A McGRAW-HILL PUBLICATION

OCTOBER 1960

TWO DOLLARS

Power

the magazine of energy systems engineering

Industrial Plant Design..... 1

Central Station Design..... 2

Plant and Design Aids Roundup..... 3

PLANT DESIGN ISSUE

PLAINTIFF'S EXHIBIT

WH-1056

Power OCTOBER 1960

Industrial Plant Design Survey

Design features listed on the following pages are from newly completed or modernized industrial plants, from some still under construction, others yet on the drawing board. The term *industrial plant*, as used here, includes commercial and government buildings, hotels; in brief, sizeable non-central-station installations. Survey covers three significant energy-systems areas: *electrical distribution, steam generation, air conditioning.*

The electrical-distribution report is the third of its kind to appear in print; the first appeared in POWER, Oct 1958. It includes electrical detail right from the incoming main or primary sub through circuitry to lighting and motor loads. For the second year running, the three pages of air-conditioning tables list important features found in typical modern installations.

But because of the way we must compile facts the survey has its limits. We started the job by listing installations planned *or on order*. Then we sent questionnaires to individuals closely allied with each project asking for details. Replies went into the tables. So, by the very nature of things, you can see that these tabulations can't be complete. But they're representative of current design and construction, so you get timely information on trends.

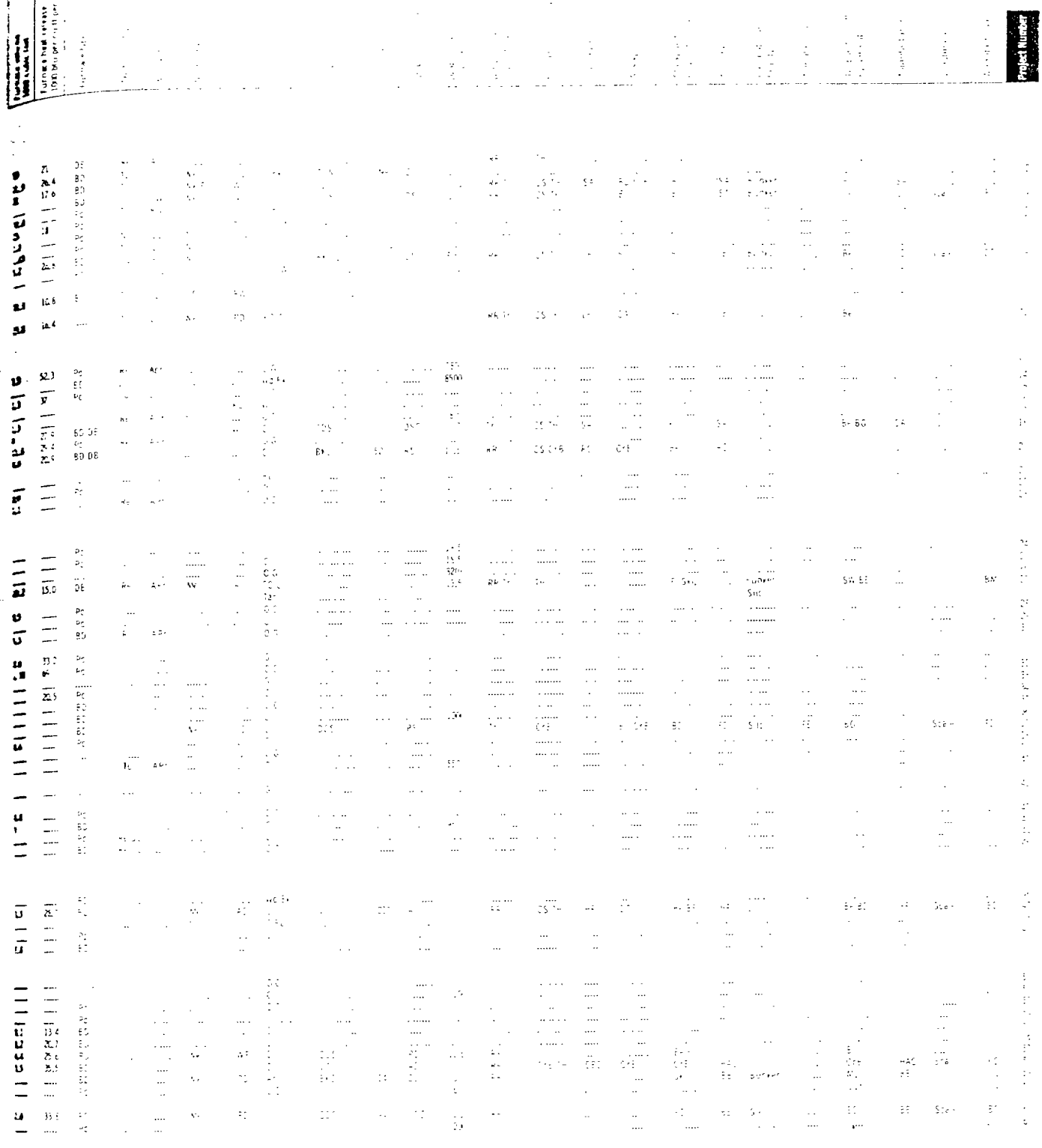
Once again: these are not complete lists, but extensive samples. Don't use the survey to get total values or where incompleteness may distort results.

1960 design survey: typical industri

Note that each listing covers four pages. Project number helps you track a specific installation after turning facing page

