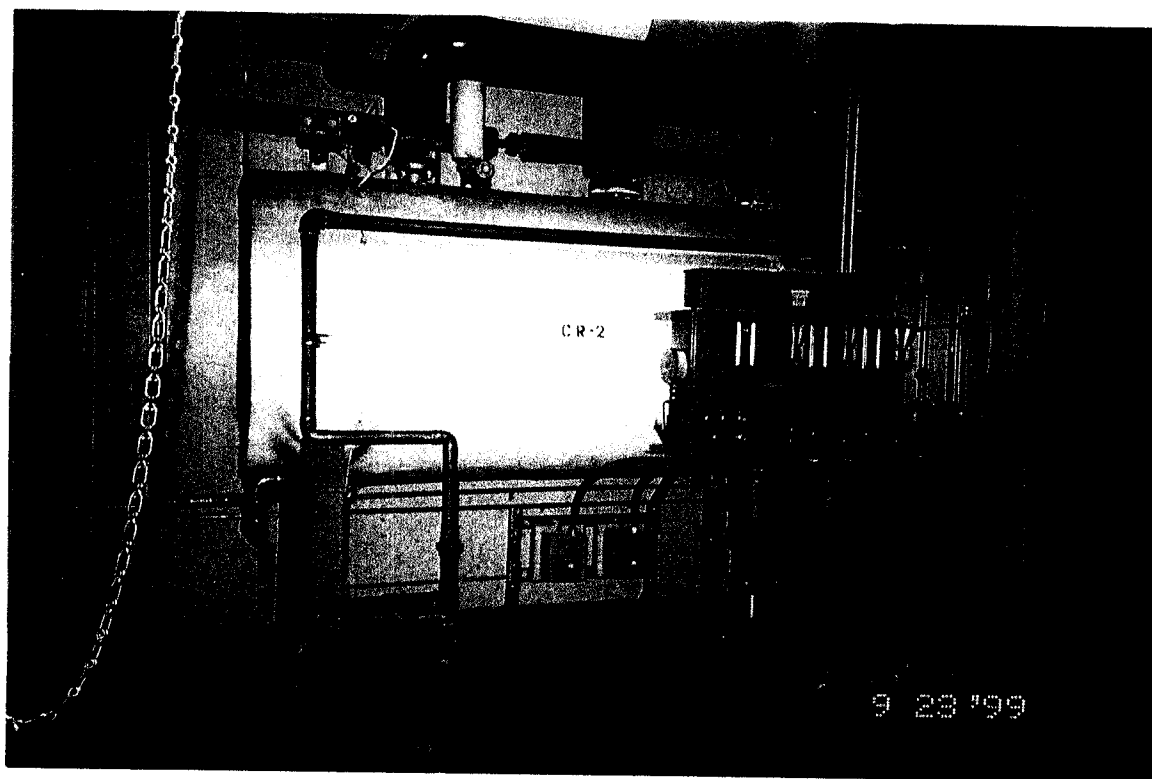


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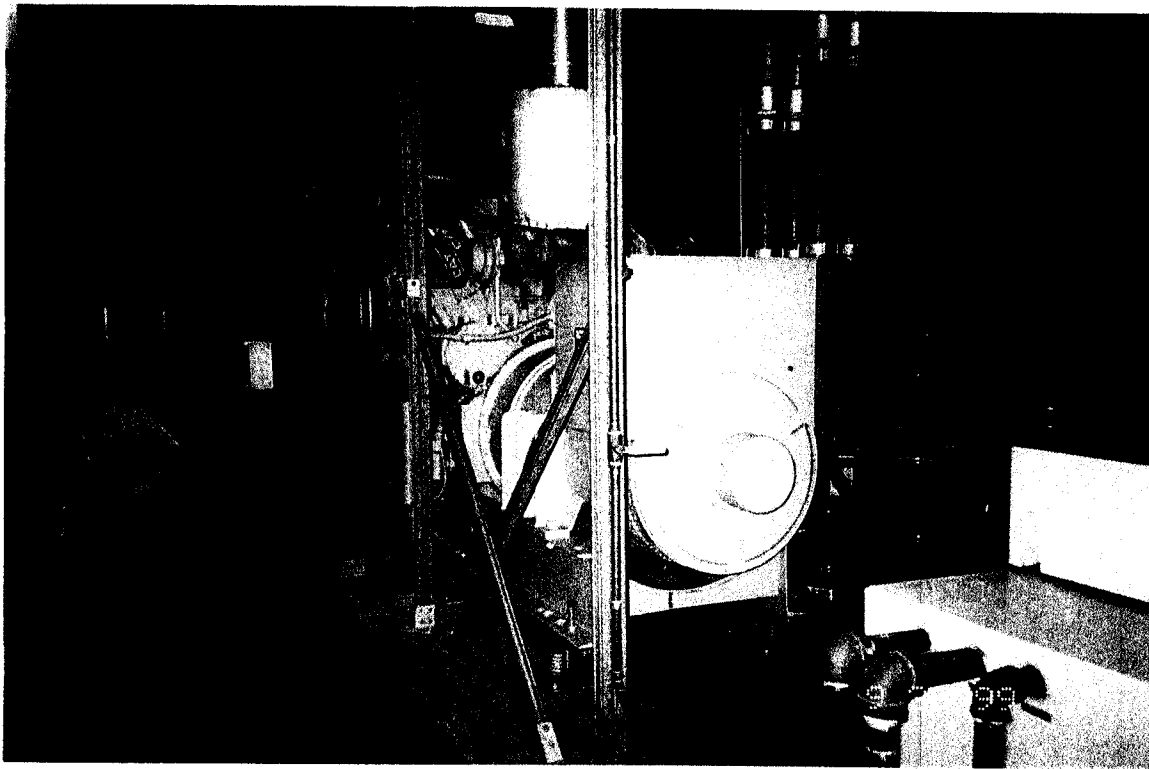


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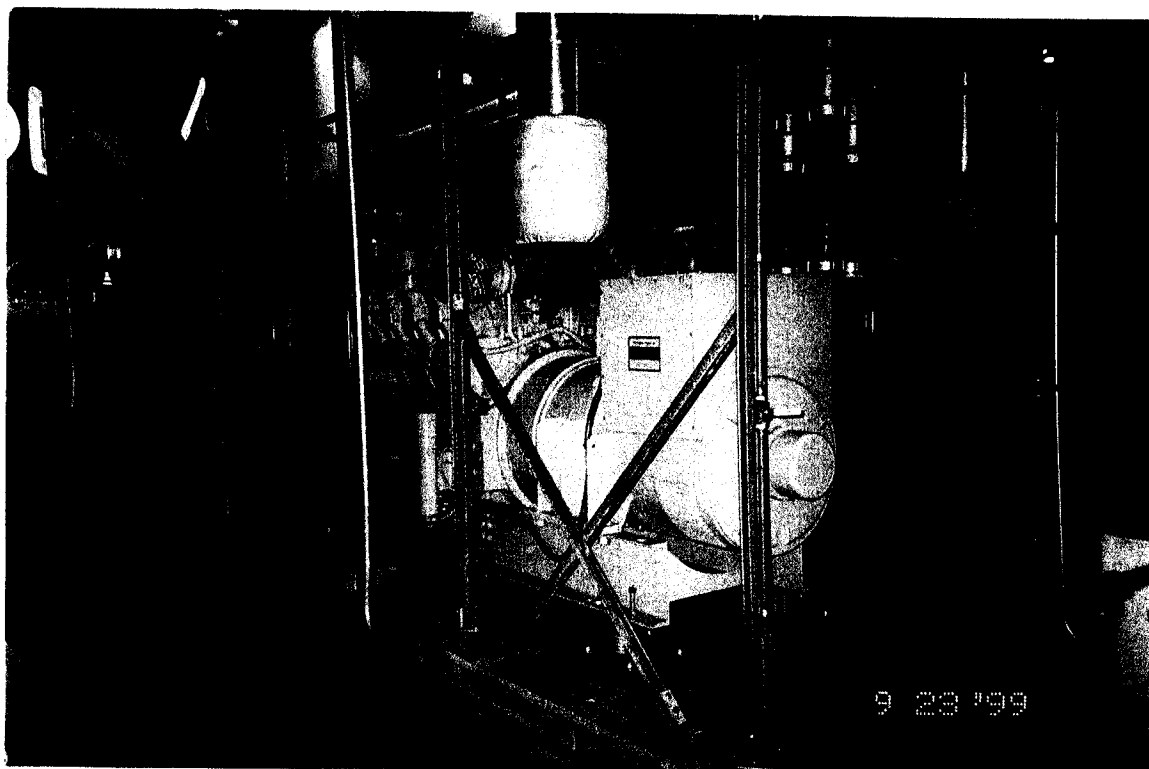


