

INTERIM SUBMITTAL

ENERGY SURVEY OF
EISENHOWER ARMY MEDICAL CENTER
FORT GORDON
AUGUSTA, GEORGIA

VOLUME III
FIELD INVESTIGATION NOTES

CONTRACT NO. DACA01-94-D-0038

PREPARED FOR:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

PREPARED BY:

DTIC QUALITY INSPECTED 2

REYNOLDS, SMITH AND HILLS, INC.
AEROSPACE AND DEFENSE PROGRAM
4651 SALISBURY ROAD
JACKSONVILLE, FLORIDA 32256

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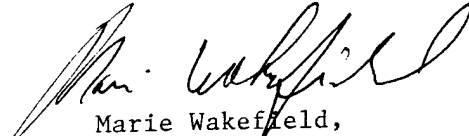

Marie Wakefield,
Librarian Engineering

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BUILDING DATA SHEET

Building Energy Monitor: Eisenhower AMC Phone: 10/24/95

Building Number: 300 Age 1976

Construction Data:

Number of Floors 13 Areas: Floor 590,629 sf Roof 27,038 sf

Windows: # of panes 1 Storms - Blinds/drapes/tint Blinds & drapes

Condition, caulking, weatherstripping? W/S missing on N facing ext. doors

Wall construction? _____

Condition, caulking, weatherstripping? _____

Roof construction? _____

Condition? _____

U-Values: Walls _____ Roof _____ Glass _____

Areas: E Wall _____ W Wall _____ N Wall _____ S Wall _____

E Glass _____ W Glass _____ N Glass _____ S Glass _____

Access points: _____

Vestibules? _____

Loading dock door seals? Not necessary - separate doors to open dock

Areas with special requirements: _____

Modifications to original design: Numerous interior changes

Addition of MRI and Family Practice wings on East side of hospital

General Conditions/Comments/Problems: _____

Population 2800 total max 2000 during day 400 for each of other two shifts

2ND FUR cell ht 9' - records - hallways 8'

MRI - 8' cell - Fam Pract Office 8'6"

BUILDING DATA SHEET (continued)

Schedules:

By floor or function : 5th - 13th 24 h/day

1st Labs are 24 h/day - remainder 7:30 - 4:00

2nd Radiology, Emerg., Info desk - 24 h/day

3rd SICU, Pharmacy, CMS (sterilization)

OR closes at 4 PM but does emerg.

4th Closes at 4 PM

100% AHU's op. continuously

0500-1900 ALL DAYS Cleaning out at 2300

Cafeteria 0545-1730 M-F WEH 0630-1300 Serving hrs.

Pneumatic tube 24 h/day - pharmacy uses mainly

Power Selectimatic 129 - 2 tube send & receive -

Elevator Ten - 4 service 6 passenger - All solid state

Cleaning 4 PM - midnight - supposed to turn off lights

Potential for night setback of space temperatures or AHU shut off 4th Floor

Can emergency generator be used for load shedding? 2100 kw $\frac{1}{3}$ 800 kw

6:30 AM first Wed. of each month - Already done

800 kw parallels until 2100 picks up

what electric loads can be shed? _____

BUILDING DATA NOTES

Survey by: _____

Date: _____

Notes & Comments: _____

- maintains $\sim 50^{\circ}\text{F}$

- Econo - opens at $\sim 50^{\circ}\text{F}$? Ask Harold

968 T'STATS

Billgotts - electrician

Booster pumps are in 1A

FIRE ALARM SYSTEM IS FUNDED

KITCHEN SUPPLY FAN in 3-A tool crib

5th SW corner AHU loc.

~ 20 new supply fans in 1-3

5E is short on cap.

791-0376/4243 Gent's #

BUILDING DATA NOTES

Survey by: Paul Hutchins

Date: 10/23/95

Notes & Comments: Jack Keith

Reviewed approved projects

Boiler economizers - remove

Chillers - replace + VSD CT Fans + SCWP

Beds 720 → 420

~~Bill~~ ^{Bill} find EACS in next 3 mos.

Jack hangs at Boiler Plant

Curt 791-4241/43/6376 8:00 - 4:30 - 5:00

Jack 781-3220/B165 6:00 - 5:00

Rob Colahan

Bldg 299 MRI Kenneth Emrhen - Mech HVAC

2 DX Split systems for space cooling

#2 - TRANE - Mod # TTA090A300AA

Ser # E38191755

#1 TRANE - Mod # TTA036A300B0

Ser # E46295018

Liebert - Mod # FH199A4400

Ser # 142547A

Space Cooling

MRI Equip.

Set 45% 1% Range
69°F 1% Range

Reading

47

71

Mode

Def.

(log)

Mechanics

Harold - Controls

Ken - HVAC

John Lilly - Supervisor

Economizers rarely work automatically - Usually done manually
Timeclock in Fan Plant but runs always because some Drs sleep there
~ 20 extra fans/coils added

BUILDING DATA NOTES

Survey by: P. Hutchins Date: 10/24/95

Notes & Comments: Bob Calhoun Johnson Controls Mgr.

300 kW gen. parallel utility can be man. brought on-line
at any time (replaced 300 kW)

2100 kW gen. is used to handle two chillers, ¹⁰ elevators
and several AHUs in hoop.

- All TSTATs are pneumatic and control reheat boxes
- No central reporting system

Medical barracks taken off power meter ~ 12/94

Ask J.K. 2000 kW gen

JK thinks the 2100 kW has a lot of life left
Not planned to parallel -
Just replace existing one

Newcomb & Boyd Jeff Riser

John Hangerone has boiler water treatment

Humidifiers - 5 MKU, 5th, Dental

Gordon Griffin -

BUILDING DATA NOTES

Survey by: Hutchins

Date: 10/26/95

Notes & Comments: _____

Panel Reading 2nd FLR Mech Rm 8:10 AM

① SA 53 OA 44 (act 46) STM AP 80 psig
RA 77 CWR 47 LP 28 psig

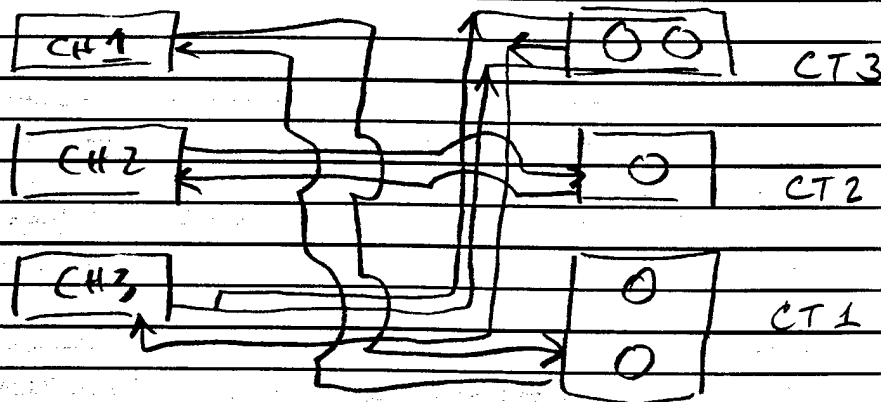
② SA 51 OA 43 CWS 40 HWS 154
RA 76 CWR 47 HWR 140

OSA Dampers 25% open
RTN " 15% closed

Prob 30 ft of insulation missing on DHW line in 2nd FLR MECHRM.

Float valve still stuck open on Gen. cooling tower
Flow rate - fills small coffee cup in 2 sec.
Leaking since last visit ~ 1 month earlier

N →



BUILDING DATA NOTES

Survey by: _____

Date: _____

Notes & Comments: (912) 652-5246 Rob Callahan

HW Reheat units

$\frac{1}{2}$ " 3-way control valves

Kneeger Detroit Div

Leak-Siegler

Size CVMP-R4

190 cfm

V4054 4 row coil

Run 1A-23

BUILDING DATA (continued)

HVAC THERMOSTAT SETPOINTS (F), TEMPS, RELATIVE HUMIDITY (%RH) & LIGHT LEVELS (FC)

	Setpoints		Temps		Ft Cndl	Location
	Heat	Cool	Meas'd	RH		
1.		74	76	55		6TH FLOOR OUTSIDE RM 6B01
2.		71	76	58		6TH FLOOR 6B56" OR.
3.		69	76	63	40	5TH ELEV. LOBBY (6)
4.			76	63		" 5C-13 (HOT LAST 3 Summers)
5.		74	80	51		4TH FL. MAIN LOBBY
6.					55	1st Pathology Off.
7.					63	1st Occupation & Therapy
8.					13-29	2nd Hallways
9.						
10.						
11.			79		50	3rd Flr Kitchen
12.			72			3rd - Linen
13.					13-21	3rd Warehouse
14.		70	76			3rd - Warehouse office
15.					12	5B-17 Lockers/computers (Patient Rm)
16.					55-60	5B-31 Break Rm
17.					10	5B-53 office (Patient Rm)
18.	55		73/54	20	25-35	5B-46 Conference Rm
19.						
20.						

Lighting Type Examles:

	Fixture	Lamp	Ballast	Lamps/	Hr/	Location
	Type	Model	Model	Fixt	Wk	
1.	1x4 W.R.	F40 CW	Adv. R2S40-1-TP	2		MECH RM
2.	2x4 Rec. Acryl	F40 CW	Mark III Adv	4		Caf Rm - MRT
3.						
4.						
5.						
6.						
7.						
8.						

General Conditions/Comments/Problems:

BUILDING DATA (continued)

HVAC THERMOSTAT SETPOINTS (F), TEMPS, RELATIVE HUMIDITY (%RH) & LIGHT LEVELS (FC)

	Setpoints		Temps		Ft. Cndl	Location
	Heat	Cool	Meas'd	RH		
1.					1.5-34	1 st Floor hallways (avg 23 fc)
2.						Some lamps out cause low readings
3.					13	2 nd Flr hallways (every other fixt. out)
4.					25	Other non de-lamped hallways
5.					28	2 nd Floor lobby
6.			72.0		27	5 th hallways
7.					8	" " with delamping
8.			73.5		7-10	6 th hallways " "
9.					38	7 th " "
10.					29-30	8 th " "
11.					29-30	9 th " "
12.					34	10 th " new TB
13.					35	11 th " "
14.			74.8		50	11 th elevator lobby
15.					13-15	14 th
16.			71-73		24	12 th lobby & hallways
17.			79		33	13 th Nurse's station
18.			72/53		103	2nd Fl Rm 16 Treatment F. Practice
19.			73/54		55-60	Family Practice waiting/reception area
20.					95/40	" " office area; multi-switched
					4L 2L	77 ft. cd w/2L and task lights at desk → 1-4' lamp

Lighting Type Examples:

	Fixture	Lamp	Ballast	Lamps/	Hr/	Location
	Type	Model	Model	Fixt	Wk	
1.	Small eggcrate	Octron 350K F32T35		2	168	10 th FLR HALL
2.	2x2 Eggcrate	F40/30BX/SPX35	MZ-RN-TB-40 ⁽¹⁾	2	168	10 th FLR Elev. Lobby
3.	2 lamp ind.	F40CW			168	14 th
4.			Jiff. 300/9708801	2	168	11 th
5.	4-2x4 w/ACR lns	F40CW	92 input watts	2 pat ~	64/65	3D-1 GG
6.						
7.						
8.						

General Conditions/Comments/Problems:

" Motorola
 Family Practice ~ 7:30 am - 9 pm M-F, 8-12 sat, ^{closed} ~~open~~ Sunday
 Exit sign w/ 2-15W inc. lamps & 2 emerg. lamps ~ 24 total
 U-tube lamps are 34-w; 4' T12's are 34-w.
 Office area can use 2 lamps overhead w/ task lights

BUILDING DATA (continued)

HVAC THERMOSTAT SETPOINTS (F), TEMPS, RELATIVE HUMIDITY (%RH) & LIGHT LEVELS (FC)

	Setpoints		Temps		Ft Cndl	Location
	Heat	Cool	Meas'd	RH		
1.		68	65	65	15.2	ELEV. MACH CONTROL RM (14)
2.		68	66	80		ELEV. 1-6 MACH CONT RM CONT (14)
3.		78	75	62	10.3	ELEV MACH RM (14)
4.			75	70	10.5	ELEV. LOBBY (13)
5.		76				E. NURSE STAT
6.		75				W " "
7.			74	70	15	12 TH FLOOR ELEV-LOBBY
8.		72				12 TH " NURS STAT E
9.		79	75	78		" " " W ALL OFFICE
10.		75	78	74	50	11 TH FL ELEV LOBBY
11.		75			35	" HALLWAY
12.		60	78	82		10 TH. RM 101 TOILET ANTI RM
13.						2- INCA 10. FIXT AIR RETURN.
14.						100-18. 5-B. NEW.
15.			75	62		9 TH FL ELEV. LOBBY (16)
16.		74				9 FL. WEST
17.		72	78	60		8 TH FL. WEST
18.		73	75	70		" " BD-39
19.			75/55.5		10-55	2nd FL Records (Desks have tasklight)
20.						

Lighting Type Examles:

	Fixture	Lamp	Ballast	Lamps/	Hr/	Location
	Type	Model	Model	Fixt	Wk	
1.	14 BAKI			2		ELEV. MACH
2.	New 2x4 acrylic lens	F40 CW	MARK III Adv.	2		Records - 2 ND FLR
3.	Older 2x4 corfl. lens	F40 CW	-	2		Records. "
4.						
5.						
6.						
7.						
8.						

General Conditions/Comments/Problems:

WEST END 12TH F ALL OFFICE SPACE PART. RELOCATED

ALL CORR. LIGHTS ARE ON.

10TH ALL NEW FIXT SEE E-53 / NURSE STAT 4L PRISMATIC

9TH ALL CORR. FIXT ARE ON. 2L-2X4 PRISMATIC K12 LENSE

8TH E thermostat broken

BUILDING DATA NOTES

Survey by: F.N.

Date: 10/25/95

Notes & Comments: Computer center, 1ST FL 6/8/95 66/49

THERM. SET. 80 READ. 68

THERMOTE HANG FROM CEIL. 68. 27-2X4-2C

Hot water measurements - bathrooms

9th Flr - 117°F

6th Flr - 115°F

5th Flr - 115°F

BUILDING DATA (continued)

Lights on in unoccupied areas?

Locations 14TH FLR MECH RM - LEFT ON

12TH KITCH UNIT, GROUP THERAPY LEFT ON

Need for separate switching?

Locations

Occupancy sensors for lights or HVAC?

Locations 9TH FL. 9B-06 LOUNGE 12-2L 2X4 4-2X2-2LU +TV
9A-54 NURSE MED. PREP. 5-2X4-2L
9A-53 LINEN 5-2X4-2L
10TH 10B-06 LOUNGE NEW 12-2L REC. COTTRON LAMPS

Hot water temperature and flow rate samples:

Locations

Flow restrictor application?

Locations

Automatic shut-off faucet application?