Project Number	Company	Location	Consulting Engineers	Power or existing plant	Date of initial operation	Principal fuel(s) burned	BOILERS: No. of new boilers	BOILERS: Manufacturer	BOILERS: Operating press., psig	BOILERS: Operating temp., F	BOILERS: Boiler type	BOILERS: Capacity each, 1000 lb per hr	SURFACE, LOSS SAVE: Boiler and waterwalls	SURFACE, LOSS SAVE: Economizer	SURFACE, LOSS SAVE: Superheater, Btu per sq ft per hr
600 TO 900 PSIG															
	West Va Pulp & Paper Co	Charleston, W Va		Ex	1962	Pg, Pr	1	CE	1,500	950	WT	500	12	19	
2	Int Paper Co, Southern Kraft Div	Bastrop, La	Self	Ex	1959	Pg, Pr	2	CE	1275	950	WT	325	14.8	5.9	
3	Union Carbide Chemicals Co	Institute, W Va		Ex	1960	Pr	1	CE	1,000	900	WT	250	23.9		
4	University of Illinois	Urbana, Ill	Sargent & Lundy	Ex	1962	Pg, SH	1	BW	875	750	WT	150			
5	American Can Co, Marathon Div	Marinette, Wis	Rust Engineering Co	Ex	1961	Pg, Pr	1	BW	950	825	WT	81	26.3	5.5	
6	Standard Oil Co of Calif	El Segundo, Calif	Fluor Corp, Ltd	Ex	1959	Pg, Pr	1	CE	850	725	WT	275	39		
7	Virginia Chemical Co	Patrium, W Va	Blaw-Knox Co	Ex	1960	Pr	1	BW	900	Sat	WT	70	4.0	2.0	
8	Humble Oil & Refining Co	Houston, Texas		New	1960	Pr	3	TI	650	750	WT	55	4.5		
9	Ennis Division, Ennis Power Co	Clear Creek, Texas	Bechtel Corp		1961	Pg, SH	3	CE	925	825	WT	250	11.7	3.0	
10	British American Oil Ltd	Clarkson, Ont		Add	1961	Pg, Pr, SH	1	CE	925	90	WT	769	9.5	5.3	
	Tennessee Pulp & Paper Co	Kalkaska, Mich					1	BW	825	830	WT	68	26.6	5.5	
12	U S Industrial Chemicals Corp	Tuscola, Ill	Stone & Webster Engrg Corp	Ex	1960	Pr	1	CE	825	750	WT	200	23.7		
900 TO 1,100 PSIG															
13	Standard Oil Co (Calif)	Richmond, Calif	Bechtel Corp	New	1960	Pr	3	CE	900	900	WT	470	100.0		
14	Sierra Forests, Inc	Sierra, Arkansas		Ex	1960	Pg, Pr	2	BW	900	750	WT	130	45		
15	Adolph Coors Co	Golden, Colo		Ex	1961	Pg, Pr, SH	1	JI	950	750	WT	140	23.8		
16	Jones & Laughlin Steel Corp	Pittsburgh, Pa	Koppers Co Inc	Ex	1961	Pr, SH	10	CE	950	750	WT	1,472	5.8	1.8	
17	National Starch & Chem Corp	Indianapolis, Ind	Sargent & Lundy	Ex	1960		1	BW	1440	1000	WT	180	5.0		
18	National Starch & Chem Corp	Indianapolis, Ind	Sargent & Lundy	Ex	1961	Pr	1	BW	1440	1025	WT	180	8.6	2.4	
19	National Petrochem Co	Beaumont, Texas		Ex	1960	Pg, Pr	1	CE	925	925	WT	250	21	N	
20	A E Staley Mfg Co	Decatur, Ill	Burns & McDonnell	Ex,	1961	Pg, Pr	1	RS	920	1000	WT	450	18	6.4	
21	Georgia Pacific Paper Corp	Toledo, Ore	Stone & Webster Engrg Corp	Ex	1960	Pr	1	CE	950	750	WT	1,144			
22	Dixies Molded Products	Trenton, N J		Ex	1960	Pr	1	BW	950	Sat	WT	40	13.3		
23	Wausau Paper Mills Co	Brokaw, Wis	S J Balsch Assoc	New	1960	Pr	1	BW	925	825	WT	90			
1,100 TO 1,500 PSIG															
24	Building Products Ltd	Hamilton, Ontario, Canada		Ex	1960	Pr	1	DB	1100	Sat		120	16		
25	Building Products Ltd	Trois Rivieres, Quebec, Canada		Ex	1960	Pr	1	DB	1290	Sat		145	11		
26	Cloverdale College	Colorado Springs, Colo	Riley Engrg Corp	New	1960	SH	2	B&W	1300	750	WT	250			
27	Emery Industries, Inc	Cincinnati, Ohio	Frankenberger, Junker & Lensky	Ex	1960	Pr, SH	1	RS	1300	950	WT	200	22.0		
28	Federal Aviation Agency	Chantilly, Va	Burns & McDonnell	New	1961	SH	2	CE	1300	1280	WT	90	2.3		
29	Welch Laboratories, Inc	E Whiteland Twp, Pa	Self	New	1960	Pr, SH	2	CE	1300	1290	WT	220			
30	Cooperative Refinery Assn	Coffeyville, Kan		Ex	1959	Pr	1	VO	1275	960	WT	280	11.3		
31	Food Machinery & Chemical Co	Kemmerer, Wyo	United Engrs & Constr Inc	New	1960	Pr	1	BW	1275	Sat	WT	120	2.4		
32	Dominion Sugar Co Ltd	Bramalea, Ont		Ex	1960	Pr	1	JI	1265	Sat	WT	90	4.7	3.5	
33	Double H Power Co	Great Falls, Mont	Drakes Enterprises	New	1960	SH	2	B&W	1250	1000	WT	450	5.2	2.8	
34	Fitchburg Paper Co	Fitchburg, Mass		Ex	1960	Pg, Pr	1	BW	1250	1000	WT	140	2.9		
35	Kendall Co, Personal Products Div	Chicopee, Mass		Ex	1960	SH	1	BW	1250	Sat	WT	100.5	2.0		
36	Monsanto Chemicals	Saint Louis, Mo		Ex	1959	Pr	1	VO	1250	Sat	WT	138	3.2		
37	Mystic Power Station	Falmouth, Mass				SH	1	B&W	1250	1000	WT	217.92	3.0		
38	Hercules Inc	Passaic, N J		Ex	1960		1	BW	1250	Sat	WT	120	2.2		
39	Tennessee Valley Authority	Sheffield, Ala			1959	Pr	1	BW	1250	Sat	WT	120			
40	Florida Power & Light Co	Cape Canaveral, Fla	Ebasco Services Inc	Ex	1960	Pr	2		1250	Sat	WT	1000			
41	Baptist Memorial Hospital	Brooks A F B, Texas	Darnell & Zeitler	New	1960	Pg, SH	3	M	1235	1000	WT	93			
42	Hercules Inc, Chem Div	Hattiesburg, Miss		Ex	1960	Pr	1	BW	1225	Sat	WT	125	11.3		
43	Armstrong Cork & Rubber Co	Natchez, Miss		Ex		Pr	1	BW	1200	Sat	WT	140	6.2		
44	Northwest Steel Corp	Portage, Ind	Drake Corp	New			3	SC	1225	950	WT	0			
45	Midwest Steel Corp	Portage, Ind	Drake Corp	New			1	BW	1225	950	WT	1,150			
1,500 TO 2,000 PSIG															
46							2	BW	1,800	Sat	WT	0			
					1960		1		1750	Sat	WT	0	9.5	2.8	
47					1960		1		1750		WT			N	
				New	1960		1		1750	Sat	WT	0	5.5		
				New			2	BW	1,750		WT	0			
				New			1	BW	1,800	Sat

al, institutional power plants over 150 psi



Project Number

Water tube
Bi-pass outlet
Future 5 avg. 75°F
Million btu per hr
Future 425 lb/h
Future economizer
Future superheater

MANUFACTURERS

Allis-Chalmers Mfg. Co.