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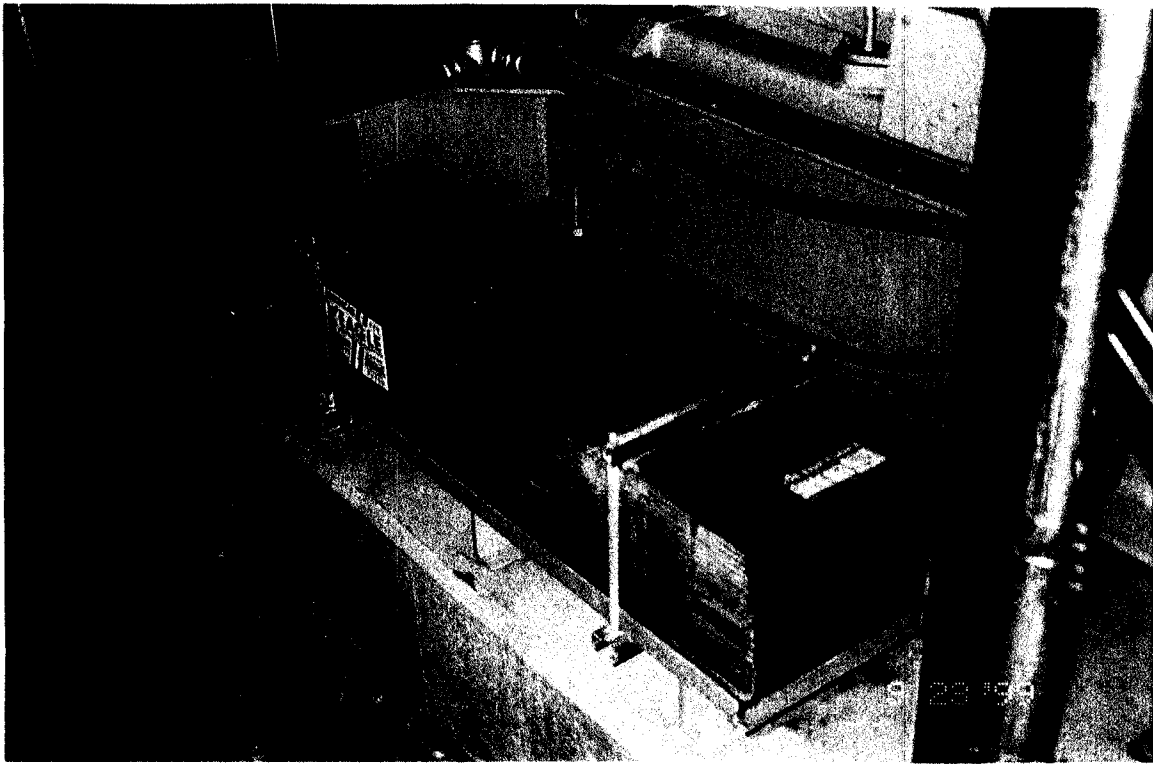


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Photo: PAL 4- 4

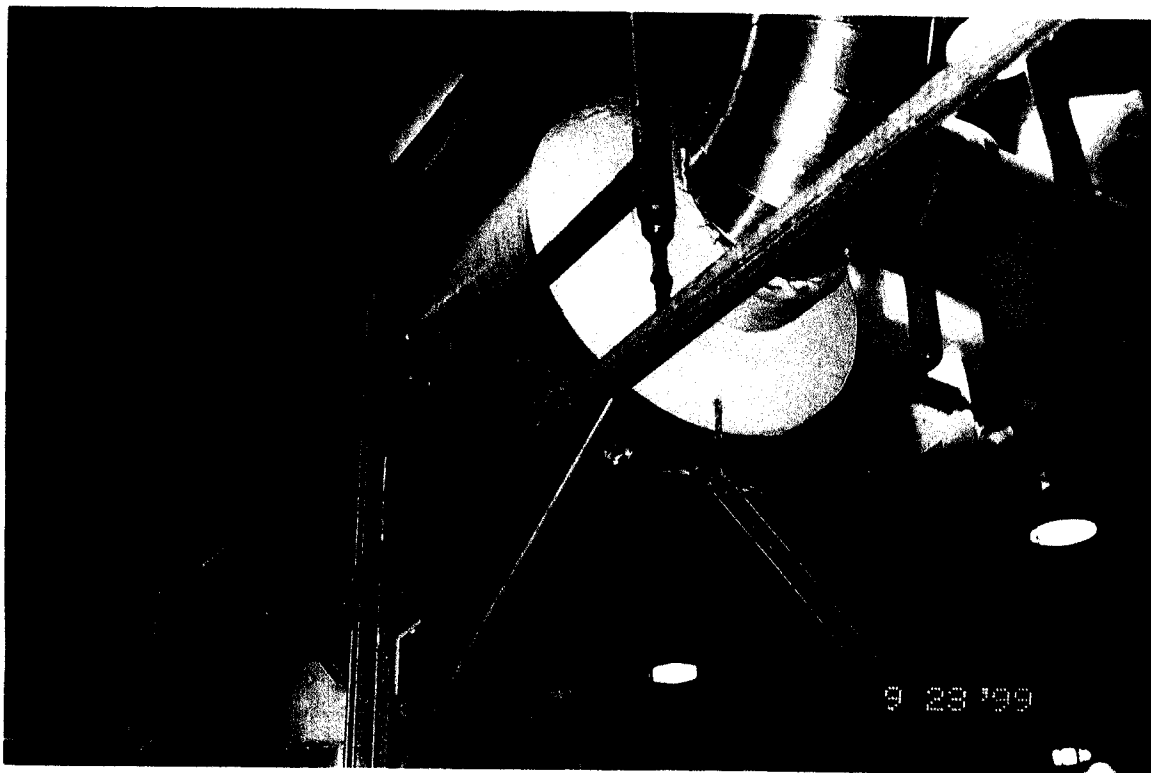


Photo: PAL 4- 5

Allan R. Porush, SE

**DEPARTMENT of CONSERVATION  
DIVISION of MINES & GEOLOGY**



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September 20, 1999

Mr. William E. Staehlin, SE  
and Mr. Chris Tokas, SE  
*Supervising Structural Engineers*  
Facilities Development Division  
Office of Statewide Health Planning and Development  
1600 Ninth Street, Room 420  
Sacramento, CA 95814-6476

**Subject: Review of Engineering Geology and Seismology for  
Palomar Memorial Hospital - Escondido**  
555 East Valley Parkway, Escondido, San Diego County, CA 92025  
OSHDP file #1953-004-37

Dear Mr. Staehlin and Mr. Tokas:

In accordance with your request and transmittal of documents on August 23, 1999, the California Division of Mines and Geology (CDMG) has performed an engineering geology and seismology review under authority of Section 7-119 of Part 1 of CCR Title 24, 1998 California Building Standards Code. The following reports were reviewed for seismic retrofit purposes under Senate Bill 1953 procedures:

Holcomb, Jason L., Certified Engineering Geologist 2030, 1999, Engineering Geologic and Geotechnical Reports Review for Senate Bill 1953 Compliance, Palomar Memorial Hospital - Escondido: Dames & Moore, 911 Wilshire Boulevard, Suite 700, Los Angeles, CA 90017; report dated August 2, 1999, Dames & Moore Project No. 41735-001-7050, 4 pages.

Crouse, Charles Brian, Ph.D., Registered Civil Engineer 29085; Porush, Allan R., Structural Engineer, 1999, Seismic Ground-Motion Hazard Analysis, Palomar Memorial Hospital - Escondido: Dames & Moore, 2025 First Avenue, Suite 500; Seattle, WA 98121, telephone (206) 728-0744, e-mail: < seacbc@dames.com >; Dames & Moore project no. 41735-001-004, report dated July 27, 1999, 8 sections variously paginated, 6 figures, 6 tables.

Lay, Garry C., Registered Geotechnical Engineer 508, and Porush, Allan R., Structural Engineer, 1999, Soil Profiles/Shear Wave Velocity for Ground Motion Estimates, Palomar Memorial Hospital - Escondido: Dames & Moore, 911 Wilshire Boulevard, Suite 700, Los Angeles, CA 90017, telephone 213-996-2200, e-mail < laxarp@dames.com >; Dames & Moore project no. 41735-003-004, report dated July 6, 1999, 4 pages, and appendix letter report by Stephen Ryland, Registered Geophysicist 856 dated June 20, 1999 with shear-wave velocity measurements in two new deep boreholes. Average  $V_s = 2,555$  fps.

Also included in the transmittal were photocopies of previous geotechnical reports by others, summarized in chronological order, as follows:

Woodward-Clyde Consultants, August 24, 1982, Geologic and Earthquake Engineering Investigation, Proposed Palomar Memorial Hospital Additions

Woodward-Clyde Consultants, June 24, 1985, Geotechnical Investigation, Hospital Addition

Our review included these tasks: independent calculation of the earthquake ground motion, determination of the site coordinates, reading the Dames & Moore reports, examination of the reports and numerous borehole logs previously prepared by another geotechnical firm, review of ground motion spectral diagrams, review of geologic maps of the Escondido area, and the preparation of this review letter.