Locations

BUILDING DATA NOTES

Survey by: F. NEW

Date: 10-27-95

Notes & Comments: ROOF ELEVATOR MACHINE ROOM ROOF
OUTSIDE A/C UNIT FOR ELEVATOR SOLID STATE CONTROLLER
EQUIPMENT ROOMS. WEST UNIT SERVES ELEV. 1-6
EAST UNIT SERVES ELEV 6-10.

CARRIER DX SER. NO. 2692E17377

MOD. NO. 3BTK8038300

FACT. CHARGE R22 6.38 LBS

COMP. 208/230V 1Ø

1HP 60HZ 17.1A

FAN. 1/4HP 1.4A

HIGH 450PSI

LOW 210PSI

BUILDING DATA NOTES

Survey by: F. NEW

Date: 10-25-95

Notes & Comments:

1. 2ND FLOOR PHARMACY LOBBY Rm 2C-1 175W MER. V
2. 4TH FLOOR LOBBY 4B-23 ALL RECESSED LENSED FIXT. HAVE 52W LAMPS
3. 3RD STORAGE RM 3M-1 SUSP. FIX. 175-LB MER. V.
4. 4TH FLOOR LOBBY 4B-4 + OFFICES ALONG SW + WEST SIDE OF BUILDING HAVE 175W MER. V.
5. NEW PATIENT FIXTURES (WALL MOUNTED) WILL HAVE 4-40W T8 LAMPS. (PAIRS SWITCHED SEPARATELY,
6. Rm 1C-14 AUDITORIUM
 - 64- CIRCLINE 2L FIXT. 1-22W, 1-32W
 - 38 - INCAN. STAGE LAMPS
 - 11 -
 - 8 - 52 - WALL INCANDESCENT
 - 2 - 2x4 - 2L F40CW RECESSED

BUILDING DATA NOTES

Survey by: _____

Date: 10/25/95

Notes & Comments: _____

Jim Paulisek

Spot Cooling
First Floor LAB - 4

BUILDING DATA NOTES

Survey by: _____

Date: 10/27/95

Notes & Comments: Entrance Interview

Atlanta Gas Light Co.

Ion Skelton (706) 481-1484

Georgia Pwr. Co. (706) 823-4532

Michael Richardson

Col. Plank

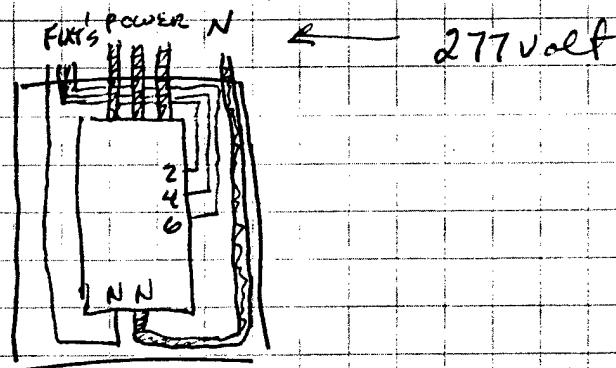
New equipment - growth factor for new elec equip.

Get copy of survey forms to Bob C.

Harmonics Analysis ETMC

1	10 th FLR	Circuit 2	5.06 10	Lighting Panel
2	"	Neutral (Large)	2.06	75.6 75.6
3	"	Circ 2	9.13 (8.4)	10 RPZ $\frac{1}{2}$ 11 RPZ
4	"	Circ 4	5.06	22.8
5	"	6 6	1.44	24.3
6	"	Large Neutral	3.64	109.2%
7	"	Small N	3.64	10.99
8	10 th	Circ 4	6.93	19.0
9	"	Circ 6	4.31	12.7
10	"	Small Neutral	2.04	96.2

10th FLR = 25 26 fixtures 3 in TM 2 stairwell, 1 alc closet
 11th 30 26 fixtures



Panel RPZ

TB's Installed in corridors and patient room
 overhead fixtures - Corridors are 2x4 26 TB's (270v)
 Overhead are 4ft box wall-mounted (120v)
 4 lamp with 2 way switch to control 2 lamps
 at a time - Installed summer '95
 All fixtures are new - ~~Doing~~ Old 8th floor
 in Dec. Will do 3 or 4 more floors next cal. yr.
 Expect to do all patient floors

Kitchen Equip.

10/26/95

Dishwasher:

Hobart Model FTM 822

First wash at $\sim 120^{\circ}\text{F}$

Final rinse at $\sim 180 - 200^{\circ}\text{F}$

Steam Kettles:

5 Kettles $\sim 30 - 40$ gal each

35 psi steam requirement

Steam Ovens:

4 steamers (all small)

$\sim 1/2"$ steam pipe

15 psi steam required

Pots & Pans Washer:

150°F wash

180°F rinse

15 - 25 psi steam required

#1

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: #1
A234
SF-1 Location: 2nd Fl. Date: 10/24Manufacturer Name: P/P Model: P 490AHU Characteristics : ORDER Serial #: AF8448Supply: X Return X Exhaust: X Class: 3Flow control? Constant X VSD Inlet Guide Vanes Other Is motor in airstream? Supply X Return No Smoke detector? Y Smoke damper? O.AHumidifier type None Condition Economizer function? Yes Operating correctly? NO On temp. 55-56°FHeat recovery potential? Chilled water valves: 2-way 3-way X Balancing valve ~~Hot water~~ valves: 2-way X 3-way Balancing valve Coils: Preheat: Cooling: Heat: Reheat: Air Filter Type: Prefilter After filter Air Temp's: Design: OSA Rtn Mixed LPrHt LCC LHC Measured: OSA 74.5 Rtn Mixed 78.6 LPrHt LCC 55.1 LHC 56.5Air Flows: Nameplate: CFM 69000 S.P. 6.5 RPM 921?Measured : CFM S.P. 6.4 RPM 1067Cooling capacity Tons: Design Calculated Heating capacity Tons: Design Calculated System description/Set points: Operation schedule:/Set points: Areas served: Condition/Comments/Problems: Motor: Linequard dripproof, 404T, 100 hp, 230/460V, 240/120A.
code: TV-2734-AL, SN 905764, 1775 RPMC. coils, sometimes bent, a little missingSketch AHU (show measurements)

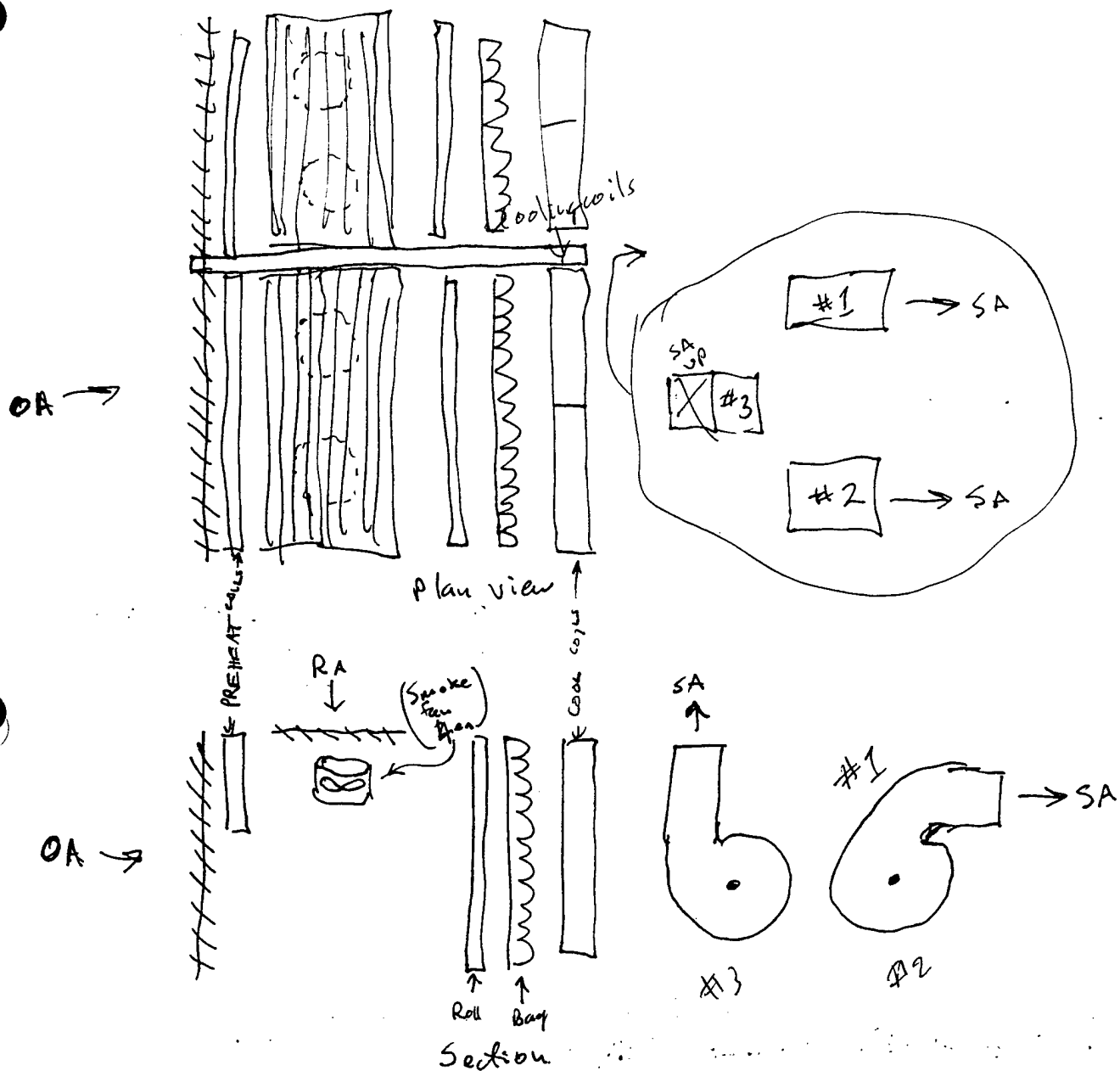
AH-1

#12

#231

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: SF-2 Location: 2nd Fl. Date: 10-24Manufacturer Name: PEERLESS / PORTER Model: P 542AHU Characteristics : ORDER Serial #: AFB 448Supply: X Return X Exhaust: X Class: 3Flow control? Constant X VSD Inlet Guide Vanes Other Is motor in airstream? Supply X Return No Smoke detector? YES Smoke damper? OA.Humidifier type None Condition Economizer function? Yes Operating correctly? NO On temp. 55-56°FHeat recovery potential? Chilled water valves: 2-way 3+way X Balancing valve ~~Hot water~~ ^{Steam} valves: 2-way X 3-way Balancing valve Coils: Preheat: X Cooling: X Heat: Reheat: Air Filter Type: Prefilter RollAfter filter BagAir Temp's: Design: OSA Rtn Mixed LPrHt LCC LHC Measured: OSA 65.5 Rtn 81.0 Mixed 78.0 LPrHt NA LCC 54.0 LHC NOPEAir Flows: Nameplate: CFM 74000 S.P. 6.5 RPM 798Measured : CFM S.P. 5.7 RPM 880Cooling capacity Tons: Design Calculated Heating capacity Tons: Design Calculated System description/Set points: Operation schedule:/Set points: Areas served: Condition/Comments/Problems: Roll Filters (2 of 3) are very dirty, bag
Filters appear dirty. Coils are fairly clean.Motor: Lincoln dripproof, 100 hp, 1775 rpm, 230/460V, 240/120A
code TV 2734-A1, SN 905733Sketch AHU (show measurements) AH-2



CALC OA % = 19.4

AHU 1, 2, 3

#3

AIR HANDLING UNIT DATA SHEET

#3
#232
AHU I.D. No.: SF-3 Location: 2nd Fl. Date: 10/24
Manufacturer Name: P/P Model: P 490
AHU Characteristics : ORDER Serial #: AF8448
Supply: X Return X Exhaust: X Class: 3
Flow control? Constant X VSD Inlet Guide Vanes Other
Is motor in airstream? Supply X Return No
Smoke detector? Y Smoke damper? O.A.
Humidifier type None Condition
Economizer function? Yes Operating correctly? NO On temp. ~55-56°F
Relay or adjusters not working properly - RA only
Heat recovery potential?

Chilled water valves: 2-way 3-way Balancing valve ~~Hot water~~ ^{Steam} valves: 2-way 3-way Balancing valve Coils: Preheat: Cooling: Heat: Reheat: Air Filter Type: Prefilter After filter Air Temp's: Design: OSA Rtn Mixed LPrHt LCC LHC Measured: OSA Rtn Mixed LPrHt LCC LHC Air Flows: Nameplate: CFM 61000 S.P. 6.5 RPM 886Measured : CFM S.P. 6.6 RPM 1069Cooling capacity Tons: Design Calculated Heating capacity Tons: Design Calculated System description/Set points: Operation schedule:/Set points: Areas served: Condition/Comments/Problems: Motor: Lincoln, LINCOLN DRIPPROFF, 704 T, 100 hp, 230/460v, 238/119A
1770 RPM, SF=1.15, code TV-3420-A1, SN 2243351Sketch AHU (show measurements)

AH-4

SF-3

3RD Floor

OA below
at 2nd Fl level.

return
air down

Relief
at below
2nd
Fl level

R.A.
Down

1.5' x 2'

1-A

← RA

1-B

← RA

install
turning
vanes,
bad for
relief

AH-5

Return Fan for #1, 2 & 3

AIR HANDLING UNIT DATA SHEET

1-A

AHU I.D. No.: RA-1 Location: 3RD FL. Date: 10/24

Manufacturer Name: P/P Model: 60

AHU Characteristics : ORDER Serial #: AF 8464

Supply: Return Exhaust:

Flow control? Constant X VSD Inlet Guide Vanes Other

Is motor in airstream? Supply Return No

Smoke detector? Smoke damper?

Humidifier type Condition

Economizer function? Operating correctly? On temp.

Heat recovery potential?