AC - American Engineering Co.
AF - American Foundry Co.
AS - American Standard Industrial Div.
AT - Anderson Corp.
BE - Babcock & Wilcox Co.
BS - Bayley Stoker & Mfg. Co.
BW - Bellefonte Nuclear Corp.
BE - Blaw-Knox Co.
CE - Chain Belt Co.
CS - Combustion Engineering, Inc.

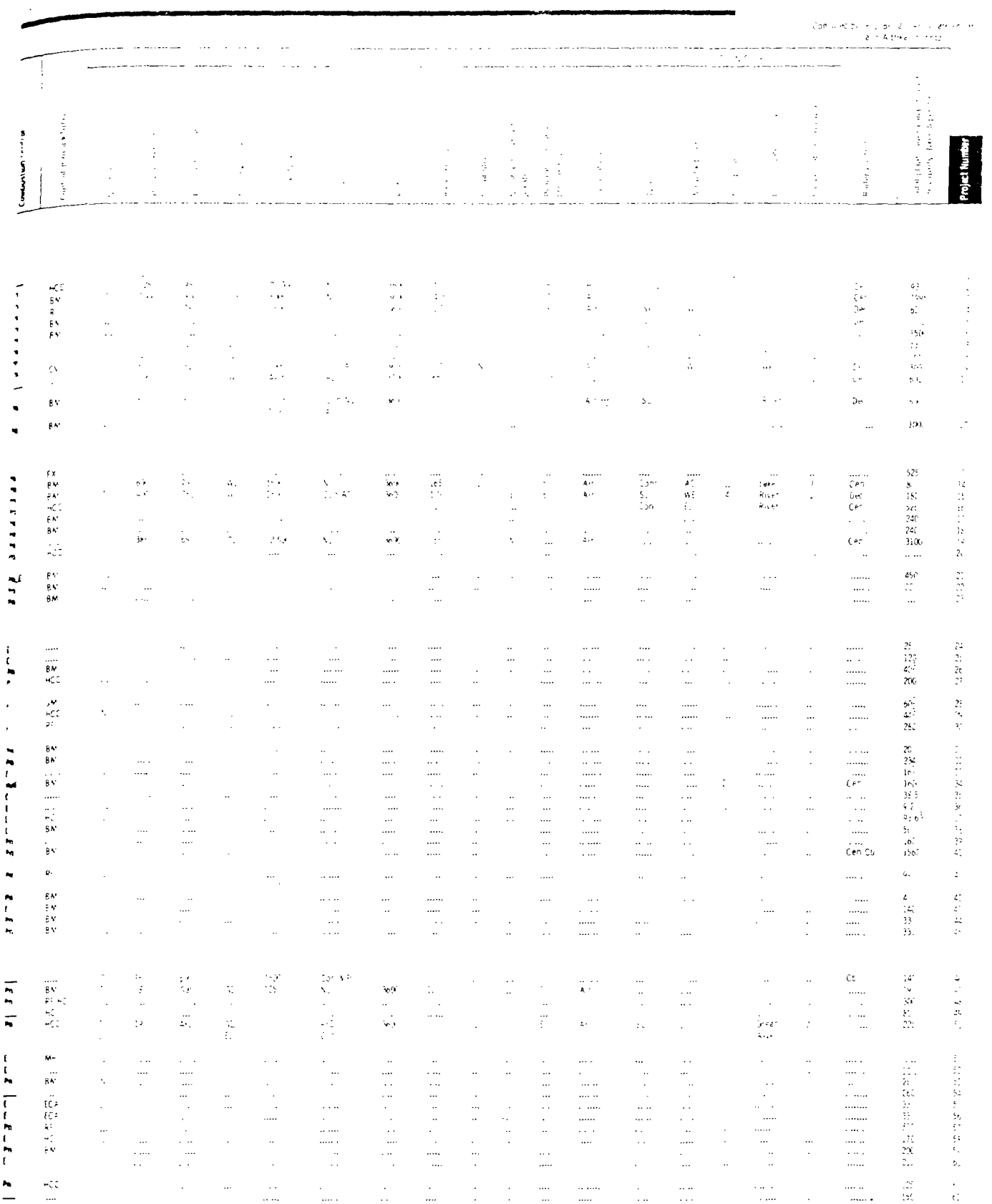
DE - Detroit Stoker Co.
DS - Detroit Stoker Co.
EC - Erie City Iron Works
FC - Foster Wheeler Corp.
GE - General Electric Co.
HC - Hagan Corp.
HR - Harnischfeger Corp.
HW - Hardinge, Murray & Co.
IND - Industrial Boiler Co.
IPC - International Paper Co.
IW - International Water Conditioning Corp.

KE - Keeler Co.
KO - Koppers Co. Inc.
LA - Lourie-Ailis Co.
LE - Lummus Co.
OC - Owens-Corning Fiberglas Corp.
PC - Pennsylvania Crusher Co.
PE - Peerless Equipment Co.
RE - Riley Stoker Corp.
SA - Stephens-Adamson Mfg. Co.
SE - Struthers Wells Corp.
SW - Swartwout Co.

TC - Thermal Research & Engineering Corp.
UC - Union Connecting Co.
VO - Vogt, Henry, Machine Co.
WE - Westinghouse Electric Corp.
WH - Wheeler Corp.
WI - Wickes Boiler Co.
WP - Western Precipitator Corp.
YS - York-Shipley, Inc.