This review is keyed to the paragraph numbers of "CDMG Note 48, *Checklists for the Review of Geologic / Seismic Reports for California Public Schools, Hospitals, and Essential Services Buildings*" which is attached.

#### Section A. CDMG Review of Engineering Geologic Data

1. The latitude and longitude to three decimal places are needed for all hospital reports. The coordinates are used by CDMG for independent calculation of the ground motion. None were provided by Engineering Geologist Jason Holcomb, so we calculated them as follows from the Valley Center USGS quadrangle: 33.125°N, 117.074°W. Within the Dames & Moore report, there was no index map plotted on the USGS Valley Center 7½-minute topographic base map (as specified in CDMG Note 48).

2. to 6 OK.

7. OK, there is no potential for seismically-induced liquefaction at this hospital site because it is situated on a low hill of granitic rock composed of weathered San Marcos Gabbro.

8 to 15: all items are OK; the eight engineering geology, geotechnical engineering, and seismology reports are complete and thorough when read as a cumulative series of reports. The subgrade is adequately characterized by the Woodward-Clyde reports, and properly summarized and field-checked in 1999 by the Certified Engineering Geologist from Dames & Moore. Two new boreholes were drilled to evaluate the average shear-wave velocity under McLeod Tower.

#### Section B. CDMG Review of Seismic Shaking Data

1. OK, both the Design Basis Earthquake, 10 percent chance of exceedance in 50 years, and the Upper-Bound Earthquake ground motion, 10 percent chance of exceedance in 100 years, are correctly referenced and used.

2. OK, the subgrade is appropriately classified from 1997 UBC Table 16-J as Type S<sub>B</sub>, "rock." CDMG used this in selection of the appropriate earthquake attenuation curve.

3. The consultants have computed Peak Ground Acceleration  $PGA_{UBE} = 0.27g$  and  $PGA_{DBE} = 0.22g$  for this site. Because the hospital is situated on thin engineered fill overlying weathered granitic rock (San Marcos Gabbro) the peak spectral acceleration occurs at 0.2-second natural site period (= 5 hertz frequency).

The Design Basis Earthquake is the same as the Maximum Probable Earthquake, both defined as 10 percent chance of exceedance in 50 years. Refer to Dames & Moore seismology report dated July 27, 1999, Table 6 and Figure 6 for these values. For Senate Bill 1953 seismic retrofit analysis, the Design Basis Earthquake is utilized, not the UBE which applies only to new construction. Since the Dames & Moore structural engineer may be performing both seismic retrofit and possibly some new construction on this hospital campus, both levels of peak ground acceleration are relevant.

To audit the ground-motion calculations of the consultants, we used the state-wide CDMG model, as published in CDMG Open-File Report 96-08, which the consultants also used and referenced. The CDMG independent analysis yields earthquake ground motion values that are very close to the Dames & Moore calculations. Their values are recommended for use in structural engineering analysis.

4. OK.
5. OK, the site is within Seismic Zone 4, so  $Z = 0.4$ .
6. OK, we concur with Dames & Moore that this site is a Soil Profile Type  $S_1$ .

### Summary

1. The consultant's report is well-prepared, and the seismology analysis is rigorous. The drilling of two new boreholes for shear-wave velocity measurements have properly characterized the geologic subgrade (weathered gabbro). In turn, this reduced the earthquake ground motion for this site because it was reliably determined that the appropriate subgrade classification was "rock" and not "soft-rock."
2. Other than earthquake ground motion, this hospital site is apparently not subject to geologic hazards (landslides, liquefaction, expansive soils, surface faulting).
3. For selection of the earthquake ground motion attenuation curve, this is a Type  $S_B$  "rock" site. For selection of the  $S$  coefficient, the site appears to be an  $S_1$  site.
4. The peak ground acceleration and spectral values developed by Dames & Moore are rigorous and we independently concur with their seismology analysis.
5. The three Dames & Moore reports fully meet and exceed the minimum requirements of the OSHDP Guidelines for Senate Bill 1953 analysis.

## Recommendation

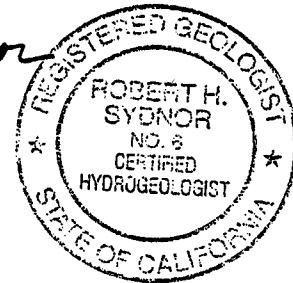
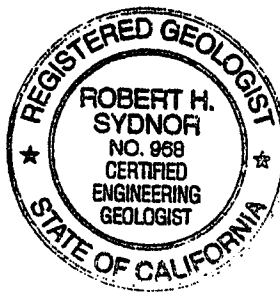
1. The Dames & Moore reports are suitable for both analysis of seismic retrofit of the existing Palomar Memorial Hospital campus buildings, and for structural design of new facilities.
2. Any new hospital structures will still need a "regular" geotechnical and engineering geology report. The 1999 seismology report is fully satisfactory for resubmittal on any new project in the foreseeable future.

If you have any further questions about this review letter, please telephone me at 916-323-4399 or send e-mail to [RSydnor@constrv.ca.gov](mailto:RSydnor@constrv.ca.gov).

Respectfully submitted,

*Robert H. Sydnor*

Robert H. Sydnor  
Senior Engineering Geologist  
RG3267, CHG 6, CEG 968



Reviewed by:

*Michael Reichle*

Michael S. Reichle, Ph.D.  
Supervising Geologist  
Registered Geophysicist 943

### Attachment:

CDMG Note 48, Checklist

### Cc:

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C.B. Crouse, Ph.D., Registered Civil Engineer, Dames & Moore, Seattle 206-728-0744 [seacbc@dames.com](mailto:seacbc@dames.com)  
Jason L. Holcomb, Certified Engineering Geologist 2030, Dames & Moore, Los Angeles (714) 433-7638 [laxjlh@dames.com](mailto:laxjlh@dames.com)  
William T. Holmes, Structural Engineer, Rutherford & Chekene, San Francisco (415) 495-4222 [wholmes@ruthchek.com](mailto:wholmes@ruthchek.com)  
Daniel Lambson, Director, Design & Facilities Planning, Palomar-Pomerado Health System, Poway



# CDMG Note 48 — Checklists for the Review of Geologic/Seismic Reports for California Public Schools, Hospitals, and Essential Services Buildings

The following two checklists, "CDMG Review of Engineering Geologic Data" and "CDMG Review of the Seismic Data," were prepared for the purpose of determining the adequacy of site evaluation reports for California public schools, hospitals, and essential services buildings that are prepared by consulting engineering geologists and geotechnical engineers, submitted to the Division of the State Architect (DSA) for public schools, or the Office of Statewide Health Planning and Development (OSHPD) for hospitals, and reviewed by the California Division of Mines and Geology (CDMG), 801 K Street, MS 12-31, Sacramento, California 95814-3531; telephone 916-323-4399.

This review is based on the California Code of Regulations, Title 24, 1995 California Building Code, Chapter 16, Earthquake Design §1624A-1634A; Chapter 18A, Foundations & Retaining Walls; Appendix Chapter 33, Excavation & Grading; §4-317e within Part 1 of Title 24 (active faults and schools). The review is performed under authority of §7-119 of Part 1 of Title 24 (CDMG to evaluate adequacy of reports). These advisory checklists are non-regulatory, but they cite relevant sections of code and indicate specific topics to be addressed for a complete and adequate consulting report. These checklists will be occasionally updated to reflect future code changes, new seismology methods, geologic publications, and web-site addresses.

1995 California Building Code (CBC) with its distinctive green pages can be obtained from the International Conference of Building Officials in Whittier, California; phone (800) 284-4406 or <http://www.icbo.org/product/>. Note that the 1995 California Building Code is not the 1997 Uniform Building Code. About one-third of the text within CBC has been tailored for California earthquake conditions. The green pages have the marginal symbol "CA" to mark the California specific changes.

In accordance with 1995 CBC §1634A.1, project site evaluations shall include an Engineering Geologic Report and

a Geotechnical Report. Because the state-of-the-art in strong-motion seismology has significantly changed in the past decade, most active fault and seismology parameters published prior to the early 1990's are typically out-dated, and update is advisable. Fault maps and seismology reports from two decades ago may not reflect our current knowledge of strong-motion seismology in light of the 1987 Mw 6.0 Whittier Narrows, 1989 Mw 6.9 Loma Prieta, 1992 Mw 7.0 Cape Mendocino, 1992 Mw 7.3 Landers, 1992 Mw 6.2 Big Bear, and 1994 Mw 6.7 Northridge earthquakes.