Chilled water valves: 2-way 3-way Balancing valve

Hot water valves: 2-way 3-way Balancing valve

Coils: Preheat: Cooling: Heat: Reheat:

Air Filter Type: Prefilter

After filter

Air Temp's: Design: OSA Rtn Mixed LPrHt LCC LHC

Measured: OSA Rtn Mixed LPrHt LCC LHC

Air Flows: Nameplate: CFM 61000 S.P. 2.0 RPM 784

Measured : CFM S.P. 0.4 / 1.4 RPM

Cooling capacity Tons: Design Calculated $1.4 - 0.4 =$

Heating capacity Tons: Design Calculated

System description/Set points:

Operation schedule:/Set points:

Areas served:

Condition/Comments/Problems: Dampers at closed position

Sketch AHU (show measurements) AH-6

Return Fan For # 1, 2 & 3
AIR HANDLING UNIT DATA SHEET

1-B

AHU I.D. No.: RA-1 Location: 2nd fl Date: _____

Manufacturer Name: P/P Model: 60

AHU Characteristics : ~~ORDER~~ Serial #: AF 8464

Supply: _____ Return _____ Exhaust: _____

Flow control? Constant _____ VSD _____ Inlet Guide Vanes _____ Other _____

Is motor in airstream? Supply _____ Return _____ No _____

Smoke detector? _____ Smoke damper? _____

Humidifier type _____ Condition _____

Economizer function? _____ Operating correctly? _____ On temp. _____

Heat recovery potential? _____

Chilled water valves: 2-way _____ 3-way _____ Balancing valve _____

Hot water valves: 2-way _____ 3-way _____ Balancing valve _____

Coils: Preheat: _____ Cooling: _____ Heat: _____ Reheat: _____

Air Filter Type: Prefilter _____

After filter _____

Air Temp's: Design: OSA _____ Rtn _____ Mixed _____ LPrHt _____ LCC _____ LHC _____

Measured: OSA _____ Rtn _____ Mixed _____ LPrHt _____ LCC _____ LHC _____

Air Flows: Nameplate: CFM 61000 S.P. AF2.0 BF RPM 784

Measured : CFM _____ S.P. + .65 / 1.27 RPM _____

Cooling capacity Tons: Design _____ Calculated _____ $\rightarrow 1.27 - 0.65 =$

Heating capacity Tons: Design _____ Calculated _____

System description/Set points: _____

Operation schedule:/Set points: _____

Areas served: _____

Condition/Comments/Problems: Dampers ~ 25% open

Sketch AHU (show measurements) AH-7

AIR HANDLING UNIT DATA SHEET

SF-4A

AHU I.D. No.: 236 Location: 14TH (EAST) Date: 10/24/95

Manufacturer Name: Peerless Model: P542 SF-4

AHU Characteristics : Serial #: AF 8448

Supply: X Return X Exhaust: X

Flow control? Constant X VSD Inlet Guide Vanes Other

Is motor in airstream? Supply Return X No

Smoke detector? Smoke damper?

Humidifier type None Condition

Economizer function? YES Operating correctly? NO On temp. 50°F

Heat recovery potential?

Chilled water valves: 2-way 3-way X Balancing valve

~~Hot water~~ ^{Steam} valves: 2-way X 3-way Balancing valve

Coils: Preheat: ✓ Cooling: ✓ Heat: Reheat:

Air Filter Type: Prefilter Roll; 2" thick
After filter BAG. } $\Delta P = 0.40$

Air Temp's: Design: OSA Rtn Mixed LPrHt LCC LHC

Measured: OSA 64.8 Rtn 75.6 Mixed 72.5 LPrHt LCC 56.5 LHC

Air Flows: Nameplate: CFM 83000 S.P. 7.0 RPM 847

Measured : CFM S.P. 5.5 RPM 890

Cooling capacity Tons: Design Calculated

Heating capacity Tons: Design Calculated

System description/Set points:

Operation schedule:/Set points:

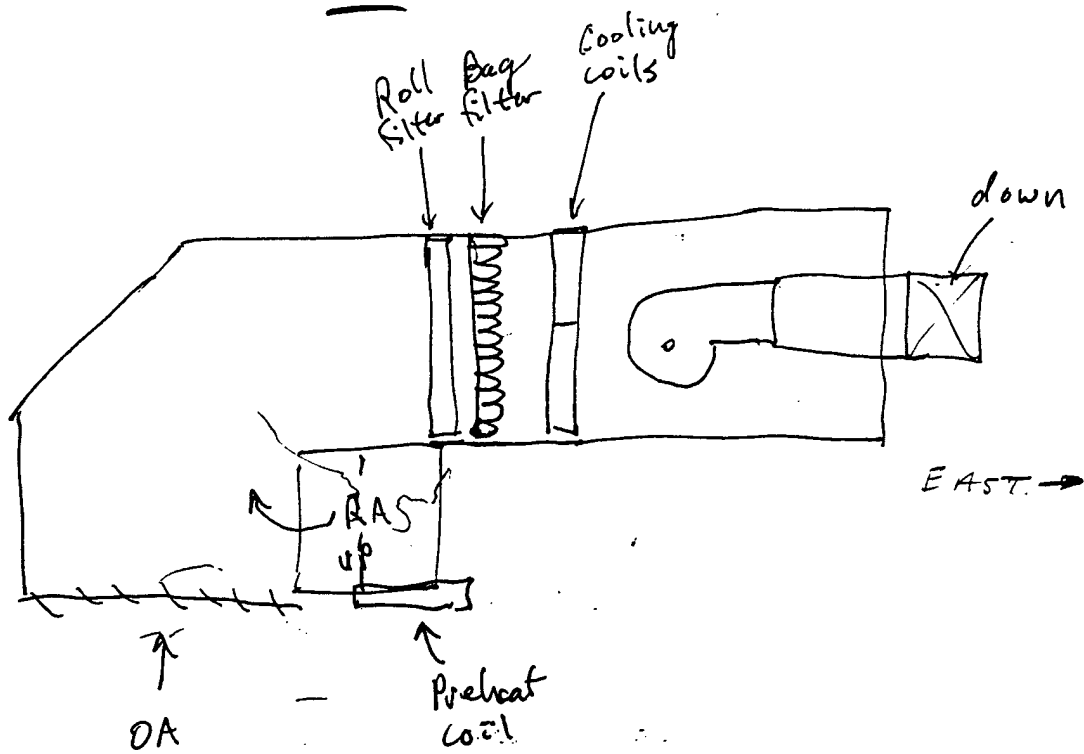
Areas served:

Condition/Comments/Problems: cooling coils fairly clean - some dust, some fins
Motor 125 hp, 292/146A, 230/460V, 1779 RPM, SF=1.15
Cont. Dropproof

1 damper blade missing from O.A. & Relief air dampers
Sketch AHU (show measurements) See back

AH-B

SF 4A



PLAN VIEW

CALC DA = 28.7%

AH-9

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: RA-2A Location: 14th FL EAST Date: 10-24-95

Manufacturer Name: PEERLESS Model: 60

AHU Characteristics : Serial #: _____

Supply: _____ Return _____ Exhaust: _____

Flow control? Constant _____ VSD _____ Inlet ^{Manual} Guide Vanes X Other _____

Is motor in airstream? Supply _____ Return _____ No X

Smoke detector? _____ Smoke damper? _____

Humidifier type _____ Condition _____

Economizer function? _____ Operating correctly? _____ On temp. _____

Heat recovery potential? _____

Chilled water valves: 2-way _____ 3-way _____ Balancing valve _____

Hot water valves: 2-way _____ 3-way _____ Balancing valve _____

Coils: Preheat: _____ Cooling: _____ Heat: _____ Reheat: _____

Air Filter Type: Prefilter _____

After filter _____

Air Temp's: Design: OSA _____ Rtn _____ Mixed _____ LPrHt _____ LCC _____ LHC _____

Measured: OSA _____ Rtn _____ Mixed _____ LPrHt _____ LCC _____ LHC _____

Air Flows: Nameplate: CFM _____ S.P. -1.0/-0.2 RPM _____

Measured : CFM _____ S.P. _____ RPM _____

Cooling capacity Tons: Design _____ Calculated _____

Heating capacity Tons: Design _____ Calculated _____

System description/Set points: _____

Operation schedule:/Set points: _____

Areas served: _____

Condition/Comments/Problems: _____

Manual VAV's are on ^{max} setting.

Sketch AHU (show measurements) AH-10

AIR HANDLING UNIT DATA SHEET

SF-4B

AHU I.D. No.: #235 Location: 14-41A-West Date: 10-24-95

Manufacturer Name: PEERLESS Model: P542 ; CL#3

AHU Characteristics : Serial #: AF8448

Supply: X Return X Exhaust: X

Flow control? Constant X VSD Inlet Guide Vanes Other

Is motor in airstream? Supply X Return No

Smoke detector? Yes Smoke damper?

Humidifier type None Condition

Economizer function? Yes Operating correctly? NO On temp. 200F

Heat recovery potential?

Chilled water valves: 2-way 3-way X Balancing valve

~~Hot water~~ ^{Steam} valves: 2-way X 3-way Balancing valve

Coils: Preheat: ✓ Cooling: ✓ Heat: Reheat:

Air Filter Type: Prefilter None 2" thick Roll 7
After filter Bag } $\Delta P = 0.45$

Air Temp's: Design: OSA Rtn 76.0 Mixed LPrHt LCC LHC

Measured: OSA 71.9 Rtn 76.0 Mixed 74.5 LPrHt LCC 55.6 LHC

Air Flows: Nameplate: CFM 83000 S.P. 7.0 RPM 847

Measured : CFM S.P. 5.75 RPM 876

Cooling capacity Tons: Design Calculated

Heating capacity Tons: Design Calculated

System description/Set points:

Operation schedule:/Set points:

Areas served:

Condition/Comments/Problems: cooling coils are dusty, some bent fins

Motor Lincoln, 125 hp, 1770 RPM, 288/144 A, 230/460V

name now off = 93.6, 405T, LINGGUARD DRIPPROOF

Relief Air damper linkage is coming loose from wall - will not open

O.A. dampers will not fully open

Sketch AHU (show measurements) same as east unit but oppsite hand

AH-11

VIV max open

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: RA-2B Location: 14th Fl. West Date: 10-24-95
Manufacturer Name: PEERLESS Model: 60; P.N. 605001/RA-2
AHU Characteristics : Serial #: ORDER # AF8464

Supply: Return Exhaust:
Flow control? Constant VSD Inlet Guide Vanes manual ☒ Other
Is motor in airstream? Supply Return No
Smoke detector? Smoke damper?
Humidifier type Condition
Economizer function? Operating correctly? On temp.

Heat recovery potential?

Chilled water valves: 2-way 3-way Balancing valve
Hot water valves: 2-way 3-way Balancing valve
Coils: Preheat: Cooling: Heat: Reheat:

Air Filter Type: Prefilter
After filter

Air Temp's: Design: OSA Rtn Mixed LPrHt LCC LHC
Measured: OSA Rtn Mixed LPrHt LCC LHC
Air Flows: Nameplate: CFM 4500 S.P. 1.75 RPM 771
Measured: CFM S.P. -1.0/0.0 RPM

Cooling capacity Tons: Design Calculated

Heating capacity Tons: Design Calculated

System description/Set points:

Operation schedule:/Set points:

Areas served: Toshiba
80304VLF1UD

Condition/Comments/Problems: 80/40 A 200A
Motor: 30 hp, 206T, 3ph, 1760 RPM, 230/460V, 1.15 SE
fan dampers were open; rpm measured ~1690-1730

relief dampers above RA duct slightly cracked
Sketch AHU (show measurements)

AIR HANDLING UNIT DATA SHEET

#233

AHU I.D. No.: SF-5 Location: 5th Fl. Date: 10/25

Manufacturer Name: Covered w/ insulation Model: _____

AHU Characteristics : Serial #: _____

Supply: X Return _____ Exhaust: _____

Flow control? Constant X VSD _____ Inlet Guide Vanes _____ Other _____

Is motor in airstream? Supply _____ Return _____ No X

Smoke detector? _____ Smoke damper? _____

Humidifier type _____ Condition _____

Economizer function? _____ Operating correctly? _____ On temp. _____

Heat recovery potential? _____

Chilled water valves: 2-way _____ 3-way X Balancing valve _____

~~Hot water~~ ^{steam humidifier} valves: 2-way _____ 3-way X Balancing valve _____

Coils: Preheat: _____ Cooling: X Heat: _____ Reheat: X

Air Filter Type: Prefilter Roll

After filter BAG

Air Temp's: Design: OSA _____ Rtn _____ Mixed _____ LPrHt _____ LCC _____ LHC _____

Measured: OSA 66 Rtn NA Mixed 73.1 LPrHt _____ LCC 52.0 LHC 55.8

Air Flows: Nameplate: CFM _____ S.P. _____ RPM _____ Covered w/

Measured : CFM _____ S.P. 5.6 RPM 1731 Insulation

Cooling capacity Tons: Design _____ Calculated _____

Heating capacity Tons: Design _____ Calculated _____

System description/Set points: Multi zone (13 zones?)

Operation schedule:/Set points: _____

Areas served: ICU & ORAL SURGERY

Condition/Comments/Problems: _____

Motor: 20hp, 1755 RPM, 230/460V, 50.2/25.1A,

Sketch AHU (show measurements) AH-13

234

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: SF6 Location: 3rd Fl. Date: 10/25
Manufacturer Name: P/P Model: P330 DWDI

AHU Characteristics : Serial #: _____

Supply: ☒ Return _____ Exhaust: ☒

Flow control? Constant ☒ VSD _____ Inlet Guide Vanes _____ Other _____

Is motor in airstream? Supply ☒ Return _____ No _____

Smoke detector? _____ Smoke damper? _____

Humidifier type Steam Condition OK

Economizer function? No Operating correctly? _____ On temp. _____

100% outside air

Heat recovery potential? _____

Steam preheat:
Chilled water valves: 2-way _____ 3-way ☒ Balancing valve _____

Steam Humidifier
~~Hot water~~ valves: 2-way ☒ 3-way ☒ Balancing valve _____

Coils: Preheat: ☒ Cooling: ☒ Heat: _____ Reheat: ☒

Air Filter Type: Prefilter Roll

After filter Bag → 97% after humidifiers

Air Temp's: Design: OSA _____ Rtn _____ Mixed _____ LPrHt _____ LCC _____ LHC _____

Measured: OSA 78.7 Rtn NA Mixed 77.3 LPrHt NA LCC 57.3 LHC _____

Air Flows: Nameplate: CFM 27000 S.P. 6.75 RPM 1363

Measured : CFM _____ S.P. 5.5 RPM 1467

Cooling capacity Tons: Design _____ Calculated _____

Heating capacity Tons: Design _____ Calculated _____

System description/Set points: _____

Operation schedule/Set points: humidity controls set to ~ 40% RH.

Areas served: Surgical Suite

Condition/Comments/Problems: Planned renovations include: rebuild fan, new fan motor, new VFD for fan/motor, new cooling coils, new preheat coils to be located at AHU instead of OA intake.