Industrial power plants over 150 psi continued

Project Number	F.D. FANS			I.D. FANS			AIR & GAS FLOW CONTROL		SOOT BLOWERS				FEED WATER PUMPS						WATER TREATMENT		
	No. and drive	Fan manufacturer	Drive motor/turbine builder	No. and drive	Fan manufacturer	Drive motor/turbine builder	Air flow	Gas flow	No. per boiler	Type	Manufacturer	Acid-cleaning system	Manufacturer	No. per boiler	Pump manufacturer	Driver type	Drive motor/turbine builder	Pump centrifugal	Low-water cutoff (specify if boiler has drum)	Flow rate, gpm	Softening	Deaerating/aerating



Combustion Equipment

Project Number																							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	HCO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	93	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	[illegible]	[illegible]
	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dec	[illegible]	[illegible]
	BN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	150	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	CV	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dec	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1000	[illegible]
	FX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	525	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dec	[illegible]	[illegible]
	HCO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	240	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	240	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	3100	[illegible]
	HCO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	450	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	HCO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	600	[illegible]
	HCO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	PF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	250	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	234	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cen	160	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	HC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cb	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	PF HC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	HC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	HCO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	MH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ECA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ECA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	RF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	HC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	HCO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key:

- BP - Binghamton Pumps Co
- CBE - Chain Belt Co
- CF - Clarage Fan Co
- Cochrane Corp
- Copus Engineering Corp
- Curtiss-Turbine Blower Co
- Dopp-Vulcan Div, Blaw-Knox Co
- Dean Brothers Pumps, Inc
- DC - Dearborn Chemical Co
- DS - Delaval Steam Turbine Co
- DP - Diamond Power Specialty Corp
- ECA - Electronics Corp of America
- EC - Elliott Co
- FM - Fairbanks, Morse & Co
- FX - The Foxboro Co
- GE - General Electric Co
- GF - Green Fuel Economizer Co, Inc
- GW - Graver Water Conditioning Co
- HC - The Hays Corp
- HCC - Hagan Chemicals & Controls, Inc
- HL - Hall Laboratories, Inc
- IF - Iron Fireman Mfg Co
- IR - Ingersoll-Rand Co
- IW - Illinois Water Treatment Co
- JB - John Bean Div
- JH - James Howden & Co of Canada Ltd
- LA - The Louis-Allis Co
- LC - Lectromatic Co
- LW - L. Wing Mfg Co
- MH - Meehanite, Inc
- ML - Marathon Electric Mfg Corp
- MH - Minneapolis-Honeywell Regulator Co
- NA - National Aluminate Corp
- NYAB - New York Air Brake Co
- OS - Orr & Sembower, Inc
- PC - Pratt-Daniel Corp
- PE - Peerless Pump Div, Food Machinery and Chemical Corp
- PM - Permutit Co, Div of Pfaudler Permutit, Inc
- PP - Pacific Pumps, Inc
- PPC - Pennsylvania Pump & Compressor Co
- RC - Reliance Electric & Engrg Co
- R - Republic Flow Meters Co
- RG - Reliance Gage Column Co
- RE - Roy E Roth Co
- SW - Sturtevant Div, Westinghouse Electric Corp
- TC - Terry Steam Turbine Co
- UC - United Convevor Corp
- WE - Westinghouse Electric Corp
- WEC - Wagner Electric Corp
- WC - Worthington Corp
- WPI - Warren Pumps, Inc
- WS - Wilson-Snyder Works, U S Steel Corp