Title 24 requires that both the Engineering Geology and Geotechnical reports address the "Upper Bound Earthquake" (UBE) for ground motion at the site. The UBE has a 10 percent chance of exceedance in 100 years, and a return period of 949 years. As interpreted by the Building Safety Board in 1989, engineering geologic/geotechnical issues shall be evaluated by this ground motion.

CDMG's 1997 Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, 74 pages; CDMG Note 42, *Guidelines to Geologic/Seismic Reports*; CDMG Note 44, *Recommended Guidelines for Preparing Engineering Geologic Reports*; CDMG Special Publication 42, *Fault-Rupture Hazard Zones in California*, 1997 edition, regarding Alquist-Priolo Earthquake Fault Zones, will provide reliable guidance in the preparation of engineering geology and seismology reports.

Current earthquake fault parameters (magnitudes, slip rates, fault length, etc.) are published in CDMG Open-File Report 96-08, *Probabilistic Seismic Hazard Assessment for the State of California*; the fault table can be down-loaded from CDMG's web-site: <http://www.consrv.ca.gov/dmg/shezp/fltindex.html>

The 1997 National Earthquake Hazards Reduction Program (NEHRP) maps prepared by the U.S. Geological Survey can be down-loaded at: <http://www.cr.usgs.gov/>

Project: PALOMAR MEMORIAL HOSPITAL Location: ESCONDIDO, SAN DIEGO COUNTY

OSHPD or DSA File # 1953-004-37 Reviewed by: Robert H. Sphar

Date Reviewed: Sept. 20, 1999 Calif. Certified Engineering Geologist No. 968

## Section A. CDMG Review of Engineering Geologic Data

1. Project location and description (size, type of construction, intended foundation system, grade elevations, square footage of building structure to determine §1804A.2 requirement of one borehole per 5,000 sq.ft. of building, with a minimum of two for any one building. Provide precisely marked site on index map using 7½-minute topographic map, and latitude and longitude to three decimal places (e.g., 34.160°N, 118.534°W) for CDMG review of strong-ground motion values.

☐ Adequately Documented  
☒ Additional Location and Description Requested  
**FOR FUTURE REPORTS**
2. Engineering geologic map, geologic cross sections, and description of stratigraphy (bedrock and regolith), petrology, geologic structure, and hydrogeology. Describe site geology according to CDMG Notes 42 and 44, and ASTM D-420-93, Standard Guide to Site Characterization for Engineering, Design and Construction Purposes. The degree of detail should be compatible with the geologic complexity and type of building structure. For hillside sites include slope stability evaluation of immediately adjacent property. The geologic map should be 1:24,000 scale or better (e.g., 1:1200 or 1:480). List photo numbers and scale of stereoscopic aerial photographs used.

☒ Adequately Documented  
☐ Additional Geologic Data Requested
3. Regional fault map and distance to faults contributing the most significant ground-motion hazard to the site. Tabulate fault distances in kilometers and report in order by increasing distance (not alphabetical by fault name). It is preferable to use moment magnitudes (Mw) for the Upper Bound Earthquake. Generally avoid using the local magnitude scale,  $M_L$ , commonly known as the Richter scale, because it is known to saturate at higher magnitudes; and also because  $M_L$  does not correlate well with other fault parameters (such as fault length and slip rate).

☒ Adequately Documented  
☐ Additional Seismology Information Requested

4. Subsurface engineering geologic / geotechnical information (trench logs, borehole logs, site-specific project plan map showing exploration sites, delineate areas of existing and planned cut/fill). Site geologic cross-section(s) summarizing subsurface geologic conditions are recommended, including foundations of existing adjacent structures (as applicable). Subsurface investigation and reporting should be in accordance with 1995 CBC §1804A, with consideration of CDMG Note 44.
  - ☒ Adequately Documented
  - ☐ Additional Subsurface Data Requested
5. Evaluate the surface faulting hazard in accordance with CDMG Special Publication 42 (1997 edition) and CDMG Note 49, for sites within an Alquist-Priolo Earthquake Fault Zone or having documented evidence of active fault displacement. See also USGS Bulletin 1947.
  - ☒ Adequately Documented *(none)*
  - ☐ Additional Fault Trenching Requested
6. Tabulate the magnitude and epicentral distance (in km) of significant past earthquakes that affected the site, as per CDMG Note 42. No maximum radius is established, but smaller earthquakes at long radial distances ( $\pm > 100$  km) need not be reported unless particularly significant. For pre-1900 earthquakes refer to CDMG OFR 81-11. For 1900-1949 earthquakes refer to CDMG OFR 82-17. For recent historic earthquakes, reference is made to numerous publications of CDMG, USGS, *Bulletin of the Seismological Society of America* (BSSA), and the *Journal of Geophysical Research* (JGR). Software programs (such as EQSEARCH) and various USGS, CIT, UCB, NOAA-NGDC epicenter and strong-motion databases on CD-ROMs will be useful. The Northern California Earthquake Data Center web-site is: <http://quake.geo.berkeley.edu/ncedc/catalog-search.html> The Southern California Earthquake Center web-site is: <http://sceec.gps.caltech.edu>
  - ☒ Adequately Documented
  - ☐ Additional Epicenter Data Requested
7. Evaluate the potential for liquefaction, including published historic evidence. Refer to §1804.A.3.7, §1804A.5, and see §3309.7 of 1995 CBC for geologic site conditions: shallow groundwater, <50 feet or <15 meters, unconsolidated sandy alluvium, and Seismic Zone 3 or 4. Refer to CDMG Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, 74 pages, 1997; Youd and Idriss, 1997, *Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils*, NCEER Report 97-0022, 276 p.; and current ASCE geotechnical publications. From site boreholes report Standard Penetration Test ( $N_{60}$ ) standard SPT blow-counts using ASTM D1586-92. Report depth to water table, cyclic stress ratio, CSR, and Factor-of-Safety, FS,  $\geq 1.3$ , for liquefaction. The Cone Penetration Test, ASTM D3441-94, may be used, but only concurrent with SPT data for reliable correlation. If published maps apply (e.g., CDMG OFR 96-1), use CDMG official liquefaction zones delineated by the State Geologist under the 1989 Seismic Hazard Mapping Act (PRC §2690-2699.6). If specialized software is used, such as NCEER (1997) method LIQUEFY2, v.1.30, include input parameters in an appendix of the report. Evaluate cost-effective remedial options for liquefaction if Factor-of-Safety, FS, <1.3. Remedial options may include: dynamic deep compaction, vibro-replacement, vibro-displacement, stone columns, dewatering systems, caisson and grade-beam foundations, mat foundations, etc. Evaluate criteria for SPT- or CPT-based acceptance testing to demonstrate satisfactory ground remediation.
  - ☒ Adequately Documented *(not applicable)*
  - ☐ Additional Liquefaction Analysis Requested
8. Evaluate the potential for seismically-induced settlement, subsidence due to fluid withdrawal (groundwater or petroleum); refer to 1995 CBC §1804A.3. Evaluate geologic subgrade for expansive soils; refer to §1804A.4, §1815, Table 18A-I-B, UBC Standard 18-2, and ASTM Test D4546-90. Evaluate soluble sulfate minerals (typically gypsum & jarosite) for portland cement Type II or Type V (sulfate resistant); refer to §1804A.3.8, §1904A.3, Table 19A-A-3, and UBC Standard 19-1.
  - ☒ Adequately Documented
  - ☐ Additional Data Requested
9. Evaluate the potential for landsliding, including immediately adjacent property for both bedrock landslides and debris flows, in accordance with CDMG Note 42 and Note 44; and by National Research Council, 1996, *Landslides - investigation and mitigation*, TRB Special Report 247, 673 pages. Refer to CDMG official landslide zones delineated by the State Geologist under the 1989 Seismic Hazard Mapping Act (California Public Resources Code §2690-2699.6).
  - ☒ Adequately Documented
  - ☐ Additional Landslide Analysis Requested
10. Evaluate the potential for flooding, acute erosion, dam inundation, or breached levees, as per CDMG Note 44. Plot building site on official FEMA flood maps if within or near the "100-year" flood zone.
  - ☒ Adequately Documented
  - ☐ Flood Data Requested
11. Review geologic hazard zones or applicable zoning and building regulations appearing in the latest edition of the Safety Element within the General Plan of the City or County.
  - ☒ Adequately Documented
  - ☐ Review Safety Element
12. Only if the site is significantly near the Pacific coastline, lakes, or reservoirs: evaluate the potential for tsunamis and/or seiches. Refer to CDMG Bulletin 198, 1973, p. 41-43 and Figure 11.
  - ☒ Not Applicable
  - ☐ Tsunami Data Requested
13. Only if significant: evaluate the potential for volcanic eruption hazards (particularly Long Valley Caldera near Mammoth, Mount Lassen, Mount Shasta, Medicine Lake Highlands), as appropriate. Refer to: CDMG Bulletin 198, 1973, p. 38-41 and Fig. 10; and C.D. Miller, 1989, Potential hazards from future volcanic eruptions in California: USGS Bulletin 1847, 17 p., plate I, scale 1:500,000.
  - ☒ Not Applicable
  - ☐ Volcanic Hazard Evaluation Requested
14. References Cited (geology, seismology, geotechnology). Up-to-date seismology information is typically post-1989 Loma Prieta earthquake and can be found using AGI's *GeoRef* CD-ROM software in current CDMG and USGS publications, and monthly scientific journals such as *Bull. Seis. Soc. Amer.*, *AGU Jour. Geophys. Res.*, *AEG/GSA Environmental and Engineering Geoscience*, *EERI Earthquake Spectra*, *ASCE Journal of Geotechnical Engineering*, and weekly *AAAS Science*. Avoid using out-dated and superseded CDMG maps and reports. An example is: the old 1974 CDMG Map Sheet 23 with peak ground acceleration for rock sites is superseded by *Probabilistic Seismic Hazard Assessment for the State of California*, CDMG Open-File Report 96-08, 33 p., 10 figs., Appendix A (table of 182 faults, 13 p.); Appendix B, (228 references cited, 13 p.)
  - ☒ Adequate References
  - ☐ Additional Published Geology / Seismology References Requested
15. Engineering Geology report (§1634A.1.2) prepared and signed by California Certified Engineering Geologist (§7-111 and §7-117.b.1). Geotechnical report (§1634A.2.1 and §1804A.1) prepared and signed by Registered Geotechnical Engineer (§4-314). A supplemental ground-motion report may also be prepared and signed by either a CEG, RCE, or California Registered Geophysicist (§1634A.2.2.1).
  - ☒ CEG # and signature OK ✓
  - ☐ CEG signature required
  - ☒ RGE # and signature OK ✓
  - ☐ RGE signature required