Sketch AHU (show measurements) AH-14

Renovation to surgical suite AHU

Rebuild Fan ✓

New motor ✓

New FID on motor ✓

New cooling coils ✓

New preheat coils (at unit) ✓

Kitchen Make up air
AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: MVA Location: 3rd Fl. Date: 10/25

Manufacturer Name: P/P Model: P 490 SWSE

AHU Characteristics :

Supply: ☒ Return ☐ Exhaust: ☐ ORDER
Serial #: AFB44B

Flow control? Constant ☒ VSD ☐ Inlet Guide Vanes ☒ Other ☐ Part No: MAKE UP AIR
Class: 1

Is motor in airstream? Supply ☐ Return ☐ No ☒ Wide open (100%)

Smoke detector? ☐ Smoke damper? ☐

Humidifier type ☐ Condition ☐

Economizer function? ☐ Operating correctly? ☐ On temp. ☐

Heat recovery potential? ☐

Chilled water valves: 2-way ☐ 3-way ☐ Balancing valve ☐

~~Hot water~~ ^{Steam} valves: 2-way ☒ 3-way ☐ Balancing valve ☐

Coils: Preheat: ☒ Cooling: ☐ Heat: ☐ Reheat: ☐

Air Filter Type: Prefilter Roll → filters very dirty

After filter Bag

Air Temp's: Design: OSA ☐ Rtn ☐ Mixed ☐ LPrHt ☐ LCC ☐ LHC ☐

Measured: OSA ☐ Rtn ☐ Mixed ☐ LPrHt ☐ LCC ☐ LHC ☐ 66°F

Air Flows: Nameplate: CFM 32000 S.P. 2.5 RPM 684

Measured : CFM ☐ S.P. 2.8 RPM 795

Cooling capacity Tons: Design ☐ Calculated ☐

Heating capacity Tons: Design ☐ Calculated ☐

System description/Set points: Field erected unit, draw through, heating only, w steam coil (12 psi, seal on gage)

Operation schedule/Set points: ☐

Areas served: Kitchen

Condition/Comments/Problems: some dampness at base of htg coil may have a leak

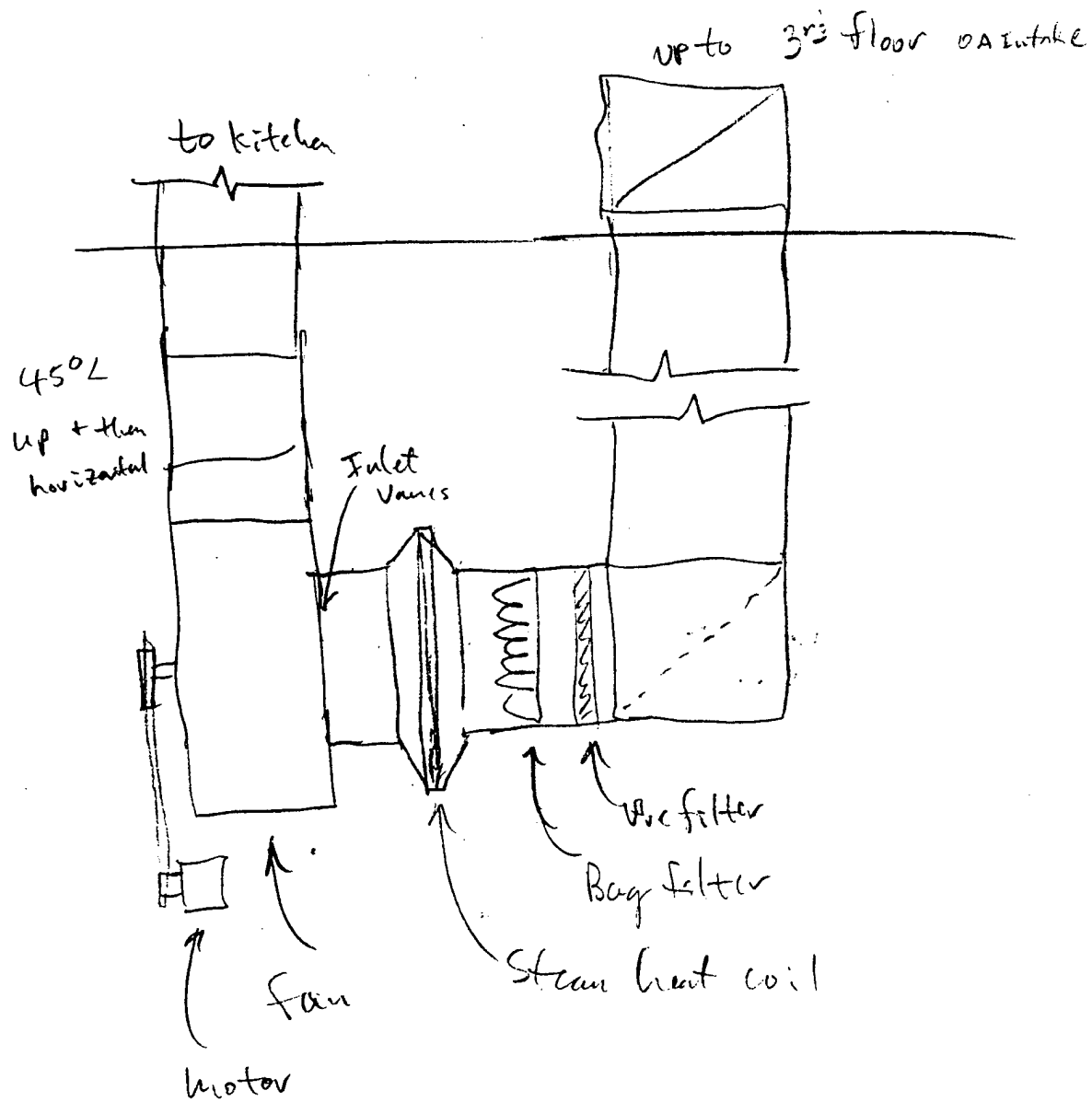
Motor: Lincoln TEFC, 20 hp 1750 RPM, 230/460V, 50/25 A

eff = 86.5, 256T → bearings bad replaced with Magnetek, 230/460v
49.2/24.6 A, 1740 Rpm, PF = 88.0, eff = 87.5

heating coils are dirty, some fins missing where leaks were

Sketch AHU (show measurements) repaired - overall condition = Fair +

KITCHEN MAU



Kitchen Exhaust Air
AIR HANDLING UNIT DATA SHEET

#219

AHU I.D. No.: EF-7 Location: 3rd Fl. Date: 10/25

Manufacturer Name: AAF Model: TYPE W ROTO-CLONE

AHU Characteristics: EXHAUST/DUST COLLECTOR Serial #: W 720108

Supply: Return Exhaust: X Arrangement: A

Flow control? Constant X VSD Inlet Guide Vanes Other
Size: 36

Is motor in airstream? Supply Return No X

Smoke detector? Smoke damper?

Humidifier type Condition

Economizer function? Operating correctly? On temp.

Heat recovery potential?

Chilled water valves: 2-way 3-way Balancing valve

Hot water valves: 2-way 3-way Balancing valve

Coils: Preheat: Cooling: Heat: Reheat:

Air Filter Type: Prefilter

After filter

Air Temp's: Design: OSA Rtn Mixed LPrHt LCC LHC

Measured: OSA Rtn Mixed LPrHt LCC LHC

Air Flows: Nameplate: CFM S.P. RPM

Measured: CFM S.P. 4.05 ^{BF} 0.45 ^{AF} RPM 615

Cooling capacity Tons: Design Calculated

Heating capacity Tons: Design Calculated

System description/Set points:

Operation schedule/Set points:

Areas served:

Condition/Comments/Problems: WATER/DUST COLLECTOR APPEARS TO BE OFF

Motor: 100hp, Lewis Allis/Range maker, 230/460V, 234/117A, 1730 RPM

Sketch AHU (show measurements) AH-18

ELECTRIC MOTOR DATA SHEET

(234)
 Equipment ID. SF-1 Location: Rm 2A-1 Function: AHU Date: 10/24
 Nameplate Data: HP 100 Frame 404T
 Volts 460 Amps 120 Phases 3 PF 0.8 kW (1) _____ Eff ~93.5 RPM 1775

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

(231)
 Equipment ID. SF#2 Location: 2nd fl. RM #2A-1 Function: AHU Date: 10/24
 Nameplate Data: HP 100 Frame 404T
 Volts 460 Amps 120 Phases 3 PF .8 kW (1) _____ Eff ~93.5 RPM 1800

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

(232)
 Equipment ID. SF#3 Location: 2nd fl. RM #2A-1 Function: AHU Date: 10/24
 Nameplate Data: HP 100 Frame 404T
 Volts 460 Amps 120 Phases 3 PF .8 kW (1) _____ Eff 93.5 RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. 1A Location: 3A-01 Function: RETURN Date: 10/25/95

Nameplate Data: HP _____ Frame _____

Volts 460 Amps 37 Phases 3 PF 0.85 kW (1) 25.1 Eff _____ RPM _____(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ Measured: Phases 3 kW 15.8 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Conto Hrs/Wk _____

General condition/comments/Problems: _____

Reading A = 5.6 + Reading B = 10.2 E = 15.8Equipment ID. 1B Location: 3A-1 Function: Rtn Fan Date: 10/25Nameplate Data: HP 30 Frame 286TVolts 460 Amps 40 Phases 3 PF 0.85 kW (1) _____ Eff _____ RPM _____(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ Measured: Phases 3 kW 23.4 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

Reading A = 7.2 kW + B = 16.2 kW = 23.4 kW

ELECTRIC MOTOR DATA SHEET

Equipment ID. SF-6 #234 Location: Rm 30-2 Function: Supply Fan Date: 10/25
Nameplate Data: HP 40 Frame 234T
Volts 460 Amps 52 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1775

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. SF-5 #154 Location: Rm 5B-22 Function: Supply Fan Date: 10/25
Nameplate Data: HP 20 Frame 256T
Volts 460 Amps 25.2 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1755

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

SF-4A (EAST)

Equipment ID. #236 Location: 14th FLR. E. Function: AHU Supply E. Tower Date: 10/25Nameplate Data: HP 125 Frame 405TVolts 460 Amps 146 Phases 3 PF .8 kW (1) _____ Eff 93.6 RPM 1775(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

SF-4B (WEST)

Equipment ID. #235 Location: 14th FLR W Function: AHU Supply W. Tower Date: 10/25Nameplate Data: HP 125 Frame 405TVolts 460 Amps 144 Phases 3 PF .8 kW (1) _____ Eff 93.6 RPM 1770(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. (WEST) RF-2B Location: 14th Fl WEST Function: Return Date: 10/25
 Nameplate Data: HP 30 Frame 286T
 Volts 460 Amps _____ Phases 3 PF _____ kW (1) Eff _____ RPM 1760
 (1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$
 Measured: _____ Phases _____ kW _____ RPM (2) 1690-1730
 (2) Not necessary to measure RPM unless measured kW < 50% of calculated kW
 Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____
 Nameplate Data: HP _____ Frame _____
 Volts _____ Amps _____ Phases _____ PF _____ kW (1) Eff _____ RPM _____
 (1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$
 Measured: _____ Phases _____ kW _____ RPM (2)
 (2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW
 Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. Exh #15 Location: 3rd FL Warehouse Function: Exhaust Date: 10/25

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW 2.55 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

A = 1.15 + B = 1.4 = 2.55 kW

Equipment ID. Exh #13 Location: 3rd FL Warehouse Function: Exhaust Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW 3.7 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

1.2 + 2.5 = 3.7 kW

ELECTRIC MOTOR DATA SHEET

Equipment ID. Exh #14 Location: 3rd FLR W/HSE Function: Exhaust Date: 10/25

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases 3 PF _____ kW (1) 0.75 Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Reading A = 0.55 + Reading B = 0.75 kW

Equipment ID. Exh #16 Location: 3rd FLR W/HSE Function: Exhaust Date: 10/25

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: _____ Phases 3 kW 4.0 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Cont. Hrs/Wk _____

General condition/Comments/Problems: _____

Read A = 1.2 + Read. B = 2.8 = 4.0 kW

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Rm 3A-1 Function: KIT. EXH. Date: 10/25/95

Nameplate Data: HP 100 Frame 405T

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: Rm 3A-1 Function: K. MAKE-UP Date: 10/25/95

Nameplate Data: HP 20 Frame 256T

Volts 460 Amps 25 Phases 3 PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. EF-4 Location: 14TH Fl. TOP AHU Function: EXHAUST Date: 10/25

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 21 Phases 3 PF .8 kW (1) _____ Eff 87.5 RPM 1750

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

EF-1 (WEST)

Equipment ID. #173 Location: Top of AHU 14th Fl. Function: Exh. Fan Date: 10/25

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.8 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1745

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. EF-3 Location: Top of AHU 14th Fl. Function: Exh. Fan Date: 10/25

Nameplate Data: HP 2 Frame 145T

Volts 460 Amps 2.8 Phases _____ PF _____ kW (1) _____ Eff _____ RPM 1740

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. EF-2 (EAST) Location: 14TH FL. TOP AHU Function: EXH. Fan Date: 10/25

Nameplate Data: HP 7.5 Frame 213T

Volts 460 Amps 10.2 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1745

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. RF-2A (EAST) Location: 14TH FL. TOP AHU Function: INLINE RETURN Date: 10/25

Nameplate Data: HP 30 Frame 286T

Volts 460 Amps 40 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1765

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Nema C motor

ELECTRIC MOTOR DATA SHEET

Equipment ID. EF-8 162 Location: 2nd fl. Rm. #2A1 Function: Exh. Fan Date: 10/25

Nameplate Data: HP 15 Frame 184T

Volts 460 Amps 7 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1730

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

(WEST)

Equipment ID. EF-1 Location: Roof Function: Exhaust Date: 10/25

Nameplate Data: HP 3/4 Frame 487

Volts 115 Amps 5 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1725

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #250 Location: 1st FL. M/E Rm Function: CW Booster P. Date: 10/25
Nameplate Data: HP 50 Frame 326T Code g
Volts 460 Amps 59.5 Phases PF kW (1) Eff RPM

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Hrs/Wk

General condition/comments/Problems: Discharge press. - no gauge

Equipment ID. #251 Location: 1st FL. M/E Rm Function: CW Booster P. Date: 10/25
Nameplate Data: HP 50 Frame 326T Code g
Volts 460 Amps 59.5 Phases 3 PF .8 kW (1) Eff RPM 1765

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Hrs/Wk

General condition/Comments/Problems:

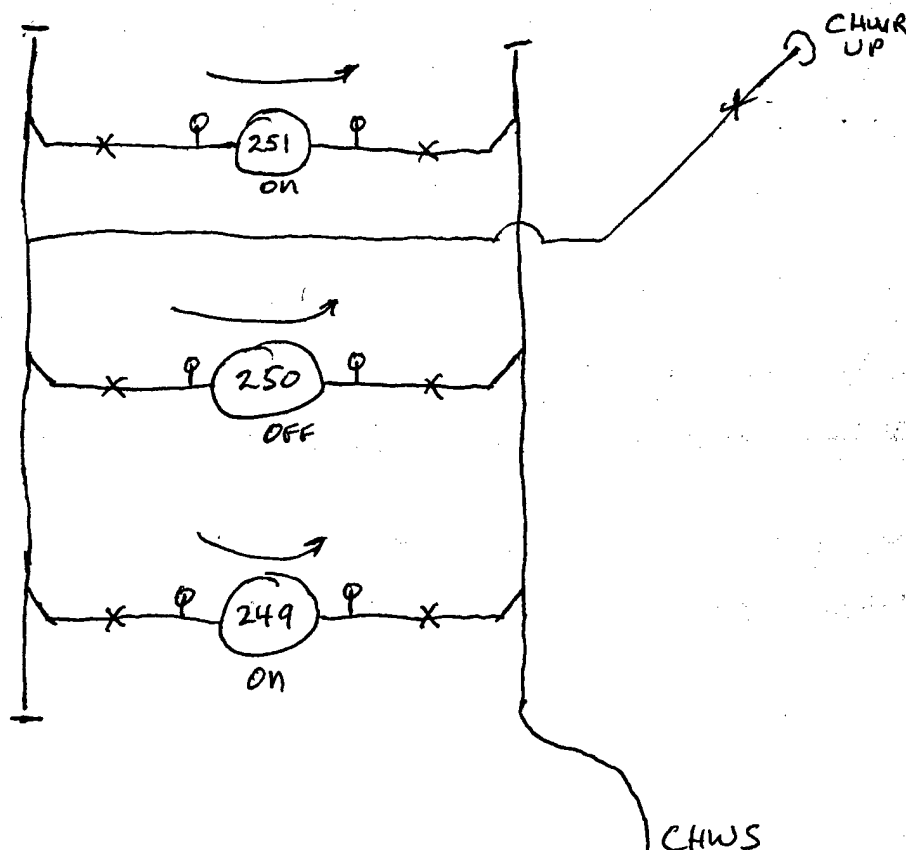
PUMP DATA:

- #249 Peerless, M# 6AD 11, Pump # 343069, S.O.# 4HD4352, Impeller # 267125B, 2100 gpm, 1760 RPM, 65' TDH, 50 hp motor, DIA = 10 1/4", SP = 56 psi, DP = 104 psi
- #250 Name plate painted over, looks just like #249. Peerless, 50 hp motor, SP = 56 psi, No gage for DP
- #251 Peerless, all data same as #249. SP = 56 psi, DP = 100 psi

CHILLED WATER PUMPS

PLAN VIEW

1st FLOOR MECH. RM



ELECTRIC MOTOR DATA SHEET

Equipment ID. P. #254 Location: 1st FL. M/E RM. Function: Condensate Rtn Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.6 Phases 3 PF .8 kW (1) _____ Eff 88% RPM 1725

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: 1st FL. M/E RM. Function: Condensate Rtn Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.8 Phases 3 PF .8 kW (1) _____ Eff 88% RPM 1754

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

(158)
Equipment ID. HWSP#1 Location: Room #241 Function: Hot water supply Date: 10/26
Nameplate Data: HP 25 Frame 284T
Volts 460 Amps 30.5 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Suction pressure 111
Discharge pressure 115

(157)
Equipment ID. HWSP#2 Location: Rm 2A-1 Function: Hot Water supply Date: 10/26
Nameplate Data: HP 25 Frame 284T
Volts 460 Amps 30.5 Phases 3 PF .80 kW (1) _____ Eff _____ RPM 1760

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Suction pressure 111
Discharge pressure 118

ELECTRIC MOTOR DATA SHEET

(156)

Equipment ID. HWSP#3 Location: Rm 2A-1 Function: HW Supply Date: 10/26
 Nameplate Data: HP 25 Frame 284 T
 Volts 460 Amps 30.5 Phases 3 PF 0.8 kW (1) _____ Eff 88.5 RPM 1760

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

No pressure gauges

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #1 Location: Rm 2A1 Function: DHW Circ. Date: 10/25

Nameplate Data: HP 1 1/2 Frame 56J

Volts 460 Amps 2.35 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 3450

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. #2 Location: Rm 2A-1 Function: DHW Circ Date: 10/25

Nameplate Data: HP 1 1/2 Frame 56J

Volts 460 Amps 2.2 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. Vac. P#256 Location: 2nd fl. rm. #2A-1 Function: Vacuum Date: 10/25

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 18.7 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. Vac. P. #257 Location: 2nd fl. rm. #2A-1 Function: Vacuum Date: _____

Nameplate Data: HP 15 Frame 1

Volts 460 Amps 19.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. 271 Location: Rm 2A-1 Function: _____ Date: 10/25

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 19.8 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1760

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Located on booster pump skid
Discharge pressure 120 #

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #274 Location: 2nd Fl. rm. 2A-1 Function: _____ Date: 10/21

Nameplate Data: HP 15 Frame 254 T

Volts 460 Amps 19.8 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: LOCATED on Booster Pump SKID
Disch. Press. 79#

Equipment ID. _____ Location: 2nd Fl. rm #2A-1 Function: _____ Date: 10/24

Nameplate Data: HP 10 Frame 215 T Code H

Volts 460 Amps _____ Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1745

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Nema design B motor
LOCATED ON Booster Pump SKID
Discharge Press. 80#

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: _____ Function: _____ Date: 10/24

Nameplate Data: HP 15 Frame 254T code g

Volts 460 Amps 20 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Located on Booster Pump SKID
545, Press. Pump SKID #108
DISCHARGE line press. #76

Equipment ID. _____ Location: _____ Function: _____ Date: 10/24

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Nema design B MOTOR

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Rm 3 ϕ -2
3rd FLR Function: BOOSTER Date: 10/25
 Nameplate Data: HP 1 1/2 Frame 213T
 Volts 400 Amps 11 Phases 3 PF .8 kW (1) _____ SF
 Eff .615 RPM 1750

$$(1) \text{ kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: 82 PSI - Suction Line

EXIT 92 PSI DISCHARGE Line

Temp. 44 Suction side

Server OR, AHU-6

Equipment ID. _____ Location: Rm 3 ϕ -2
3rd FLR Function: BOOSTER Date: 10/25
 Nameplate Data: HP 1 1/2 Frame 145T COND J
 Volts 400 Amps 2.4 Phases 3 PF .8 kW (1) _____ SF
 Eff 1.15 RPM 1745

$$(1) \text{ kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Server OR, AHU-6

ELECTRIC MOTOR DATA SHEET

220 + 221

Equipment ID. AIR COMP Location: 3A-1 Function: MED. AIR Date: 11-26-95

Nameplate Data: HP 7.5 Frame 213T

Volts 460 Amps 4.6 Phases 3 PF .85 kW (1) _____ Eff _____ RPM 1750

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ NEMA B

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: 3A-1 Function: MEDICAL
AIR Date: 10-26-95

Nameplate Data: HP 15 Frame 215B

Volts 460 Amps 17.5 Phases 3 PF _____ kW (1) _____ Eff _____ RPM 3505

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ NEMA B

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #252 Location: Rm 5B-22 Function: Booster Date: 10/25

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.6 Phases 3 PF 1.15 kW (1) 1745 Eff 1.15 RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases 3 kW 1745 RPM (2) 1745

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Hrs/Wk

General condition/comments/Problems: SERVES ICU, AHU 5

Equipment ID. #154 Location: Rm 5B-22 Function: Booster Date: 10/25

Nameplate Data: HP 1 Frame 143T

Volts 460 Amps 1.8 Phases 3 PF 0.8 kW (1) Eff RPM

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases 3 kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Hrs/Wk

General condition/Comments/Problems: SERVES ICU, AHU 5

CHILLER DATA SHEET

Equipment ID: #1 Location: Plant (West) Date: 10/26
 Operator Name: _____ Phone: _____
 Manufacturer Name: YORK Model: YT 16 M6 F2-CB C
 Chiller Type: Electric Centrifugal, R11
 Condenser Type: Air _____ Water X
 Service Area: Hospital and "the hill", Capacity ~ 1000 tons

Operating Data:

Evaporator Water Temps: Design: Supply _____ F _____ PSI Return _____ F _____ PSI
 Measured: Supply 51 F 56 PSI Return 58 F 52 PSI
 Condenser Water Temps: Design: Supply _____ F _____ PSI Return _____ F _____ PSI
 Measured: Supply 72 F 5 PSI Return 72 F 5 PSI

Pump Data:

	Mfg	Model	HP	GPM	Suction Press	Discharge Press
Condenser:	<u>Peerless</u>	<u>16A XB</u>	<u>125</u>	<u>3210</u>		
Ch. Water:						

Are multiple chillers manifolded? Yes
 Are pumps constant flow? Yes
 Potential for conversion to variable flow? Good

Control System/Set points: _____

Maintenance Schedule: _____

O&M log available: (Yes) No Copies Obtained: (Yes) No
 Heat Recovery Potential: (Condenser accessible, heat load nearby)

General Condition/Comments/Problems: Not running during survey.
Compressor model: YTK 144, SN: YCSM 075592

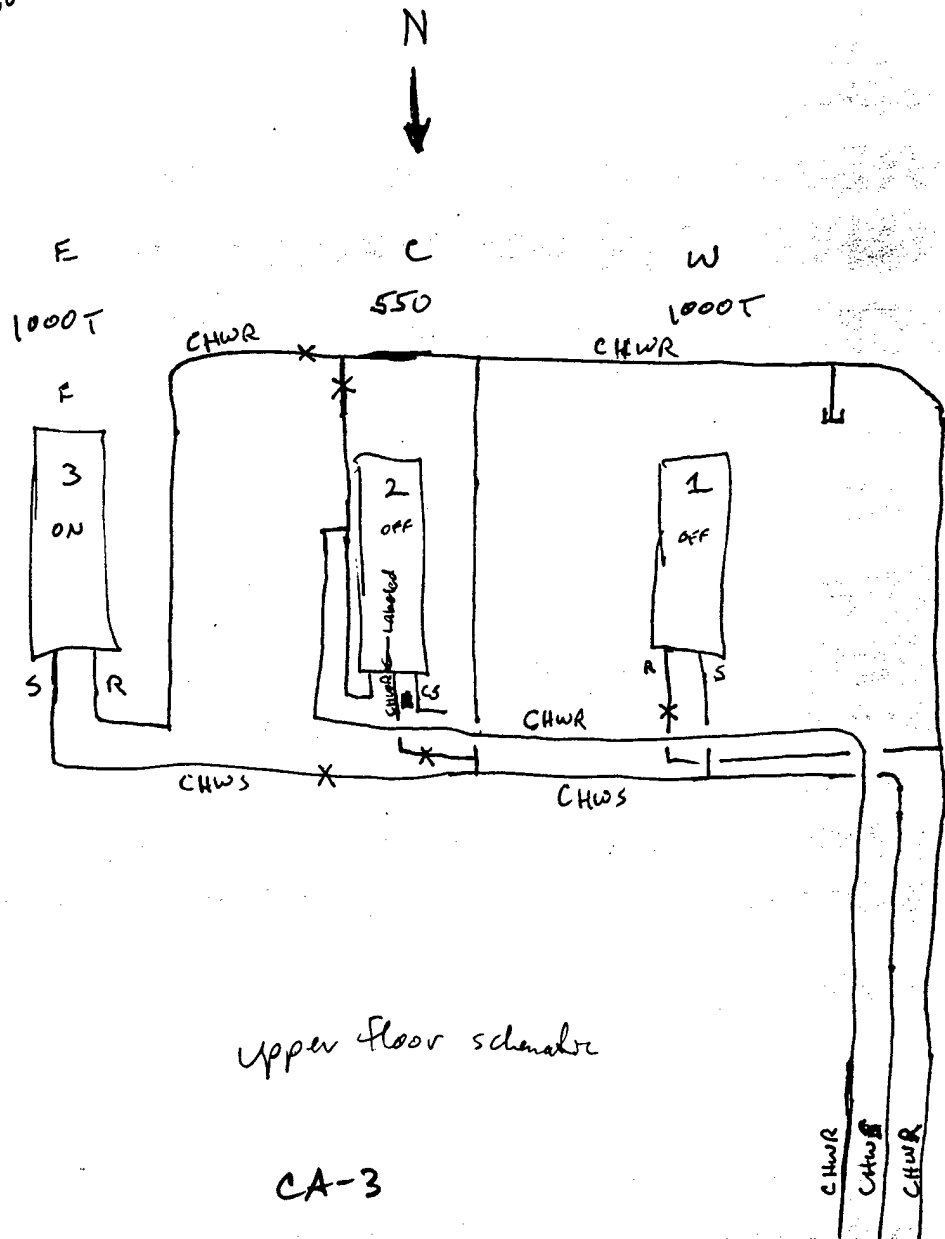
Sketch Chilled Water System _____
 Sketch Condenser Water System _____

CHILLER LAYOUT

summer max load for chillers 1 & 3 is ~ 170% x 2000 tons ✓

#2 Will run on ^{very low load} ~~low load~~ ✓
trips off on High cond temp at 102 to 105°F ✓
10" recommended have 8" to cond/CT ✓
run CT for old 470 ton steam turbine chillers ✓

current project will
replace the two Cent.
chillers.



upper floor schematic

CA-3

CHILLER DATA SHEET

Equipment ID: # 2 Location: Plant (Cantor) Date: 10/26
 Operator Name: _____ Phone: 706-791-6093
 Manufacturer Name: TRANE Model: ABDL050FFB06AGBNBLJ00 (THERMACHILL)
 Chiller Type: GAS ABSORPTION (on oil) MODEL: ABDL500, SN: L94M12443
 Condenser Type: Air _____ Water X
 Service Area: Hospital and "the hill" Capacity = 500 tons

Operating Data:

Evaporator Water Temps: Design: Supply _____ F _____ PSI Return _____ F _____ PSI
 Measured: Supply 72 F 0 PSI Return 57 F 63 PSI
 Condenser Water Temps: Design: Supply _____ F _____ PSI Return _____ F _____ PSI
 Measured: Supply _____ F _____ PSI Return 76 F 0 PSI

Pump Data:

	Mfg	Model	HP	GPM	Press	Discharge
Condenser:	<u>Peerless</u>	<u>14LC156</u>	<u>40</u>	<u>1500</u>		
Ch. Water:						

Are multiple chillers manifolded? Yes
 Are pumps constant flow? Yes
 Potential for conversion to variable flow? _____

Control System/Set points:

Cooling tower water temp must be $\geq 72^{\circ}\text{F}$; set tower fans to come on at 84°F and off at 78°F or ① $84/81$ ② $82/78$

Maintenance Schedule: Trane O+M manual ABDL-M-1
File # SV-RF-ABS-ABDL-M-1-791
Thermochill direct-fired absorption chiller

O&M log available: Yes No Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

Cool/Heat
 Input (HHV) gas 5917 MBH } MAX 1972 MBH }
 oil 42.26 GPH } MIN 14.09 GPH }

General Condition/Comments/Problems: CHW supply connected to CHW return line;

Elec: 180-220 v : Hi Temp SOL Pump 2.2 Kw / 12.0 A

Lo " " " " " "

Refrigerant Pump 0.2 kw / 2.0 A

Purge pump 0.4 kw / 2.0 A

Cooling tower #2 was designed for 470 ton steam turbine chiller, cond line is 8" dia, mfg recommends 10" dia.

Sketch Chilled Water System _____

Sketch Condenser Water System _____

CHILLER #2

~~BUILDING~~ DATA NOTES

Survey by: W. T. Todd

Date: 10-26-95

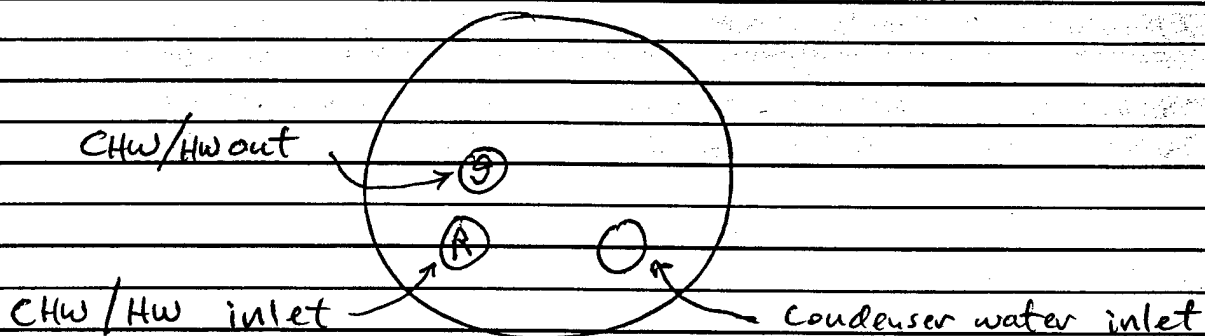
Notes & Comments: According to operator: Condenser water pump, piping, and cooling tower #2 are not adequately sized according to chiller specs.