1960 design survey: typical industrial plants

Project Number	Company & Location	Consulting Engineers	Nature of existing plant	Date of initial operation	Prime fuel & other uses	NEW BOILERS: Number of new boilers	Manufacturer	Operating pressure, psig	Operating temperature, °F	Fuel — Type	Capacity each, lbs/hr (or Btu/hr for HW)	Boiler heating surface, sq ft	Furnace volume, cu ft	Furnace heat release, Btu/hr per cu ft (or per sq ft for stoker)	Furnace type	NEW FIRING EQUIPMENT: Firing	Stoker type	Water conditioning	Remarks
SOUTHEAST																			
43	American Standard, Trenton, N.J.		Ex	Open	SH	2	BW	150	Sat	NG	28	.....	..	....	....	O	—		
44	Art Metal Products Div., Buffalo, N.Y.		New	1958	SH	1	BW	150	375	NG	25	....	2.7	....	....	O	—		
45	Ball State Teachers College, Muncie, Ind.		—	.....	.....	1	CO	150	Sat	NG	27	0.5	....	....	30	O	CG		
46	Broadmoor Hotel, Inc., Colorado Springs, Colo.	Frank Daum & Bolles	New	Open	Pr, SH	1	BW	150	365	NG	50	....	....	.....	30	O,G	—		
47	Brown & Williamson Tobacco Corp., Louisville, Ky.	.....	Ex	.....	Pr, SH	1	CO	150	Sat	NG	300	35.2	....	....	30	O,G	—		
48	Builders Block & Stove Co., Roswell, N.Mex.	Barnham & Dwyer Eng Co	Ex	.....	Pr	1	DS	150	Sat	FO	10.3	....	....	....	30	O	—		
49	Bunker Hill Smelter, Kellogg, Idaho	.....	Ex	.....	Pr	2	K	150	Sat	NG	24	4.7	2.4	..	30	O	—		
50	Canal-Randolph Corp., Thomasville, N.C.	.....	Ex	Open	Pr, SH	1	DE	150	Sat	NG	20	2.0	3.3	42	Pd	O	—		
1	Carborundum Abrasive Products, Tuscaloosa, Miss.	.....	Ex	Open	Pr	1	BW	150	Sat	NG	36	70	....	....	30	O	CG		
2	Christ Hospital, Cincinnati, Ohio	Fosdick & Hilmer	Ex	.....	Pr, SH	1	BW	150	Sat	NG	20.5	4.8	1.3	.....	30	O	SR		
3	Container Corp. of America, Pigeon, Mich.	.....	—	Open	Pr	1	BW	150	Sat	NG	37	...	....	.....	....	O	—		
4	Empire-Reeves Steel Corp., Wapakoneta, Ohio	Lemus Engrg Corp	Ex	Open	Pr, SH	2	BW	150	550	NG	18.0	9.9	..	....	....	WH,O,G	—		
5	Fruitvale Canning Co., Oakland, Calif.	C.D. Young	Ex	Open	Pr	1	BW	150	Sat	NG	50	....	....	....	....	O	—		
6	General American Trans. Corp., Granite City, Ill.	.....	Ex	Open	Pr, SH	3	BW	150	Sat	NG	70	9.1	....	....	Pd	O,G	—		
7	Hunt Bros. & Industries, Inc., Stockton, Calif.	.....	Ex	Open	Pr	1	BW	150	Sat	NG	20	2	0.6	33	Pd	O	—		
8	Indiana University, Bloomington, Ind.	Gardner & Lindow	Ex	.....	.....	2	FC	150	Sat	NG	200	10.0	....	21.5	DB	O	BLE		
9	Jo Carroll Depot, Knoxville, Tenn.	.....	New	1959	Pr, SH	1	OC	150	Sat	NG	10.5	1.4	....	....	30	10.0	UF		
10	New York University, Bronx, New York	.....	Ex	1961	.....	3	BW	150	Sat	NG	42	....	....	....	30	O	—		
11	Paterson State College, Wayne, N.J.	Pirnie/Malcolm	New	Open	SH	2	SCO	150	Sat	NG	34	....	....	....	Pd	O	—		
12	Passaic Hospital & Training Center, Passaic, N.J.	Harold Engrg Service Co	Ex	Open	.....	2	SW	150	Sat	NG	55	9.5	4.1	30	30	O	—		
13	Phoenix, The, New Brunswick, N.J.	.....	Ex	1959	Pr, SH	2	BW	150	Sat	NG	20	2.0	3.6	42.8	Pd	O	—		
14	Rochester State Hospital, Rochester, N.H.	N.H. Dept. of Public Works	Ex	1961	SH	2	BW	150	Sat	NG	24.3	3.8	1.6	35.0	30	O	MR		
15	S. Dakota State Coll. of Engineering, S. Dak.	Ray Rapp	Ex	Open	Pr, SH	1	BW	150	Sat	NG	35	..	...	....	30	O,G	DGS		
16	West Virginia Univ., Morgantown, W.Va.	Byer, Kloo, Loper & Pittenger	New	Open	SH	2	BW	150	375	NG	50	..	3.2	....	30	O	CG		
17	Youngstown Sheet & Tube Co., Indiana Harbor, Ind.	Ayres & Estlick	Ex	Open	Pr, SH	2	BW	150	Sat	NG	28	3.8	....	....	....	O,G	—		
											9	2.4							
SOUTHWEST																			
18	Alabama Carpet Co., Sandersville, Miss.	.....	Ex	Open	Pr, SH	1	FC	140	Sat	NT	20	3.0	2.7	26.0	30, Pd	O	—		
19	Ann Arbor Furniture Co., Pocahontas, Ark.	.....	Ex	Open	Pr, SH	1	BW	140	Sat	NT	24	3.3	....	....	30	O, WW	UF		
20	Bi-State Hospital, New York, N.Y.	Eggers & Higgins	New	1961	Pr, SH	4	DE	135	Sat	NT	30	....	....	....	30	O	—		
21	Northern Paving & Processing Corp., Union City, N.J.	A. Berger	New	....	Pr	1	K	135	Sat	NT	12.3	2.3	....	....	Pd	O	—		
22	Forest Products Corp., Port Arthur, Tex.	Todd & Tompkins, Inc.	Ex	Open	Pr, SH	1	OC	130	Sat	NT	22	2.7	....	35	30	WW	—		
23	American Sanitary Laundry Monroeville, Ind.	Merrill Berkley	Ex	Open	Pr	1	BW	125	Sat	NT	29	2.5	....	.	. .	O	—		
24	Armco Steel Corp., Middletown, Ohio	.....	Ex	Open	Pr, SH	1	BW	125	Sat	NT	60	6.9	2.7	....	30	O,G	—		
25	Associated Industries of Mass., Worcester, Mass.	.....	Ex	1960	SH	1	DS	125	Sat	FT	20	....	....	....	Pd	.....	—		
26	Brown University, Providence, R.I.	Buerker Co.	New	Open	SH	1	BW	125	Sat	NT	28	2.9	2.7	.....	....	G	—		
27	Chesapeake & Ohio Railway Co., Detroit, Mich.	Bell	New	Open	SH	1	WT	125	Sat	NT	40	7.3	....	28	30	O	CDS		
28	Chesapeake & Ohio Railway Co., Huntington, W.Va.	Bell	New	Open	SH	1	WT	125	Sat	NT	31	4.6	....	37.6	30	O	UF, SR		
29	Colorado State University, Fort Collins, Colo.	River Engrg Corp	Ex	Open	SH	1	HI	125	Sat	NT	57	....	....	.	30	G	—		
30	Dunne Industrial Laundry, Syracuse, N.Y.	.....	—	.....	Pr	1	DB	125	Sat	FT	12.5	....	..	....	....	O	—		
31	Dana Corp., Pottstown, Pa.	Wentz Engr. Co.	—	...	.....	3	SCO	125	Sat	NT	32	5.3	...		.....	O	—		
32	Dixie Packing Co., Port Arthur, Tex.	.....	Ex	Open	Pr, SH	1	BW	125	Sat	NT	30	2.3	3.9	..	Pd	O,G	—		
33	East Tennessee Water Authority, Knoxville, Tenn.	Clark, Dietz & Servy	Ex	...	Pr, SH	2	K	125	Sat	NT		2.5	..	....	30	O	—		
34	Farmers Co-op Elevator Assn., Hanley Falls, Minn.	.....	New	Open	Pr, SH	2	K	125	Sat	NT	21	3.5[2]	1.5	44.5	Pd	O	—		
35	Fisher Body Div., General Motors Corp., Cleveland, Ohio	.....	Ex	Open	Pr, SH	1	BW	125	Sat	NT	50	6.6	..	30	30	...[3]	—		
36	Nashville Gas Co., Nashville, Tenn.	.....	Ex	.....	Pr	1	BW	125	Sat	NT	9	2.3	1.3	10	30	O	—		
37	Pacific Coast Co., Portland, Oreg.	.....	New	.....	SH	1	DB	125	463	FT	...	5.0	...	...	30	O	DGS		
38	Pacific Gas & Electric Co., San Francisco, Calif.	Fluhrer, Reed & Smith & Haines	Ex	Open	Pr, SH	2	BW	125	Sat	NT	26	...	...	.....	....	O	UF		
39	Woolrich Woolen Mills, Woolrich, Pa.	Hughes & Pierce Engineers, Inc.	Ex	...	Pr, SH	1	...	125	Sat	NT	12	2.5	..	....	30	O	—		
40	Worth County Hospital, Sylvester, Ga.	.....	Ex	Open	Pr, SH	1	BW	125	Sat	NT	15	2.5	..	15	30	O, WW	UF		
41	Wood General Hospital, Lamesa, Texas	Harry D. Hall Consultants, Inc.	New	Open	Pr, SH	2	BW	125	Sat	NT	25	..	..	Pd	.	O,G	—		
42	Zane Shoe Co., Jackson, Miss.	.....	Ex	.....	.....	2	CO	125	Sat	NT	22	4.5	.....	..	Pd	O,G	DGS		
43	Zion Hospital, Zion, Ill.	.....	Ex	...	...	2	K	125	Sat	NT	12	2.5[4]	1.0	...	Pd	O	—		
44	The Lake Hospital, Painesville, Ohio	Ayres & Estlick	New	Open	Pr, SH	2	K	125	Sat	NT	10	...	....	..	Pd	O	—		
45	Wabash Steel Products, Inc., Peru, Ind.	.....	New	Open	Pr, SH	2	HO	125	Sat	NT	26	28.3	....	.....	..	O,G	—		
46	Wright Steel & Wire Co., Worcester, Mass.	.....	Ex	Open	SH	1	BW	125	Sat	NT	30	.	....	....	Pd	O,G	—		