## Section B. CDMG Review of Seismic Shaking Data

Project subject to: ☒ Equivalent static lateral-force analysis procedures  
(check one) ☐ Dynamic lateral-force analysis procedures

1. Upper Bound Earthquake, UBE, defined in §1629A.2.6 of 1995 CBC as "the motion having a 10 percent probability of being exceeded in a 100-year period or maximum level of motion which may ever be expected at the building site within the known geological framework." The Poissonian return period for the UBE is  $\approx 949$  years. The UBE is reported using the moment magnitude scale, Mw. A useful publication is CDMG Open-File Report 96-08, *Probabilistic Seismic Hazard Assessment for the State of California*, 33 pages; Appendix A, Table of 182 California Faults, 13 pages; Appendix B, 228 References Cited, 13 pages. Download the fault table from: <http://www.consrv.ca.gov/dmg/shezp/fitindex.html>

☒ Adequately Documented  
☐ Additional Seismology Data Requested

2. Characterize the upper 30 meters ( $\approx 100$  feet) of geologic subgrade of the building site(s) from Table 16-J and §1636 of 1997 UBC. Use down-hole measurements of the average shear-wave velocity ( $V_s$ ), or SPT ( $N_{60}$ ) blow-counts, or Undrained Shear Strength,  $S_u$ . For a large campus on a graded hillside, structures may have different geologic subgrade classifications (both fill & soft rock).

☒ Adequately Documented  
☐ Additional Subgrade Classification Information Requested

$S_A$  hard rock with  $V_s > 1500$  m/s

$S_B$  rock with  $V_s \approx 760$ -1500 m/s ✓

$S_C$  very dense soil or soft rock with  $V_s \approx 360$ -760 m/s; SPT  $N > 50$ ;  $S_u > 100$  kPa or  $> 2000$  psf

$S_D$  stiff soil with  $V_s \approx 180$ -360 m/s, or SPT  $N = 15$ -50, or  $S_u = 50$ -100 kPa or 1000-2000 psf. Use  $S_D$  for engineered fill on graded pads. If  $V_s$  is unknown, then use  $S_D$  as default (§1636.2).

$S_E$  soft soil profile with  $V_s < 180$  m/s, or SPT  $N < 15$ ; or  $S_u < 50$  kPa or  $< 1000$  psf; or any soil profile with more than 3 m or 10 ft of soft clay with  $PI > 20$ ,  $w_{mc} \geq 40$  percent and  $S_u < 25$  kPa or  $< 500$  psf

$S_F$  soil requiring site-specific evaluation §1644.3.1 of 1997 UBC, including: liquefiable soils; quick and highly sensitive clays; collapsible weakly-cemented soils; peats and highly organic clays  $> 10$  ft ( $> 3$  m) thick; very high plasticity clays (CH) with  $PI > 75$  and  $> 25$  ft ( $> 7.6$  m) thickness; very thick soft/medium stiff clays with  $> 120$  ft ( $> 36.6$  m) thickness.

Shear-Wave Velocity References: 1997 UBC Table 16-J; Wills and Silva, 1998, *EERI Earthquake Spectra*, v. 14, no. 3, p. 533-556; Boore, Joyner, and Fumal, 1997, *Seismological Research Letters*, v. 68, no. 1, p. 128-153, tables 4 & 7; Borchardt, 1994, *EERI Earthquake Spectra*, v. 10, no. 4. For L.A. Basin see Fumal and Tinsley, 1985, USGS Prof. Paper 1360, p. 127-149. For S.F. Bay Area see Borchardt and Glassmoyer, 1994, USGS Prof. Paper 1551-A, p. A77-A108, Tables 1a, 1b, 7, and 8. Shear-wave velocity information is needed to select the proper strong-motion attenuation curve. In appropriate sites, average shear-wave velocity may be extrapolated from reliable geologic information in nearby boreholes or conservatively estimated based on published geologic data.

$PGA_{UBE} = 0.27g$

$PGA_{DBE} = 0.22g$

3. Using probabilistic seismic hazard methods, compute the Peak Ground Acceleration (PGA) from the Upper Bound Earthquake with viscous damping ratio  $\zeta = 5$  percent. List authors of attenuation model (see special issue Jan/Feb 1997 of *Seismological Research Letters*, v. 68, no. 1) and list seismology parameters if using PC-based software programs (e.g., *FRISKSP* v3.01b, May 1998), such as fault length, slip-rate (mm/yr), site coordinates (latitude and longitude to 3 decimal places) and average shear-wave velocity of subgrade. Do not use a "rock" attenuation model for alluvial sites.

☒ Adequately Documented  
☐ Additional Seismology Data Requested

4. Evaluate near-source effects of strong motion if within Seismic Zone 4 (optional for Zone 3). Determine near-source factors,  $1.5 \leq N_a \leq 1.0$  for  $d < 10$  km; and  $2.0 \leq N_v \leq 1.0$  for  $d < 15$  km, depending on Seismic Source Factor from Tables 16-S and 16-T of 1997 UBC (Type A, B, or C faults). Near-source effects need not be considered for  $N_a$  if  $d \geq 10$  km, or for  $N_v$  if  $d \geq 15$  km. Refer to 1998 ICBO publication *Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada* prepared by CDMG for use with 1997 UBC. Type A faults are capable of producing large magnitude events and also have a high rate of seismicity ( $M_{max} \geq 7.0$ , and slip rate  $\geq 5$  mm/yr). Type C faults are not capable of producing large magnitude earthquakes and also have a relatively low rate of seismic activity ( $M_{max} < 6.5$ , and slip rate  $\leq 2$  mm/yr). Type B faults are all faults other than Types A and C.

Near-Source Factors:

☒ Apply and Adequately Evaluated  
☐ Not Applicable  
☐ Additional Evaluation of Near-Source Factors Requested

5. State whether the site is within 1995 CBC Seismic Zone 3 or 4 using Figure 16A-2 (map showing California county lines), and refer to §1627A.2 text within CBC that defines which portions of certain California counties are in Zone 3. Caution: do not use the familiar small-scale seismic zone map Figure 16-2 within 1997 *Uniform Building Code*; it is not the same as CBC (esp. Del Norte Co.).

**Zone 4**  
☒ Properly Determined  
☐ CBC Seismic Zone Maps Evaluation Requested

6. Determine the site soil profile from 1995 CBC Table 16A-J (Type  $S_1, S_2, S_3, S_4$  site). Note that the site classification has changed in 1997 UBC Table 16-J, but the site soil profile still has to be determined under current 1995 CBC. The coefficient  $S$  is used for the computation of the coefficient  $C$  in the base-shear analysis, §1628.2.1, for projects subject to equivalent-static lateral-force procedures. "The value of  $C$  need not exceed 2.75 and may be used for any structure without regard to soil type or structure period." In some cases, the ceiling on  $C$  effectively limits the  $S$ -value considered in structural design.

**$S_1$**   
☒ S-type Adequately Determined  
☐ Evaluation of S-type Requested

**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT**

**FACILITIES DEVELOPMENT DIVISION**

1600 9th Street, Room 420

Sacramento, California 95814

(916) 654-3362 FAX (916) 654-2973



October 5, 1999

Dames & Moore  
911 Wilshire Boulevard, Suite 700  
Los Angeles, CA 90017  
Attention: Mr. Allan Porush

Enclosed are copies of the approved design criteria for the geotechnical portion of these hospital projects. The criteria are in compliance with Article 2.7 of the SB1953 Evaluation Procedure.