This chiller will run at very low loads but then trips off on high condenser temperature at 102°F to 105°F.

Cooling tower #2 was designed for the old 470 ton steam turbine (125 psi) centrifugal chiller.

Condenser water piping is 8" diameter. Chiller condenser water supply inlet diameter is 10".

From Mfg. data: 500 tons



Catalog Performance Data for ABDL-500

- Minimum entering cooling water temp. = 72°F
- Condenser/Absorber flow rates ① min = 1157 gpm, Max = 2453 gpm
② 2117 gpm @ 54/44 chw & 85/95 cw
- Chilled water flow rates ① min = 584 gpm, max = 1466 gpm
② 1152 gpm @ 54/44 chw & 85/95 cw

Gas Abs. Chiller TEST

	3 pm				
CWS	25 psi	25	78F	25 psi	82°
CWR	11 psi	11	98F	11 psi	104°
CHWS	43 psi	46	53F	48 psi	53°
CHWR	72 psi	73	64F	75 psi	60°

OAT = 58/47 SUBTRACT ~2°F for bubble

4:10 pm 11/16/95

CWS	50 ps	52
CWR	76 psi	60
CHWS	25 psi	84
CHWR	11 psi	105

OAT = 58

3445 cfm nat gas flow

$$3445 \frac{\text{CF}}{\text{hr}} \times 1030 \text{ Btu/CF} \Rightarrow 3458350 \text{ Btu/hr input}$$

$$3.458 / 5.917 \Rightarrow 60\% \text{ Full load Fuel input}$$

CHILLER DATA SHEET

OAT ~ 48-50°F

Equipment ID: #3 Location: Plant (East) Date: 10/26
 Operator Name: _____ Phone: _____
 Manufacturer Name: YORK Model: YT L6 M6 F2-CB C
 Chiller Type: Electric Centrifugal
 Condenser Type: Air _____ Water X
 Service Area: Hospital and "the hill", Capacity ~ 1000 tons

Operating Data:

Design $\Delta P = 15.8' = 6.9 \text{ psig}$
 Evaporator Water Temps: Design: Supply 43 F _____ PSI Return 55 F _____ PSI
 Measured: Supply 42 F 61 PSI Return 46 F 64 PSI
 Condenser Water Temps: Design: Supply _____ F _____ PSI Return _____ F _____ PSI
 Measured: Supply 48.5 F 26 PSI Return 66.5 F 14 PSI

Pump Data:

Design $\Delta P = 23.6' = 10.3 \text{ psig}$

	Mfg	Model	HP	GPM	Press	Press	Pump
Condenser:	AURORA	VB572429	125	3200			
on ch. Water:	Pearless	NA	100		30-35		120
Are multiple chillers manifolded?	Yes		"		80		100
Are pumps constant flow?	Yes						

Potential for conversion to variable flow? _____

Control System/Set points: Leaving CHW set to 41.5°F; Panel readings - 73% FLA, CHWS @ 41.8°F, CHWR @ 52.3°F

Maintenance Schedule: - oil and filters changed by plant crew
 (ALL CHILLERS) - tubes cleaned ~ 1/year by plant crew
 - major repairs done by contractor

O&M log available: Yes No Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

General Condition/Comments/Problems: Only chiller running during survey;
Compressor model: YTK 144, SN YCSM 075593.
Operator said chws picks up about 2°F before it enters the hospital. Operating at 48% FLA when OAT was 47°F this morning; at 10am OAT was 77°F, FLA = 95%, CHWS = 43.0°F, CHWR = 55.4°F, gages read 44.2°F / 59 psi, 53.5°F / 61 psi

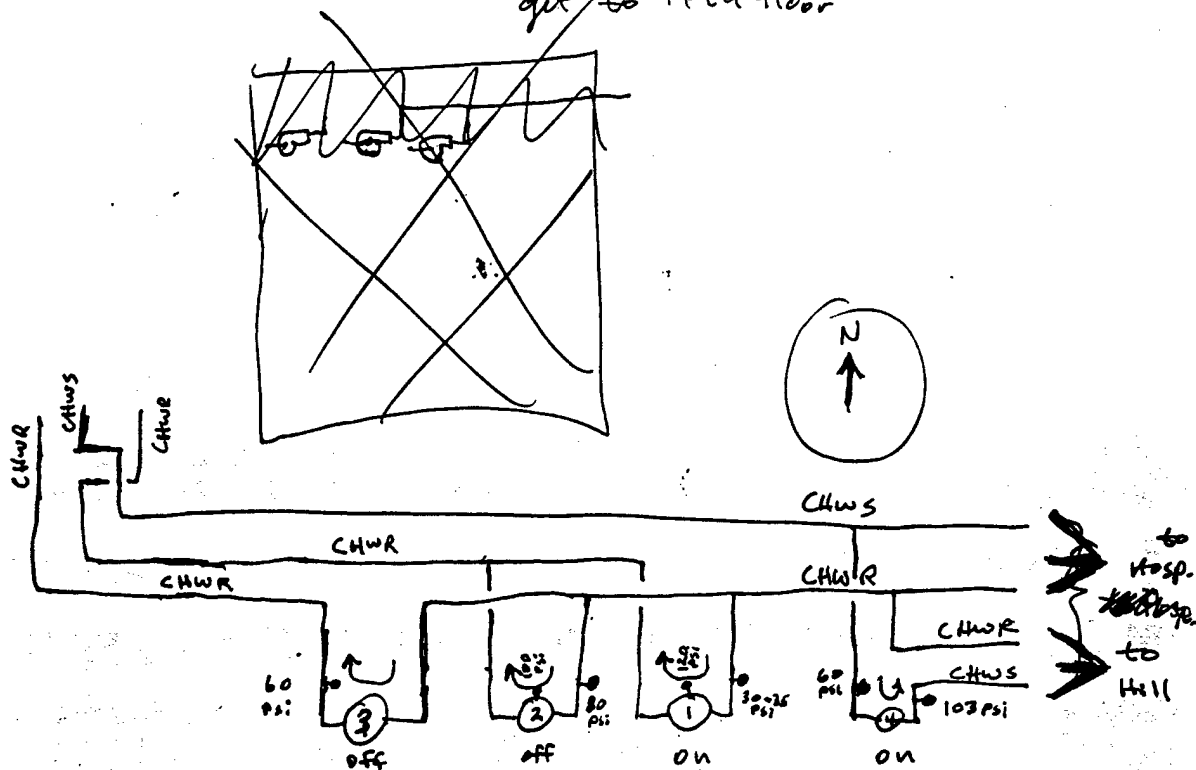
Sketch Chilled Water System ✓Sketch Condenser Water System ✓

CA-7

CENT. PLANT CHILLED WATER PUMP LAYOUT

run #1 pump when cool (like today)
run #1+2 pumps when hot

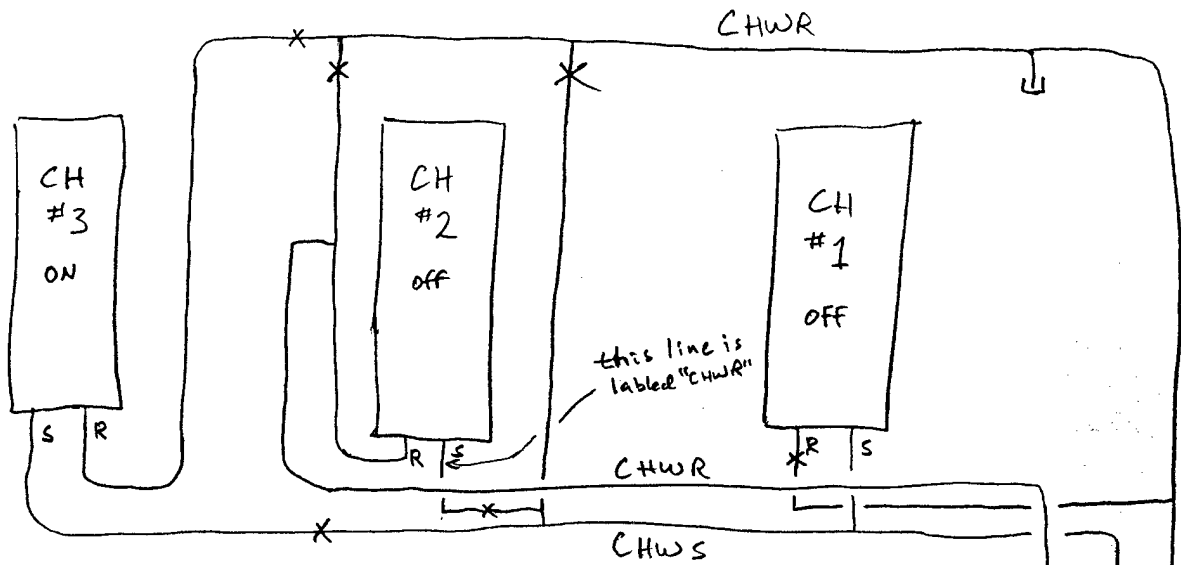
also have 3 booster pumps in hosp. to
get ~~chilled~~ water to 14th floor



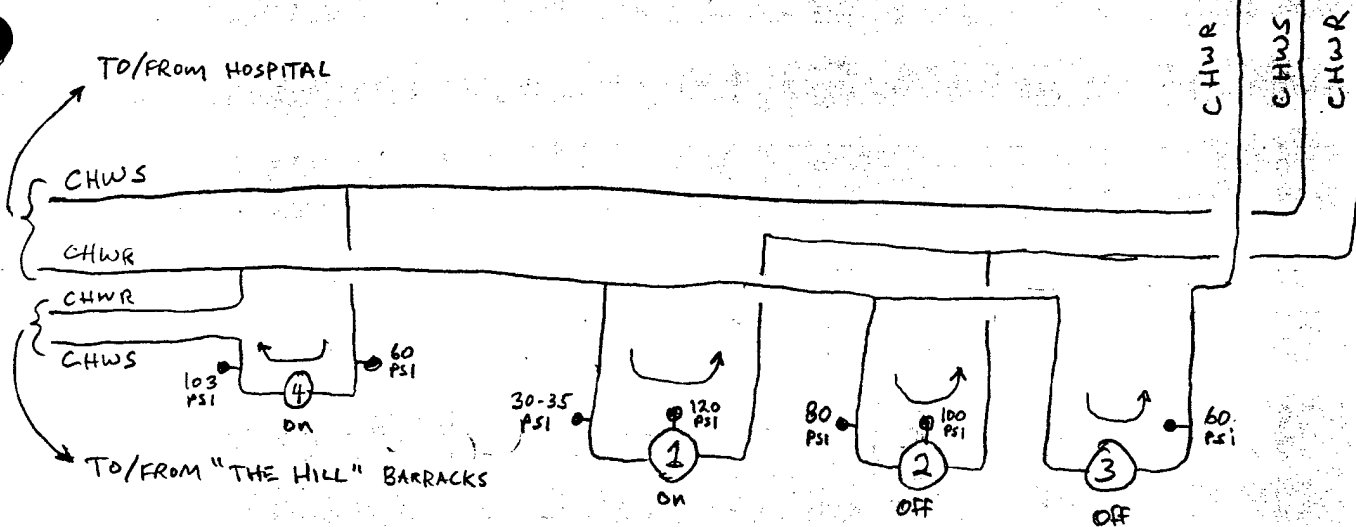
Lower floor Schematic

- | | | | |
|----------------|-------|----------------------------------|---|
| Chillers 1,2+3 | 1 & 2 | Peerless w/ 100 hp motor | ✓ |
| Chiller # 2 | 3 | Peerless W/ 100 hp 11 | |
| CHWR+S | | # 485667 | |
| | | 106642 (stamped on VP) | |
| All chillers | 4 | AURORA # 75-14938-1 | ✓ |
| to "the Hill" | | TYPE 411 BF | |
| | | SIZE 4 x 11 C | |

N ↑



UPPER FLOOR SCHEMATIC



LOWER FLOOR SCHEMATIC

CHILLED WATER FLOW DIAGRAM

Notes: CHW Pump #1 runs when it is cool outside (like today). Pumps #1 and #2 run when the weather is hot. There are also 3 more CHW booster pumps in the hospital.

CHILLERS

BUILDING DATA NOTES

Survey by: _____

Date: 10/26

Notes & Comments: _____

2 CHW lines to Hosp ✓

Pump #4 Small pump for "the Hill" Barracks ✓

Control Setting: LCHW T 41.5 set point ✓
(73% FLA) ✓

control panel { LCHWS 41.8 °F picks up ~ 2 °F before ^{entering} hospital ✓
reading { CHWS 52.3 °F ✓

- fill on generator CT is "gone", made from asbestos ✓
~~generator CT is gone~~

at 47°F OAT this morning 1 chiller was ~ 48% ✓

Gas Chiller: pump, pipe & tower are not adequately ✓
sized according to chiller specs. ✓

2100 kW gen at plant - chiller, ID fans, hospital ✓
800 kW gen in hospital. turn off elevator motors & fans ✓

- CHW pumps & CT's are not wired to generator ✓
so on power failure - can not provide cooling ✓

Trans O+M manual ABDL-M-1 ✓

File # SV-RF-ABS-ABDL-M-1-791 ✓

Thermax direct-fired Absorption chiller ✓

1/22/96

Chw - P#1		Control Room Chw P1 P2		Chiller #3					
Suc	DisC	Suc	DisC	DisC	FLW%	inlet	outlet	CHWS	CHWR
28	95	64	~58	~58	45	58 ⁰ 65 ⁰	58 ⁰ 53 ⁰	41.5	52.1
28	100	64	68	69	40	50	48	41.5	49.4
28	105	64	79	81	40	61	59	41.2	49.0

- ① Chw also Flowing through Chiller #1
- ② Chw to Chiller #1 valved off.