[illegible]

[illegible]

[illegible]



- Clarage Fan Co
- Columbus Coal Mining Co
- Cooper-Bessemer Corp
- Corning Glass Works
- Cyclotherm Corp
- Dampney Co of America
- Detroit Stoker Co
- Diamond Power Specialty Corp
- Dravo Corp
- Dresser Industries, Inc
- Duriron Co, Inc
- Elliott Co
- Erie City Iron Works
- Fairbanks, Morse & Co
- Fairmont Railway Motors, Inc
- Farrel-Birmingham Co, Inc
- Fisher Governor Co
- Foster Wheeler Corp
- Foxboro Co
- Fuller Co
- Gas Machinery Co
- General Electric Co
- General Filter Co
- Green Fuel Economizer Co, Inc
- Hagan Corp
- Hall-Scott Motor Car Co
- Harnischfeger Corp
- Hays Corp
- Heat Exchangers Co of America
- Hersey Mfg Co
- Hilo Varnish Corp
- Hoffman Specialty Co
- Hydrotherm, Inc
- Ingersoll-Rand Co
- Integrated Equipment Corp
- Ipsen Industries, Inc
- Jeffrey Mfg Co
- Jenkins Bros
- Johnston Pump Co
- Kewaunee Mfg Co
- Keystone Valve Div, W-K-M Co
- Kobe, Inc
- Lapp Insulator Co, Inc
- Leslie Co
- Lima Electric Motor Co, Inc
- Lincoln Electric Co
- Link-Belt Co
- Lunkenheimer Co
- Mall Laboratories, Inc
- Marley Co
- Mason Regulator Co
- Master Boiler Co
- Mathews Conveyer Co
- Maxim Silencer Co
- Merco Nordstrom Valve Co
- Metropolitan-Vickers Electrical Co, Ltd
- Midwest Piping Co, Inc
- Mikro-Pulverizer Co
- Mine Safety Appliances Co
- Minneapolis-Honeywell Regulator Co
- Mission Manufacturing Co
- Mitsubishi International Corp
- Modine Manufacturing Co
- Monarch Mfg Works, Inc
- Morse Chain Co
- Nash Engineering Co
- National Airoil Burner Co, Inc
- National Automatic Tool Co, Inc
- National Boiler Works
- National Engineering Co
- National Tube Co
- Nebraska Boiler Co
- Nelson Valve Co
- Nicholson Universal Steam Trap Co
- Niles-Bement-Pond Co
- Nordberg Manufacturing Co
- Northern Blower Co
- Norwalk Valve Co
- Nugent Sheet Metal Works, Inc
- Oberdorfer Foundries, Inc
- Ohio Blower Co
- Oil Gear Co
- Oilgear Co
- Orr & Sembower, Inc
- Parkersburg Co
- Peabody Engineering Corp
- Pelton Water Wheel Co
- Penberthy Injector Co
- Penn Machine Co
- Pennsylvania Pump & Compressor Co
- Permutit Co, Div of Pfaudler Permutit, Inc
- Peerless Pump Div, Food Machinery & Chemical Corp
- Pittsburgh Equitable Meter Div
- Precision Valve Corp
- Pressure Blast Mfg Co, Inc
- Pyle-National Co
- Quaker City Gear Works
- Quigley Co, Inc
- Reliance Electric & Engrg Co
- Republic Flow Meters Co
- Reliance Gage Column Co
- Rex Chainbelt Inc
- Rex Hydraulic & Machine, Inc
- Rockwell Manufacturing Co
- Roots-Connersville Blower Corp
- Ross Operating Valve Co
- Ross Pump Div, Food Machinery & Chemical Corp
- Roto-Flow Co, Inc
- Rotor Tool Co
- Sarco Co, Inc
- Schutte & Koerting Co
- Sellers Injector Corp
- Sherwood Valve Co
- Shipley Co, Inc
- Simplex Valve & Meter Co
- Spence Engineering Co, Inc
- Spirax Sarco, Inc
- Sprague Meter Co
- Square D Co
- Stanley Works, The
- Sterling Faucet Co
- Stockham Valves & Fittings, Inc
- Stokers, Inc
- Sturtevant Div, Westinghouse Electric Corp
- Terry Steam Turbine Co
- Titusville Iron Works Co
- Todd Shipyards Corp, Products Div
- United Conveyor Corp
- Union Iron Works
- Viking of Canada, Ltd
- Henry Vogt Machine Co
- Westinghouse Electric Corp
- Wickes Boiler Co
- W-K-M Gate Valve Co
- Worthington Corp
- Western Precipitation Corp
- Warren Pumps, Inc
- Wayman Pump Mfg Co
- Wilson-Snyder Works, U S Steel Corp
- York-Shipley, Inc

Power
OCTOBER 1960

Central Station Design Survey

The following 11 pages carry tabulations of pertinent data on conventionally fueled and nuclear plants. Information listed for conventional steam plants is the most complete that can be had for units planned, under construction and starting operation. As in last October's survey, the design features listed for each project cover four tightly packed tabulated pages.

But, because of the way we must compile facts, the survey of conventional steam plants does not include *all* current programs, nor does it consist *only* of current plant construction.