If you have any questions, please call me at (916) 654-1724.

Sincerely,

*William Staehlin*  
William Staehlin  
Supervising Structural Engineer



**DAMES & MOORE**

A DAMES & MOORE GROUP COMPANY

August 2, 1999

911 Wilshire Boulevard, Suite 700  
Los Angeles, California 90017  
213 996 2200 Tel  
213 996 2458 Fax

Office of Statewide Health Planning and Development (OSHPD)  
1600 9th Street  
Room 410  
Sacramento, California 95814

1953-0004-37

Attention: Mr. Chris V. Tokas

**Re: Site-Specific Ground Motion Study  
Basis for "Alternative Analysis" for SB 1953 Seismic Evaluation  
Palomar Hospital  
Escondido, California**

Dear Mr. Tokas:

Please find enclosed a report (two copies) describing a site-specific study of probable seismic ground motions for the site of Palomar Hospital in Escondido. This report has been prepared under the direction of Dr. C.B. Crouse, Dames & Moore's Senior Engineering Seismologist and licensed Civil Engineer in California.

Dames & Moore is submitting this report to OSHPD on behalf of Palomar-Pomerado Health System, the hospital owner. We are requesting OSHPD approval of this report and its results as a basis for an SB 1953 "alternative analysis" (as permitted by Section 2.7 of the OSHPD Guidelines) of the acute care licensed buildings at Palomar Hospital.

The proposed "alternative analysis" for the Palomar Hospital buildings is simply to apply the OSHPD Guidelines using the site-specific estimates of  $A_s$  and  $A_v$ . These are the two parameters used in the OSHPD Guidelines to characterize ground motions. These parameters are then to be used in the equations in Section 2.4.3 of the Guidelines to calculate seismic base shears for building evaluations.

1  
JL  
9/21/99

Please forward this submittal to the appropriate members of your staff for OSHPD review, and (as required) to the appropriate earth scientists at CDMG. We would appreciate anything that you can do to expedite the review process so that we may proceed with the SB 1953 evaluation of the buildings on this hospital campus.

**APPENDIX C**  
**TABLE A - OSHPD PERMITS**

**Hospital Campus: Palomar**

No.	Permit No.	Date	Building	Floor/Area	OSHPD Description	Description	Cost
1	HL859989	10/8/85	West Tower	8_story building and parking	8_story building and parking -- 3 increments	New building that was built currently known as West tower	25,660,077.00
2	HL879973	9/19/88	Mcleod tower & Adams Wings	Remodel Misc areas in Mcleod	Remodel Misc areas in Mcleod	Misc. remodels of kitchen, cat scan, Lobby areas, Nuclear Medicine area	1,600,000.00
3	HL879974	9/21/88	Southwing		Southwing-2 story addition	Construction of the Southwing building	6,300,000.00
4	SL869816	2/6/87	Cogen		Revise Emergency generators	This project changed the location of the yet to be installed emergency generators for the west tower. It involved installation of exhaust fans on the roof for radiator cooling.	40,000.00
5	SL909989	4/13/91	Mcleod Tower	3rd Level, Angiographic Room	Angiographic Room renovation	Remodel of angio suite for new angio equipment	57,000.00
6	SS920345	12/28/92	East extension	First Level, Sterile Supply	ETO remodel	Installation of new ETO autoclaves and new recovery equipment in sterile processing department (East extension Mcleod tower)	255,189.00
7	SS921256	7/27/93	Mcleod tower	3rd Level, Radiology	R & F room remodel.	Installation of new radiology equipment and new air handling unit above ceiling to support the 2 rooms	135,328.00
8	SS922077	5/26/95	Mcleod tower	4th Level	Remodel NICU/OB	Convert existing patient room into a NICU inc. wall work, new electrical, gasses cabinetry etc.	2,094,134.00

**APPENDIX C**  
**TABLE A – OSHPD PERMITS**

**Hospital Campus: Palomar**

No.	Permit No.	Date	Building	Floor/Area	OSHPD Description	Description	Cost
9	SS940145	9/2/94	Mcleod tower	3rd Level	Gamma camera replacement	Replacement of the Gamma camera in Nuclear medicine	410,446.00
10	SS940826	10/24/94	Mcleod tower	Mechanical Penthouse	ac 6 replacement	Replacement of existing main air handler unit on the Mcleod tower penthouse area	67,000.00
11	SS941287	6/3/96	East Extension	Basement, Boiler Room	Medical Gas/ electrical system upgrade	Replacement of existing medical air compressor	65,316.03
12	SS951260	7/26/96	Mcleod tower	9th Level	Medical surgery remodel to SNF	Conversion of existing med. Surg. floor to SNF included upgrading electrical, installation of new fire alarm equipment, enlarging 8 rooms into 4 rooms by removal of common wall	680,000.00
13	SS951773	12/10/96	Outside		Cooling tower addition	Installation of a new cooling tower for HVAC heat rejection. Included new electrical new retaining wall for tower support	110,000.00
14	SS970065	4/17/97	Mcleod tower	Mechanical Penthouse	AC 1 and 2 replacement	Replacement of existing man air handlers on the Mcleod tower penthouse area	128,040.00
15	SS971073	6/24/97	Mcleod tower	3 rd Level	CT scanner equipment replacement	Replacement of existing CT scanner equipment included new electrical and minor HVAC work	870,200.00
16	SS972809	11/10/97	Mcleod tower	Mechanical Penthouse	AC 7 replacement	This project will replace the existing air handler above ceiling in the lobby adjacent to Graybill auditorium	9,450.00

**APPENDIX C  
TABLE A - OSHPD PERMITS**

**Hospital Campus: Palomar**

No.	Permit No.	Date	Building	Floor/Area	OSHPD Description	Description	Cost
17	SS981569	12/8/98	Mcleod tower	Mechanical Penthouse	Replace existing AC 3,4,5	Replacement of existing main air handlers in Mcleod tower penthouse. Project in progress	150,000.00
18	SS983573	12/28/98	Adams wing	Vacuum Pump Room	Vac pump replacement	Replacement of existing vacuum pump to new system	27,997.00
19	HL830010	1/30/86	Cogen		Addition of Cogeneration electrical Power	Stand alone building which houses the Main electrical feed to the facility and the Cogeneration equipment as well as emergency generators and chiller equipment. Condensate receivers & cooling tower (Ceramic)	4,271,369.00



**APPENDIX C  
TABLE B – NPC-2**

**Hospital Campus: Palomar**

No.	Location	System	Item	NO	OSHDP No.	Photo No.	RetrofitDescription	Cost Factor	Cost
1	East of Adams Bldg.	Bulk Medical Gas	3000 Gallon Liquid Oxygen tank	1	No	1-7A, 1-8A, 1-9A	Missing anchors rusted base plate. Re-anchor		\$4,000.00
2	East of Adams Bldg.	Bulk Medical Gas	300 Gallon Liquid Oxygen tank	1	No	1-7A	Similar to item above		\$3,000.00
3	East of Adams Bldg.	Bulk Medical Gas	Nitrous Oxide Cylinders (blue cylinders)	14	No	1-10A, 1-11A	Tied to chain link fence with one chain at the top. Provide support at the back & new chains at the bottom.		\$8,000.00
4	East of Adams Bldg.	Bulk Medical Gas	Nitrogen gas Cylinders (black cylinders)	5	No	1-12A, 1-13A	See above		\$6,000.00
5	East of Adams Bldg. (East of oxygen tanks)	Bulk Medical Gas	Lab. Gas Cylinders (CO2 & etc.), variable numbers.	6	No	1-14A	See above. However, there are three vert. Supports at front.		\$0.00
6	McLeod tower, 9th floor, on west wall of utility room	Fire Alarm Panel		1	12	3-0A, 3-1A			\$0.00
7	McLeod tower, lobby, in Elect. room next to elevator)	Fire Alarm Panel	4100 Simplex	1	No	3-2A, 3-3A	Was installed in 1991. Not OSHPD permitted, re-anchor.		\$600.00
8	East Extension Basement	McLeod Emergency Generator	Lawless Detroit Diesel	1	No	3-5A, 3-6A, 3-8	Day tank (150 gallon-3hours) is on frame. Not OSHPD permitted. Re-anchor		\$5,000.00
9	East Extension Basement	McLeod Emergency Generator	Battery rack	1	No	3-8,	In wood cover, in rack Re-anchor		\$400.00
10	East Extension Basement	McLeod Emergency Generator	Muffler	1	No	3-9,	Add bracing in both directions.		\$3,000.00