Operator said 2^{CHW} pumps running in hospital basement

Chiller & Chw pumps off

25+ 84 64 59 59 49 47

CHP#2 69 90

1/23/96

Control Room gauges

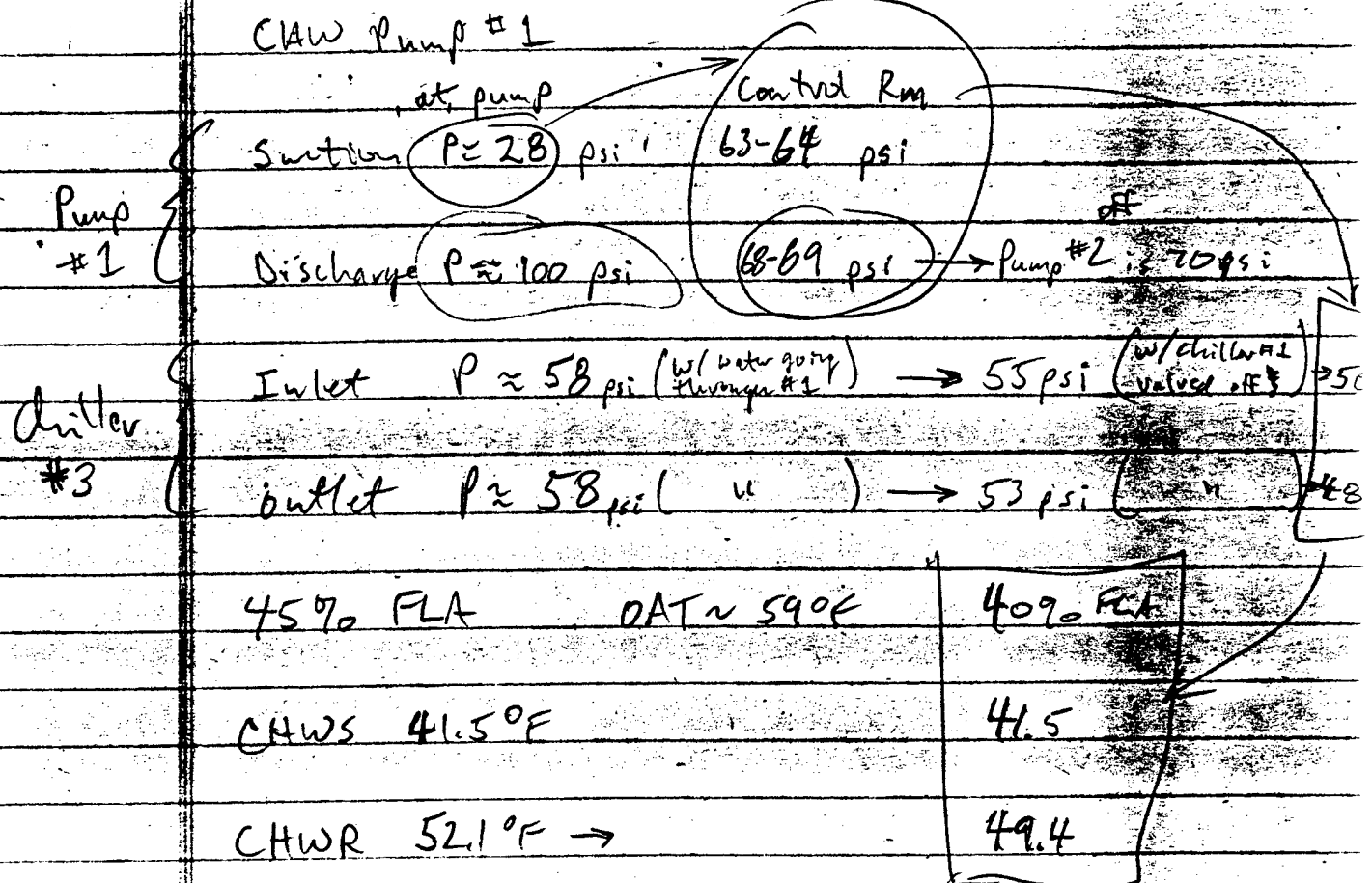
Return Pressure = 64 psi

#1 disch. press = 49 psi

#2 " " = 51 psi

CA-11

800-741-2014
~ 3pm



2 pumps running in hospital basement

- hooked up dp gage $\rightarrow$ went off scale of 200 in H₂O

- Switched gages (use 1 gage to read both ports)
read 46 psi outlet + 56 psi inlet for about
1 minute then inlet dropped to 46 psi

CENTRAL PLANT

~~BUILDING~~ DATA NOTES

Survey by: W. T. Todd

Date: 10-26-95

Notes & Comments: They have a 2100 KW generator in the plant and there is an 800 kw generator in the hospital.

The plant generator is wired to the chillers, ID fans and the hospital. The CHW pumps, and cooling tower fans, and condenser water pumps are not wired to the generator so when there is a power failure they can not provide chilled water to the hospital.

When Georgia Power requests them to curtail their demand, they run the chillers and some of the hospital on the generator. They are asked to shed loads many times during the hottest times of the summer. The hospital turns off some elevator motors and some fans.

The operator said the fill for the generator cooling tower is "gone". It is made of asbestos. They have not had overheating problems but he "does not want it to happen on his shift".

CHILLERS

Summer max load for the two elec. chillers (#1 & #3) is about 170% of a total of 2000 tons.

Chilled water pumps:

Pumps #1 & #2 serve all three chillers, for the hospital Peerless pumps with 100 hp motors

Pump #3 serves chiller #2

Peerless, M# 4AE11, SN 485667, 106642 stamped on NP 30 hp motor

Pump #4 serves all chillers, for the "hill"

Aurora, M# 75-1413 B-1, TYPE 411 BF, SIZE 4x11C 20 hp motor

COOLING TOWER LAYOUT

GP: Very often during hottest time of summer ✓
calls and tells plant to shed loads to ✓
stay under a certain KW. They run the ✓
chillers on the generator, pumps and ✓
CT's only wired to GP. ✓



1 Peerless

SIZE 12x12x20 ✓
3200 gpm ✓
TDH = 101 ft ✓
Model 16HXB ✓
1760 RPM ✓
SN 235803 ✓
125 hp motor (GE) ✓

2 PEERLESS

SIZE 10x10x16½ ✓
40 hp GE motor ✓
1750 RPM ✓
SN: 343055 ✓
85 ft TDH ✓
14 LC 1 STG (SIZE?) ✓
1500 GPM ✓

3 AURORA

V85 72429 ✓
125 HP GE motor ✓
3200 GPM ✓
100 ft TDH ✓
1780 RPM ✓

VERLI-LINE ROTATRON ✓

CA-14

Cooling Towers

Equipment ID: CT #1 Location: See sketch Date: 10-27-95

Manufacturer: Marley 2 Cell Model: # 457-202 Double Flow

Type: Crossflow or Counterflow? _____

Percent Loaded: Summer: _____ Fall/Spring: _____ Winter: _____

Describe condition of: _____

Fill: Poor condition - algae growth - broken slots

Drift eliminators: Poor large amount of drift - raining

Water distribution: Basin supply valve broken - always flows
Multiple leaks

Control System/Set points: ~80F Return water temp. to chiller
See operating logs
Basin temp. heated by steam coils

Maintenance Schedule: _____

O&M log available: Yes ☒ No Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

Check BFW temp.

General Condition/Comments/Problems: SN 457-7-1286-71, Cust. Order #3
Marley Order #7-1286-71

PUMP DATA: Peerless model 16HXB, Size 12x12x20, SN 235803
3210 gpm, 101 ft TDH, 1760 RPM, 125 HP MOTOR (GE)

CT #1 has 2 Cells

Typ:

Cooling Towers

Equipment ID: CT#2 Location: See sketch Date: 10-27-95

Manufacturer: Marley / Doubleflow Model: #372-101, 1 Cell

Type: Crossflow or Counterflow? _____

Percent Loaded: Summer: _____ Fall/Spring: _____ Winter: _____

Describe condition of:

Fill: Good - few breaks

Drift eliminators: Good

Water distribution: Distributed on deck well - many drain holes partially blocked with pipe scale - portions uncovered - large flow down sides and corners bypassing fill and raising basin/cols temp. - One large leak over main wall at NE corner

Control System/Set points: Fan runs continuously now since absorber has trouble staying on line

Maintenance Schedule: Reworked Spring of 95 when absorber installed

O&M log available: Yes (No) Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

Check boiler FW temp.

General Condition/Comments/Problems: SN 372-7-1287-71, Cust Order #3, Marley Order # 7-1287-71, 96" fan diameter, 464 rpm, 25 hp fan motor, 44° final pitch angle. Designed for 470 Ton Steam (125 psi) turbine centrifugal chiller. Leaking severely

PUMP DATA: Peerless model 146C 1 STG?, size 10 x 10 x 16 1/2, SN 343055, 1500 gpm, 85 ft TDH, 1750 rpm, 40 hp motor (GE)

Looks good, but water temps. to chillers is higher than expected - see logs

Cooling Towers

Equipment ID: CT#3 Location: See sketch Date: 10-27-95

Manufacturer: Marley Model: 374-101?, 2 Cells

Type: Crossflow or Counterflow? 222-522

Percent Loaded: Summer: _____ Fall/Spring: _____ Winter: _____

Describe condition of:

Fill: Fair to poor - little breezeage - moderate algae
buildup

Drift eliminators: Fair - Several major breaks - No ext fins
Sides not angled

Water distribution: Basin make-up continuous flow -
Fair distr

Control System/Set points: ~BOF

Maintenance Schedule: _____

O&M log available: Yes No Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

Check B&W temp

General Condition/Comments/Problems: SN 374-7-1288-71, Cust Order #3, 2?
Marley Order # 7-1288-71, 120" fan dia, 318 rpm, 40 hp, 55° FPA

SN 7-1141-86, GRDR # 16770 (cell 2) & 16778 (cell 1)
Face D " & B "

Pump Data: Aurora, Verli-line Rotatron, # V85 72429, 3200 gpm,
100ft HD, 1780 rpm, 125 hp GE motor
Pump leaks severely

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Cool. Plant Function: Chiller Comp. Date: 10/26

Nameplate Data: HP 870 Frame 5880 Y

Volts 4160 Amps 106 Phases 3 PF _____ kW (1) _____ Eff _____ RPM 3600

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

York Part # 024-24021-490

1-5119-51499-1-2

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. # 1 Location: Cent. Plant Function: Chilled water supply Date: 10/26

Nameplate Data: HP 100 Frame 404TS

Volts 460 Amps 123 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1770

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code F

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

DISCHARGE WTR. PRESS. 120 (at Pump)
SUPPLY WTR. PRESS. 33

SERVES CENTRIFUGALS

Equipment ID. # 2 Location: Cent. Plant Function: CWS Date: 10/26

Nameplate Data: HP 100 Frame 404TS

Volts 460 Amps 122 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1775

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code F

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

DISCHARGE Press. Water at Pump 100

SUCTION Press Water 80

SERVES CENTRIFUGALS

ELECTRIC MOTOR DATA SHEET

Equipment ID. #3 Location: Cent. Plant Function: CWS Date: 10/26Nameplate Data: HP 30 Frame 286TVolts 440 Amps 37.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code G

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

SUCTION 60 PSISERVES ABSORPTION (CH #2)Equipment ID. _____ Location: Cent. Plant Function: Air Compressor Date: 10/26Nameplate Data: HP 30 Frame 286TVolts 460 Amps 38 Phases 3 PF _____ kW (1) _____ Eff _____ RPM 1760(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code F

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #4 Location: Cent Plant Function: CWS Date: 10/26

Nameplate Data: HP 20 Frame 256T Code G

Volts 460 Amps 25 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1760

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Discharge P 100

Suction P 59

SERVES MEDICAL BARRACKS

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Cooling Tower CT #2 Function: Condenser W. P. Date: 10/26
Nameplate Data: HP 40 Frame B324TP16
Volts 460 Amps 50 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: CT #1 Function: Condenser Water P. Date: 10/26
Nameplate Data: HP 125 Frame B405TP20 Code G
Volts 460 Amps 144 Phases _____ PF _____ kW (1) _____ Eff _____ RPM 1770

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: CT#3 Function: Condenser Pump Date: 10/26

Nameplate Data: HP 125 Frame 1405 TP20

Volts 460 Amps 148 Phases 3 PF .8 kW (1) _____ Eff 92.4 RPM 1780

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$ code G

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: CT#3 Function: CT. FAN Date: 10/26

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

Fans inaccessible

ELECTRIC MOTOR DATA SHEET

Equipment ID. Cell 1 Location: Cooling Twr #1 Function: CT FAN Date: 10/26
 Nameplate Data: HP 40 Frame 324T
 Volts 460 Amps 52 Phases 3 PF kW (1) Eff RPM
 (1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$ CODE G
 Measured: Phases kW RPM (2)
 (2) Not necessary to measure RPM unless measured kW < 50% of calculated kW
 Hours of Operation: Hrs/Wk as needed, always available

General condition/comments/Problems:

Equipment ID. Location: Function: Date:
 Nameplate Data: HP Frame
 Volts Amps Phases PF kW (1) Eff RPM
 (1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$
 Measured: Phases kW RPM (2)
 (2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW
 Hours of Operation: Hrs/Wk

General condition/Comments/Problems:

ELECTRIC MOTOR DATA SHEET

Cooling Tower #1

Equipment ID. CELL #2 Location: TOP TOWER Function: FAN Date: 10/26/95Nameplate Data: HP 40 Frame 324TVolts 460 Amps 48 Phases 3 PF kW (1) Eff RPM 1760(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code GMeasured: Phases kW RPM (2)

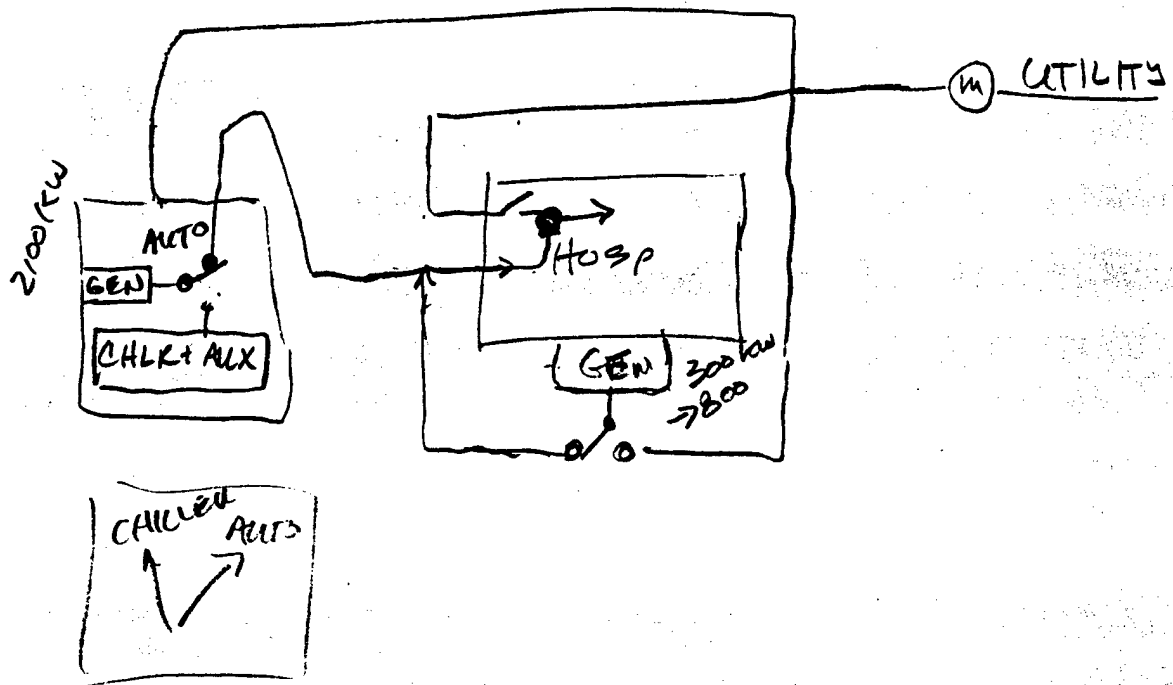
(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Hrs/Wk General condition/comments/Problems: Equipment ID. Cooling Twr 2 Location: CT 2 Function: CT FAN Date: 10/26Nameplate Data: HP 25 Frame 284TVolts 460 Amps 32 Phases 3 PF .8 kW (1) Eff RPM 1750(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ Measured: Phases kW RPM (2)