This comes about since we are working from lists of planned installations as a base. Questionnaires asking for project details are sent to the individual companies on those lists. Data may appear in the tables well before construction starts; or if engineering is delayed, may appear long after announcement.

Being representative of design and construction in late 1959 and early 1960, the following tables give useful information on general trends. But you can readily see why they can't be complete. So just consider them as extensive samples and don't use them to get total values or where any degree of incompleteness would seriously distort results.

TABLE 1

1960 design survey of typica

Note that each listing covers four pages. The project number helps you keep track of a specific installation after you turn the facing page

Project Number	Company	Location	Plant Name	Consulting Engineers	Unit No. - new unit	First operation - new unit	Throttle pressure - psig	Steam Temperature - F: Throttle	Steam Temperature - F: Reheat
1	Baltimore Gas & Electric Co	Baltimore County, Md	Charles P Crane	Self	2	1-63	2400	1050	
2	Carolina Power & Light Co	Goldsboro, N C	Goldsboro	Ebasco Services, Inc	3	5-62	2450	1000	
3	Central Hudson Gas & Electric Corp	Roseton, N Y	Danskammer	Burns & Roe, Inc	4	12-63	2400	1050	
4	Cincinnati Gas & Electric Co	New Richmond, Ohio	Walter C Beckjord	Sargent & Lundy	5	3-62	2400	1000	
5	Cincinnati Gas & Electric Co	Miami Fort, Ohio	Miami Fort	Sargent & Lundy	5[2]	11-60	2400	1050	
6	Cleveland Electric Illuminating Co	Cleveland, Ohio	Lake Shore		18	5-62	2400	1000	
7	Commonwealth Edison Co	Romeoville, Ill	Will County	Sargent & Lundy	4	3-63	2400	1000	
8	Commonwealth Edison Co	Waukegan, Ill	Waukegan	Bechtel Corp	8	5-62	2000	1000	
9	Commonwealth Edison Co of Ind, Inc	Hammond, Ind	State Line	Sargent & Lundy	4	6-62	2000	1050	
10	Consumers Power Co	West Olive, Mich	James H Campbell	Commonwealth Associates, Inc	1	10-62	2400	1050	
11	Consumers Power Co	Essexville, Mich	Dan E Karn	Commonwealth Associates, Inc	2[3]	3-61	2400	1050	
12	Delaware Power & Light Co	Wilmington, Del	Edge Moor		4	5-63	2400	1050	
13	Delaware Power & Light Co	Delaware City, Del	Delaware City	Bechtel Corp	3	12-61	1250	950	
14	Georgia Power Co	Near Atlanta, Ga	McDonough No 1	Southern Services, Inc	1	5-63	2400	1000	
15	Metropolitan Edison Co	Portland, Pa	Portland	Gilbert Associates, Inc	2	10-62	2400	1050	
16	New England Power Co	Somerset, Mass	Brayton Point	Stone & Webster Engrg Corp	1	1963	2400	1000	
17	New England Power Co	Somerset, Mass	Brayton Point	Stone & Webster Engrg Corp	2	1963	2400	1000	
18	Niagara Mohawk Power Corp	Dunkirk, N Y	Dunkirk		4[2]	5-60	2400	1050	
19	Northern Indiana Public Service Co	Baillytown, Ind	Bailly	Sargent & Lundy	7	12-62	2400	1000	
20	Pacific Gas & Electric Co	Contra Costa County, Calif	Pittsburg	Self	5[2]	5-60	2400	1050	
21	Pacific Gas & Electric Co	Contra Costa County, Calif	Pittsburg	Self	6[2]	2-61	2400	1050	
22	Pennsylvania Electric Co	Shawville, Pa	Shawville	Gilbert Associates, Inc	4[2]	3-60	2400	1050	
23	Potomac Electric Power Co	Dickerson, Md	Dickerson "D"	Bechtel Corp	3		2400	1050	
24	Public Service Electric & Gas Co	Woodbridge Township, N J	Sewaren		5[10]	5-62	2400	1100	
25	Southern California Edison Co	Near Long Beach, Calif	Alamitos	Bechtel Corp	3	1-62	2400	1050	
26	Southern California Edison Co	Near Long Beach, Calif	Alamitos	Bechtel Corp	4	8-62	2400	1050	
27	Southern California Edison Co	Huntington Beach, Calif	Huntington Beach	Bechtel Corp	3[10]	12-60	2400	1050	
28	Southern California Edison Co	Huntington Beach, Calif	Huntington Beach	Bechtel Corp	4[10]	7-61	2400	1050	
29	Virginia Electric & Power Co	Dumfries, Va	Possum Point	Stone & Webster Engrg Corp	3[9]	4-62	2400	1000	
30	Virginia Electric & Power Co	Portsmouth, Va	Portsmouth	Stone & Webster Engrg Corp	4[2]	5-62	2400	1000	
31	Virginia Electric & Power Co	Richmond, Va	12th St	Boiler Brick & Refractory Co		9-60	700	Sat	
32	Virginia Electric & Power Co	Norfolk, Va	Reeves Ave	Boiler Brick & Refractory Co		9-60	700	Sat	
33	Central Illinois Public Service Co	Meredosia, Ill	Meredosia	Sargent & Lundy	5[2]	7-60	2000	1050	
34	Connecticut Light & Power Co	South Norwalk, Conn	Norwalk Harbor	United Engineers & Constructors, Inc	2	7-62	2400	1000	
35	Consolidated Edison Co of N Y, Inc	Astoria, Queens Co, N Y	Astoria		4	1961	2400	1050	
36	Consolidated Edison Co of N Y, Inc	Astoria, Queens Co, N Y	Astoria		5	1962	2000	1050	
37	Consolidated Edison Co of N Y, Inc	Long Island City, N Y	Ravenswood		7	1963	2000	1050	
38	Consolidated Edison Co of N Y, Inc	Long Island City, N Y	Ravenswood		2	1964	2000	1050	
39	Florida Power & Light Co	Riviera Beach, Fla	Riviera	Ebasco Services, Inc	3	4-62	2000	1000	
40	Florida Power & Light Co	Riviera Beach, Fla	Riviera	Ebasco Services, Inc	4	4-63	2000	1000	
41	[illegible]			Black & Veatch		7-63	2000	1000	
42	New Orleans Public Service Inc	New Orleans, La	Michoud	United Engrs & Constructors, Inc	2	2-63	2000	1000	
43	San Diego Gas & Electric Co	Chula Vista, Calif	South Bay	Pioneer Service & Engrg Co	2	7-62	2000	1000	
44	Southern Electric Generating Co	Wilsonville, Ala	Gaston No 3	Southern Services, Inc	2	4-60	2000	1000	
45	Southern Electric Generating Co	Wilsonville, Ala	Gaston No 4	Southern Services, Inc	2[2]	7-60	2000	1000	
46	Southern Electric Generating Co	Wilsonville, Ala	Gaston No 1	Southern Services, Inc	3	8-61	2000	1000	
47	Southern Electric Generating Co	Wilsonville, Ala	Gaston No 2	Southern Services, Inc	4	8-62	2000	1000	