**APPENDIX C  
TABLE B – NPC-2**

**Hospital Campus: Palomar**

No	Location	System	Item	NO	OSHPD No.	Photo No.	RetrofitDescription	Cost Factor	Cost
11	Cogen Building	Emergency Generators	Emergency Generators	2	4	4-1, 4-2			\$0.00
12	Cogen Building	Emergency Generators	Battery rack		4	4-3,			\$0.00
13	Cogen Building	Emergency Generators	Muffler		4	4-4, 4-5			\$0.00
									\$0.00
14	West Tower	Communication System	Communication Switch Gear		1				\$0.00
							<b>Total=</b>		<b>\$30,000.00</b>

**APPENDIX C**  
**TABLE C – NPC-3**  
**CRITICAL CARE AREAS**

**Hospital Campus: Palomar**

No.	Building	Floor	Critical Care Area or Location	Area (ft <sup>2</sup> )	Type of Ceiling	Thru Piping (ft)	OSHDP No.	Partitions Braced? (Yes / No)	Lights / Diffusers Braced?	Comments	Photo No	Cost Factor #1*	Cost Factor #2*	Cost
1	Adams	3rd	ER OBS. (24 Hrs. Emergency room observation)	1945	Hard		No	Could not see	Supported by ceiling	Congest above ceiling. TV mounts are Westbrook (pre-approved OSHPD detail).				116,700.00
2	McLeod	3rd	Angiography	560	Hard		Equip. below ceiling only	No	Supported by ceiling					30,800.00
3	McLeod	3rd	X-Ray Room 2 & 3	663			7			Gutted. An allowance is included for the sprinkler retrofit.				3,315.00
4	McLeod	3rd	X-Ray areas	3485	Susp.		No		Supported by ceiling					174,250.00
5	McLeod	3rd	Cat Scan	504	Hard		2 & 15			Gutted. An allowance is included for the sprinkler retrofit				5,040.00
6	McLeod	3rd	Nuclear Medicine	816			2			Gutted. Partition goes upto slab above. An allowance is included for the sprinkler retrofit				8,160.00
7	McLeod	4th	NNICU	912			8			An allowance is included for the sprinkler retrofit				9,120.00

\* Cost Factor 1 is above ceiling

\* Cost Factor 2 is below ceiling

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**APPENDIX C  
TABLE C - NPC-3  
CRITICAL CARE AREAS**

**Hospital Campus: Palomar**

No.	Building	Floor	Critical Care Area or Location	Area (ft <sup>2</sup> )	Type of Ceiling	Thru Piping (ft)	OSHPD No.	Partitions Braced? (Yes / No)	Lights / Diffusers Braced?	Comments	Photo No.	Cost Factor #1*	Cost Factor #2*	Cost
8	East Extension	1st	SPD (Central Supply/ Distribution)	1556	No ceiling	4-4" pipe x 40' each;	No	No	Pendant Light	Racks shot to the flr. & braced with cable above. Not OSHPD May require additional bracing, brace pipes, lights, partition.				54,460.00
9	East Extension	1st	Sterile Supply	2305	Susp.		No		Supported by ceiling	ETO sterilizer is OSHPD permitted				115,250.00
10	West Tower	3rd	ER	11424			1			An allowance is included for the sprinkler retrofit.				114,240.00
11	West Tower	3rd	Pharmacy	1677			1			Same				8,385.00
12	West Tower	3rd	Clinical Lab.	5896			1			Same				29,480.00
13	West Tower	4th	Operating Rooms	8979			1			Same				89,790.00
14	West Tower	4th	Recovery Room	2708			1			Same				13,540.00
15	West Tower	4th	Catheterization Lab.	2340			1			Same				11,700.00
16	West Tower	6th	Intensive Care	18692			1			Same				93,460.00
17	West Tower	7th	Intermediate Care	12326			1			Same				61,630.00
18	Cogen	1st	Main electrical feed & Emergency generators	5974			19			Same				29,870.00
19	South Wing	4th	Labor & Delivery	22635			3			Same				113,175.00
												<b>Total=</b>		<b>1,082,365.00</b>

\* Cost Factor 1 is above ceiling

\* Cost Factor 2 is below ceiling

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**APPENDIX C**  
**TABLE D – NPC-3**  
**EQUIPMENT ROOMS / CENTRAL PLANT AREAS / NPC-3 AREAS**  
**SOURCE EQUIPMENT TO NPC-3 AREAS**  
**or KEY EQUIPMENT IN NPC-3 AREAS**

**Hospital Campus: Palomar**

No.	Building	Critical Care Area or Location	Equipment Type	Desig	No. or Fl.2	Building /Area Served	Photo No.	OSHP D No.	RetrofitDescription	Comments	Cost Factor	Cost
1	Adams	Electrical Room	Transformer		1	Adams	1-0A	No	Pull test anchor or re-anchor	The item is anchored but not OSHPD permitted.		1,000.00
2	Adams	Electrical Room	Disconnect switch		1	Adams		No	Pull test anchor or re-anchor			500.00
3	Adams	Electrical Room	Service panels		4	Adams		No	Re-anchor & brace at the top			800.00
4	Adams	Vacuum Pump Room	Vacuum pump		1	Adams & McLeod		18				0.00
5	Adams	Vacuum Pump Room	Air compressor		1	SPD	1-1A	No	Pull test anchor or re-anchor	The item is anchored but not OSHPD permitted.		500.00
6	Adams	Vacuum Pump Room	Vacuum tank		1	Adams & McLeod	1-3A	No	Pull test anchor or re-anchor, brace at the top			800.00
7	Adams	Vacuum Pump Room	Soft water heater exchanger		1	Kitchen				Serves kitchen, not an NPC3 area		0.00
8	Adams	Vacuum Pump Room	Air handling switch gear		1	Adams	1-6A	No	Re-anchor and brace the top			500.00
9	Adams	Vacuum Pump Room	Condensate Receiver		1	Adams	1-2A	No	Anchor the tank			500.00
10	Adams	Vacuum Pump Room	Piping				1-4A,1-5A	No	Provide pipe bracing			1,000.00
11	McLeod	3rd Flr. Angiography	Angiography equipment					5				0.00
12	McLeod	3rd Flr. X-ray room No-6	Stratomatic		1		1-25, 2-1, 2-2	No	Re-anchor			500.00

**APPENDIX C**  
**TABLE D – NPC-3**  
**EQUIPMENT ROOMS / CENTRAL PLANT AREAS / NPC-3 AREAS**  
**SOURCE EQUIPMENT TO NPC-3 AREAS**  
**or KEY EQUIPMENT IN NPC-3 AREAS**

**Hospital Campus: Palomar**

No.	Building	Critical Care Area or Location	Equipment Type	Desig	No. or Ft.2	Building /Area Served	Photo No.	OSHP D No.	RetrofitDescription	Comments	Cost Factor	Cost
13	McLeod	3rd Flr. X-ray room-6	GX-PAN		2 piece of equip.			No	Re-anchor			600.00
14	McLeod	3rd Flr. X-ray room 4 & 5	X-ray machines		Same as Room-6 (6 pieces)			No	Re-anchor			2,200.00
15	McLeod	3rd Flr. Nuclear Medicine	Nuclear camera		1			9				0.00
16	McLeod	Electrical room(Bus Duct)	Electrical Panels & transformers on trapeze (except on 3rd)		9	Lobby thru 9th	2-3,2-4,2-5, 2-7	No	Brace transformer trapezes, Panels are anchored but not per OSHPD. Pull test anchors or re-anchor			3,150.00
17	McLeod	Elevator Penthouse	Elev. #10 Hoist		1	All floors	2-8, 2-9, 2-10	No	Need to verify sheave beams connection. Sheave beams appeared to be connected to embedded WF.	There are 4 elevator hoists, but elevator #10 is designated as emergency elevator.		500.00
18	McLeod	Elevator Penthouse	Elevator #10 electrical equipment		1	"	"	No	Re-anchor	"		400.00

**APPENDIX C**  
**TABLE D – NPC-3**  
**EQUIPMENT ROOMS / CENTRAL PLANT AREAS / NPC-3 AREAS**  
**SOURCE EQUIPMENT TO NPC-3 AREAS**  
**or KEY EQUIPMENT IN NPC-3 AREAS**