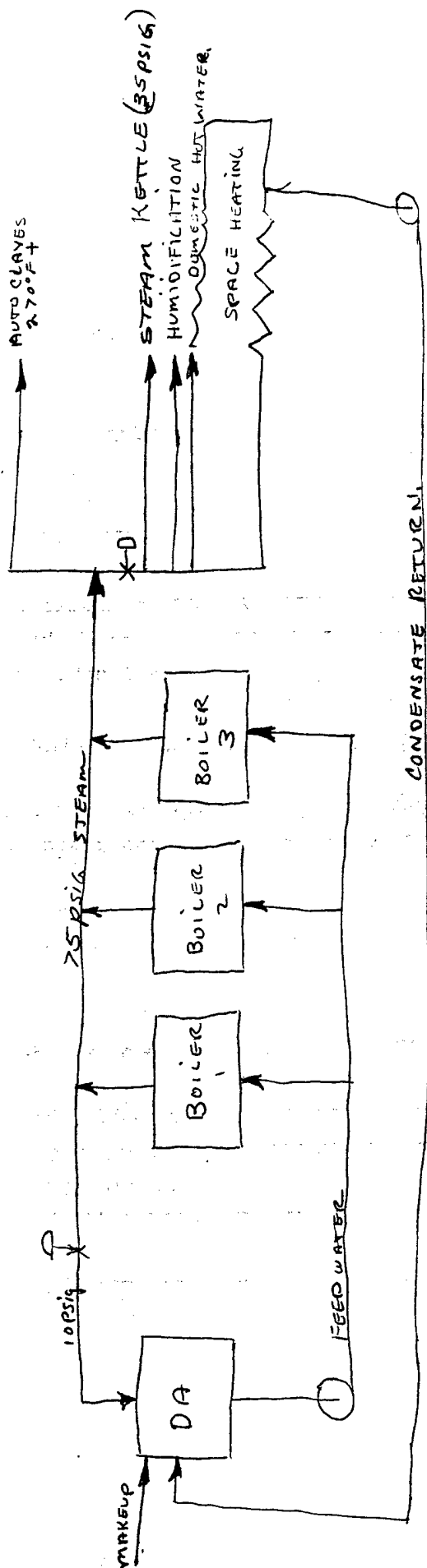
(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Hrs/Wk General condition/Comments/Problems:

GENERATOR SCHEMATIC



STEAM SYSTEM LAYOUT



BA-1

BOILER DATA SHEET

Boiler ID: 310/1 Location: FORT GORDON Date: 10/26/95
 Operator Name: _____ Phone: 706-791-6093
 Area or Loads: HOSPITAL & BARRACKS

Boiler Specifications:

Mfg. & Model No.: INTERNATIONAL; MA. NO. 1BD91; SER. NO. M3709
 Fuel(s) Type Used: GAS / #2 OIL Input: 20MMBTU/HR. GAS, 19MMBTU/HR OIL
 Capacity (~~1000~~ or lbs/hr): 15,400 GAS, 14,000 OIL Pressure (psig): 125 DESIGN; 75 OPER.
 Stack Gas Temperature: 390 F Excess Air (%): NOT MEASURED
 Boiler Efficiency: 78-82 % Source: MEFR PERFORMANCE (ATTACHED)
 Burner Type: PEABODY ENGINEERING - GAS RING, OIL GUN, SPINNER VANE
 Soot blower?: COPEL VULCAN - 1 PER BOILER - ROTARY TYPE.
 FD Fans?: 1 Size SEE DATA SHEET Motor Data 10 HP.
 ID Fans?: 1 Size _____ Motor Data _____
 Variable Speed Drives?: NO
 Economizer?: YES SOOT BLOWER INCLUDED
 Air preheater?: NO
 O2 trim controls?: YES - DEACTIVATED
 Steam-driven aux's?: NONE

Blowdown frequency and amount: ONCE PER DAY FOR ONE MIN.
 Heat recovery potential? _____
 Condensate return %: HIGH - SEE MAKE-UP DATA SHEETS
 Condition of boiler/piping insulation, lines and traps?: GENERALLY GOOD
VALVE JACKET REQUIRED ON MAINSTEAM VALVE. INSULATE ATOM. STM. PIPING
 Operation Schedule: hr/da: _____ da/wk: _____ mn/yr: _____
 Percent Loaded - Summer: _____ Fall/Spring: _____ Winter: _____
 Is Boiler Plant Capacity Adequate?: _____
 Automatic Control System/Set points?: _____

Maintenance Schedule: AS NEEDED - WELL MAINTAINED

Condition of tubes?: REPORTED AS EXCELLENT - NO HISTORY OF TUBE LEAKS - MINIMAL SCALE REPORTED.
 Operating Log Available? Y Copies obtained? Y
 O & M Log Available? N Copies Obtained?: N
 Chemical Treatment? SO₃, PO₄, NaOH, DESCALING AGENT
 Feed Water Preheated? Y How? DEAIRATOR - 5-10 PSIG
 General Condition/Comments/Problems: O₂ CONTROLS SHOULD BE RE-CONNECTED.
ECONOMIZER TO BE REMOVED - BAD INSTALLATION.

Sketch Steam/Hot Water System

BA-2

BOILER DATA SHEET

Boiler ID: 310/2 Location: FORT GORDON Date: 10/26/95
 Operator Name: _____ Phone: 706-791-6093
 Area or Loads: HOSPITAL & BARRACKS

Boiler Specifications:

Mfg. & Model No.: INTERNATIONAL; MOD. NO. 1BD91; SER. NO. M3708-M3710
 Fuel(s) Type Used: GAS/OIL (#2) Input: 20 MMBTU/HR GAS; 19 MMBTU/HR OIL
 Capacity (~~Mbb~~ or lbs/hr): 15,400 ⁹³⁵ 871 Pressure (psig): 125 DESIGN, 75 OPER.
 Stack Gas Temperature: 390 F Excess Air (%): NOT MEASURED
 Boiler Efficiency: 78-82 % Source: MF&R PERFORMANCE (ATTACHED)
 Burner Type: PEABODY ENGINEERING - GAS RING, OIL GUN, SPINNER VANE
 Soot blower?: COPEL VULCAN - 1 PER BOILER - ROTARY TYPE
 FD Fans?: 1 Size DATA SHEET Motor Data 10
 ID Fans?: 1 Size _____ Motor Data _____
 Variable Speed Drives?: NO
 Economizer?: YES - SOOT BLOWER INCLUDED - POOR ECON INSTALLATION
 Air preheater?: NO
 O2 trim controls?: YES - DEACTIVATED
 Steam-driven aux's?: NO

Blowdown frequency and amount: ONCE PER DAY - 1 MIN.
 Heat recovery potential? _____
 Condensate return %: HIGH - SEE MAKEUP DATA SHEETS.
 Condition of boiler/piping insulation, lines and traps?: SOOT BLOWER SUPPLY VALVE MISSING; ATOMIZING STEAM PIPING - INSULATE; GENERALLY GOOD CONDITION.
 Operation Schedule: hr/da: _____ da/wk: _____ mn/yr: _____
 Percent Loaded - Summer: _____ Fall/Spring: _____ Winter: _____
 Is Boiler Plant Capacity Adequate?: YES
 Automatic Control System/Set points?: _____

Maintenance Schedule: AS NEEDED - WELL MAINTAINED

Condition of tubes?: REPORTED AS EXCELLENT - NO HISTORY OF TUBE LEAKS. MINIMAL SCALE REPORTED.
 Operating Log Available? YES Copies obtained? YES
 O & M Log Available? NO Copies obtained?: NO
 Chemical Treatment? SO3, PO4, NaOH, DE SCALING AGENT.
 Feed Water Preheated? YES How? DEAIRATING HEATER - 5-10 PSIG
 General Condition/Comments/Problems: O2 CONTROLS SHOULD BE RE-CONNECTED ECONOMIZERS TO BE REMOVED - BAD INSTALLATION

Sketch Steam/Hot Water System _____

BA-3

BOILER DATA SHEET

Boiler ID: 310/3 Location: FORT GORDON Date: 10/26/95
 Operator Name: _____ Phone: 706-791-6093
 Area or Loads: HOSPITAL & BARRACKS

Boiler Specifications:

Mfg. & Model No.: INTERNATIONAL; MOD. NO. 1BD91; SER. NO. M3711
 Fuel(s) Type Used: GAS / OIL (#2) Input: 20 MMBTU/HR GAS; 19 MMBTU/HR OIL
 Capacity (~~Mbb~~ or lbs/hr): 15,400 GAS Pressure (psig): 175 DESIGN - 75 OPER.
14,600 OIL
 Stack Gas Temperature: 390 F Excess Air (%): NOT MEASURED
 Boiler Efficiency: 78-82 % Source: MFR PERFORMANCE (ATTACHED)
 Burner Type: PEABODY ENGINEERING - GAS RING, OIL GUN, SPINNER VANE
 Soot blower?: COPE'S VULCAN - 1 PER BOILER
 FD Fans?: 1 Size DATA SHEET Motor Data 10 HP
 ID Fans?: 1 Size _____ Motor Data _____
 Variable Speed Drives?: NO
 Economizer?: YES - SOOT BLOWER INCLUDED - POOR INSTALLATION - ^{EGON TO BE} REMOVED
 Air preheater?: NO
 O2 trim controls?: YES DEACTIVATED
 Steam-driven aux's?: NO

Blowdown frequency and amount: ONCE PER DAY - 1 MIN.
 Heat recovery potential? _____
 Condensate return %: HIGH SEE MAKEUP DATA
 Condition of boiler/piping insulation, lines and traps?: GENERALLY GOOD
INSULATE ATOMIZING STEAM PIPING
 Operation Schedule: hr/da: _____ da/wk: _____ mn/yr: _____
 Percent Loaded - Summer: _____ Fall/Spring: _____ Winter: _____
 Is Boiler Plant Capacity Adequate?: YES
 Automatic Control System/Set points?: _____

Maintenance Schedule: AS NEEDED

Condition of tubes?: REPORTED EXCELLENT - NO TUBE LEAK HISTORY -
MINIMAL SCALE REPORTED
 Operating Log Available? YES Copies obtained? YES
 O & M Log Available? NO Copies Obtained?: NO
 Chemical Treatment? SO₂, PO₄, NaOH, DESCALING AGENT
 Feed Water Preheated? YES How? DEAIRATING HEATER 5-10 PSIG.
 General Condition/Comments/Problems: O₂ CONTROLS SHOULD BE RE-CONNECTED.
ECONOMIZERS TO BE REMOVED - BAD INSTALLATION.

Sketch Steam/Hot Water System _____

BA-4

ELECTRIC MOTOR DATA SHEET

Equipment ID. 1 Location: Cent. Plant Function: Boiler FW Pump Date: 10/26

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 20.0 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1750

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. 2 Location: Cent. Plant Function: Boiler FW Pump Date: 10/26

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 20.0 Phases 3 PF .8 kW (1) Eff RPM 1750

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$ code G

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Hrs/Wk

General condition/comments/Problems:

Equipment ID. BLR FIDWTR. Pump #3 Location: Cent. PLANT Function: Boiler FW Pump Date: 10/26

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 20.0 Phases 3 PF .8 kW (1) Eff RPM 1750

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Hrs/Wk

General condition/Comments/Problems:

ELECTRIC MOTOR DATA SHEET

Equipment ID. #1 Location: Cent. Plant Function: Blr. Condensate Pump Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 7.1 Phases 3 PF kW (1) Eff RPM 1745

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Hrs/Wk

General condition/comments/Problems:

Duplicate for S2 CONDENSATE Pump
Skid

Equipment ID. #2 Location: Cent. PLT. Function: Blr. Condensate Pump Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 7.1 Phases 3 PF kW (1) Eff RPM 1745

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Hrs/Wk

General condition/Comments/Problems:

Duplicate for S2 CONDENSATE Pump
Skid

ELECTRIC MOTOR DATA SHEET

Equipment ID. 1 Location: Central Plant Function: BFW XFR Pump Date: 10/26

Nameplate Data: HP 3 Frame 182T

Volts 460 Amps 4.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1725

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code J

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. 2 Location: Central Plant Function: BFW XFR Pump Date: 10/26

Nameplate Data: HP 3 Frame 182T

Volts 460 Amps 4.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code J

Measured: Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Cent plant Function: Boiler ID FAN Date: 10/26
 Nameplate Data: HP 10 Frame 215T
 Volts 460 Amps 13.2 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____
 Nameplate Data: HP _____ Frame _____
 Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $kW = volts * amps * \sqrt{\# \text{ phases}} * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Cent. Plant Function: Shop Air Date: 10/26
 Nameplate Data: HP 1/2 Frame 540
 Volts 230 Amps 4.1 Phases 1 PF .8 kW (1) _____ Eff _____ RPM 1725

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases _____ PF _____ kW (1) _____ Eff _____ RPM _____

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$

Measured: _____ Phases _____ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #1 Location: Cent Plant Function: Air Compressor Date: 10/26

Nameplate Data: HP 3 Frame 184T

Volts 460 Amps 6.8 Phases 3 PF kW (1) Eff RPM 1745

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code J

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Hrs/Wk

General condition/comments/Problems:

Duplex Air Compressor

Equipment ID. Location: Cent Plant Function: Air Compressor Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.8 Phases 3 PF kW (1) Eff RPM 1740

(1) $\text{kW} = \text{volts} * \text{amps} * \text{sqrt}(\# \text{ phases}) * 0.85 / 1000$ code J

Measured: Phases kW RPM (2)

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Hrs/Wk

General condition/Comments/Problems:

Duplex Air Compressor

~~SWITCHING~~ NOTES

Survey by: _____

Date: 10/25/93

Notes & Comments: Missing Insulation in Boiler Area

<u>LINE</u>		
<u>SIZE</u>	<u>LENGTH</u>	<u>LOCATION</u>
1"	18'	BOILER FRONT - STEAM
2"	10'	FEED WATER
2"	6'	BFP DISCHARGE
2 1/2"	10'	SOOT BLOWER LINE
3"	10'	BFP SUCTION

Generators pick up hospital automatically, but not the plant. Chillers and some aux's can be manually switched to 2100kW generator

Rob Callahan

#25910 Post Heat & Cool Plant

Current contract to install VSD - pumping
Would like PF correcting capability

#25330 Newer, smaller one has auto-PF correction