**Hospital Campus: Palomar**

No.	Building	Critical Care Area or Location	Equipment Type	Design	No. or Ft.2	Building /Area Served	Photo No.	OSHP D No.	RetrofitDescription	Comments	Cost Factor	Cost
19	McLeod	Mech. Penthouse (10th Flr.)	Exhaust fans		6	Through out	2-11, 2-12, 2-13	No	Provide bumpers	All air handlers have been changed or in process of being changed. Fans are original equip. & Supported on spring angle & spring isolators.		6,000.00
20	McLeod	Mech. Penthouse (10th Flr.)	Exhaust fan switch gear		2	Through out	2-14, 2-15, 2-16	No	Re-anchor & brace @ the top.			800.00
21	McLeod	Mech. Penthouse (10th Flr.)	Exhaust fans switch gears		4	Through out	"	12		Part of the change out project of air handlers.		0.00
22	McLeod	Mech. Penthouse (10th Flr.)	Pre- cooling tower circulation pump		1	Through out	2-17,	No	Provide bumpers	Red base is an inertia block.		1,000.00
23	McLeod	Outside of Mech. Penthouse (10th Flr.)	Cooling Tower		1	Through out	2-18, 2-19, 2-20, 2-21	No	Provide bumpers @ the end of each supporting beam, each side. (8 total)	Supported on top of steel beams which supported on "U" shaped plate frame welded to base plate. base plate has one		2,000.00
24	McLeod	Mech. Penthouse (10th Flr.)	Piping				2-22, 2-23	No	Provide lateral bracing	Trapeze supports are not braced.		2,500.00
25	East Extension	Basement, McLeod Electrical Room	Switch gear for McLeod tower		2	McLeod tower	3-10, 3-11	No	Pull test anchor or re-anchor, Brace @ the top	Existing anchors are concealed, possibly there are inside.		600.00

**APPENDIX C**  
**TABLE D – NPC-3**  
**EQUIPMENT ROOMS / CENTRAL PLANT AREAS / NPC-3 AREAS**  
**SOURCE EQUIPMENT TO NPC-3 AREAS**  
**or KEY EQUIPMENT IN NPC-3 AREAS**

**Hospital Campus: Palomar**

No.	Building	Critical Care Area or Location	Equipment Type	Desig	No. or Ft. 2	Building /Area Served	Photo No.	OSHP D No.	RetrofitDescription	Comments	Cost Factor	Cost
26	East Extension	Basement, McLeod Electrical Room	Adams Wing Emergency Feed		4	Adams Bldg.	"	No	Pull test anchor or re-anchor, Brace @ the top			1,600.00
27	East Extension	Basement, McLeod Electrical Room	Transformer		3	McLeod & Adams, & X-ray feed	3-12, 3-13	No	Pull test anchor or re-anchor, Brace @ the top			1,500.00
28	East Extension	Basement, Generator Room	Power feed Disconnect (12000 volts switches)		4			No	Pull test anchor or re-anchor,			1,200.00
29	East Extension	Basement, Chiller Room	Domestic Hot Water Flash Heaters		4	Throughout	3-14, .	No	Pull test anchor or re-anchor,	Sitting on top of very small pipes legs		1,000.00
30	East Extension	Basement, Chiller Room	Condensate receiver		1	"	3-19,	19				0.00
31	East Extension	Basement, Chiller Room	Chillers		2	"	3-15, 3-16, 3-18	No	Re- anchors			4,000.00
32	East Extension	Basement, Chiller Room	Silver horizontal tank		1		3-17,	No	Pull test anchor or re-anchor; provide brace between the legs			500.00
33	East Extension	Basement, Chiller Room	Chilled Water Pumps		3			No	Provide bumpers	Supported on top of inertia block on spring isolators.		900.00
34	East Extension	Basement, Chiller Room	Control Air Compressor		2	HVAC units in McLeod		No	Pull test anchor or re-anchor			600.00



**APPENDIX C**  
**TABLE D – NPC-3**  
**EQUIPMENT ROOMS / CENTRAL PLANT AREAS / NPC-3 AREAS**  
**SOURCE EQUIPMENT TO NPC-3 AREAS**  
**or KEY EQUIPMENT IN NPC-3 AREAS**

**Hospital Campus: Palomar**

No.	Building	Critical Care Area or Location	Equipment Type	Design	No. or Ft.2	Building /Area Served	Photo No.	OSHP D No.	RetrofitDescription	Comments	Cost Factor	Cost
35	East Extension	Basement, Boiler Room	Medical Air Compressor		1		3-22,	11				0.00
36	East Extension	Basement, Boiler Room	Boilers (Pawnee Boilers)		2	Throughout	3-20, 3-21	No	Provide anchors	Sits on top of rubber isolator pads		2,000.00
37	East Extension	Basement, Boiler Room	Condensate Receiver		1		3-23,	19				0.00
38	East Extension	Basement, Chiller & Boiler Room	Piping					No	Provide bracing			4,000.00
39	East Extension	Roof	Air handler units		2	Central supply & SPD		No	Re-anchor			1,000.00
40	Outside	East of Adams Bldg.	Cooling Tower #1 (Marley)		1	Throughout	1-16, 1-17, 1-18	No	Re-anchor & may some changes to the frame	No drawing are available. Wood & fiber glass construction.		5,000.00
41	Outside	East of Adams Bldg.	Cooling Tower #2 (Evapco)		1	Throughout	1-19, 1-20	13				0.00
42	Outside	East of Adams Bldg.	Cooling Tower #3 (Ceramic)		1	Cogen	1-21-1-22	19				0.00
43	Adams	On top of roof	Air Handler (AC25A)		1	ER OBS	1-23, 1-24	No	Re-anchor			1,000.00
44	McLeod	Mech. Penthouse (10th Flr.)	Air Handler 1 thru 7			McLeod		10,14, 16,17				0.00

**APPENDIX C**  
**TABLE D – NPC-3**  
**EQUIPMENT ROOMS / CENTRAL PLANT AREAS / NPC-3 AREAS**  
**SOURCE EQUIPMENT TO NPC-3 AREAS**  
**or KEY EQUIPMENT IN NPC-3 AREAS**

**Hospital Campus: Palomar**

No.	Building	Critical Care Area or Location	Equipment Type	Design	No. or Ft.2	Building /Area Served	Photo No.	OSHP D No.	RetrofitDescription	Comments	Cost Factor	Cost
45	East Extension	1st Level, Sterile Supply	ETO autoclaves					6				0.00
46	McLeod	3rd Level, Cat Scan	Cat Scan Equipment		1	McLeod		15				0.00
<b>Total=</b>												<b>50,150.00</b>

**APPENDIX C  
TABLE E – ARTICLE 10 ITEMS**

**Hospital Campus: Palomar**

No.	Building	Type of Item	Number (ft or ft2)	OSA/ OSHDP No.	Retrofit Description	Photo No	Comments	Cost Factor	Cost
1	McLeod (Lobby)	Lights & Diffusers, Emergency signs & Partition	13155	No	Provide lateral support for lights, diffusers, re-anchor signs, brace top of partition		Ceiling supports lights & diffusers. Some partitions appeared to go to underside of floor above except @ 8th level		105,240.00
2	McLeod (1st Level)	"	13155	No	Same		"		105,240.00
3	McLeod (2nd Level)	"	14957	No	Same		"		119,656.00
4	McLeod (3rd Level)	"	8954	No	Same		"		71,632.00
5	McLeod (4th Level)	"	11631	No	same		"		93,048.00
6	McLeod (5th Level)	"	12543	No	Same		"		100,344.00
7	McLeod (6th Level)	"	12543	No	Same		"		100,344.00
8	McLeod (7th Level)	"	12543	No	Same		"		100,344.00
9	McLeod (8th Level)	"	12543	No	Same		"		100,344.00
10	McLeod (9th Level)	"	12543	12					0.00
11	McLeod (3rd Level.)	Air handler above ceiling in the north corridor	1	7					0.00
12	McLeod (3rd Level.)	Air handler above ceiling in the north corridor	1	No	Provide brace and anchors				500.00

**APPENDIX C  
TABLE E – ARTICLE 10 ITEMS**

**Hospital Campus: Palomar**

No.	Building	Type of Item	Number ft or ft2 *	OSA/ OSHPD No.	Retrofit Description	Photo No.	Comments	Cost Factor	Cost
13	McLeod (3rd Level.)	Exhaust fan	1	No	Provide brace and anchors				500.00
14	Adams (1st Level)	Lights & Diffusers, Emergency signs & Partition	6012	No	Provide lateral support for lights, diffusers, re-anchor signs, brace top of partition				48,096.00
15	Adams (2nd Level)	"	12649		Same				101,192.00
16	Adams (3rd Level)	"	9896		Same				79,168.00
17	Adams (4th Level)	"	9712		Same				77,696.00
18	Adams ( 2nd Level)	Fan coil above ceiling in the NE corner office	1	No	Provide brace and anchors				500.00
19	Adams ( 3rd Level)	Fan coil above ceiling in the NE corner office	1	No	Provide brace and anchors				500.00
20	East Extension, 1st Level	Lights & Diffusers, Emergency signs & Partition "	3745	No	Provide lateral support for lights, diffusers, re-anchor signs, brace top of partition				29,960.00
21	East Extension, 2nd Level	"	1100	No	Provide lateral support for lights, diffusers, re-anchor signs				0.00
							<b>Total</b>		<b>1,234,304.00</b>
* Area = Total Area - NPC3 Areas - Non-NPC3 Areas but OSA/OSHPD permitted									