SYMBOLS USED ABOVE

Bv - Gas bypass
B/O - By-pass damper
D - Damper
DB - Drum type
EA - Excess air
FG - Flue gas recirculation
H - Header
Hor - Horizontal
LB - Long retractable

M - Motor
Ma - Magnetic coupling
Mo - Two motors per fan
N - None
No - Number of burners
Op - Pressure opt
Pro - Proportioning
Re - Regenerative
S - Speed control
SB - Sliding tap
T - Turbine

TB - Tilting burner
TF - Twin furnace
V - Vane control
WS - Water spray
1 - Unit one
2 - Key spec data, previously listed
2[2] - Two furnace
3 - 1,000 Btu per sq ft per hr
4 - Outdoor unit
5 - Revised data, previously listed

7 - 24 coal burners, 12 oil burners, 12 oil burners per furnace
8 - 8 burner stations, 3 air guns 3 gas burners per station
9 - Central division wall forming two corner-fired furnaces
10 - Computer controlled
11 - Firing rate
12 - Semi-outdoor unit
13 - Package boiler for space heating, etc

14 - Tangential
15 - Proportioning
16 - Once through
17 - 12 coal, 24 oil
19 - Revised data, 10-58

MANUFACTURERS

AC - Allis-Chalmers
AD - Allen & DuMont

new central-station installations

Boiler & subassembly	Superheater	Reheater	Economizer	Air heater	Air heater type	Air heater size (in. dia. x length)	Volume (cu ft)	Heat release (btu per cu ft per hr)	Number of burners	Firing	Size (per boiler)	Capacity each (lb per hr)	Manufacturer	Air flow control	Drive	Drive hp	Drive controller type	No. per boiler	Capacity each (lb per hr)	Manufacturer	Gas flow control	Drive	Drive hp	Drive manufacturer	Project Number
54	112.3	22 6	20 8	[illegible]	WS FG	WS TE	Re	14 5	0[illegible]	28 4	4	ST Pd	2	217	AS	V	M	2500	WE	N	[illegible]			[illegible]		1
[illegible]	[illegible]	[illegible]	[illegible]	47[illegible]	WS	[illegible]	Re	[illegible]	125 5	16 2	24	DE	2	280	SW	V	M	800	GE	2	369	SW	V	M	1250	GE	2
[illegible]	78 3	[illegible]	[illegible]	[illegible]	WS TE	WS TE	Re	[illegible]	[illegible]	[illegible]	32	DE	2	350	[illegible]	V	M	40	GE	2	24[illegible]	[illegible]	D	M	1000	[illegible]	3
57	87 4	26 [illegible]	69 [illegible]	[illegible]	WS TE	WS TE	Re	[illegible]	126 5	[illegible]	4	DE	2	283	GE	V	M	1250	AC	2	453	GE	D Hy	M	2250	AC	4
58	104 6	30 4	27 8	[illegible]	WS TE	WS TE	Re	[illegible]	105	17 0	20	DE	2	220	WE	V	M	700	AC	2	272	BF	D Mo	M	1250	AC	5
59	112.5	28 9	44 8	210 4	WS	WS TE	Re	12 5	132 9	36 0	40	DB Pd	2	375	SW	S	T	5320	GE	N						6
60	183 3	66 0	[illegible]	96[illegible]	WS	TE	Re	12	400	32 0	64	DB Pd	4	300	GE	V	M	3000	[illegible]	N			[illegible]	[illegible]	[illegible]	[illegible]	7
61	183 3	42 8	64 0	264 4	WS TE	WS TE	Re	15 5	264	18 0	[illegible]	DB Pd	2	343	BF	D,Hy	M	4000	WE	N			[illegible]	[illegible]	[illegible]	[illegible]	8
62	177 1	108 5	68 5	54[illegible]	WS FG	WS	Re	20	269 5	23 9	6	ST Pd	2	373	GF	V	M	6000	WE	N			[illegible]	[illegible]	[illegible]	[illegible]	9
63	100 9	22 9	64 0	37[illegible]	TE	WS TE	Re	0 0	127 5	17 4	47	DB	2	315	WE	V	M	1000	EL	2	490	WE	V	M	1750	EL	10
64	139	30 8	35 [illegible]	36[illegible]	WS FG	WS	Re	-0 10	136	16 3	24	DE	2	315	WE	V	M	800	WE	2	480	WE	V	M	1750	WE	11
65	77 7	22 0	44 [illegible]	151 8	TE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	DB	2	[illegible]	[illegible]	V	M	[illegible]	[illegible]	2	[illegible]	[illegible]	S	M	[illegible]	[illegible]	12
66	15 4	[illegible]	11 6	5[illegible]	WS	[illegible]	Re	[illegible]	47 [illegible]	17 0	8	ST	1	178	SW	V	M	600	WE	1	318	SW	D	M	1250	WE	13
67	80 3	26 0	[illegible]	330	WS TE	WS TE	Re	20	154 5	14 7	40	Pc	2	250	GF	V	M	1750	WE	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14
68	7 9	29 0	69 0	146 8	WS	TE	Re	0 15	155 6	13 8	30	DE	2	295	WE	V	M	785	WE	2	432	WE	V	M	1415	WE	15
69	85	65 4	54 0	447 0	WS	WS TE	Re	-0 15	131 8	17 0	[illegible]	DE	2	304	BF	V	M	800	AC	2	430	BF	V	M	1250	AC	16
70	89	66 4	54 0	549 [illegible]	WS	WS TE	Re	-0 15	131 8	17 0	[illegible]	DE	2	304	BF	V	M	800	AC	2	436	BF	V	M	1250	AC	17
71	140 3	18 7	30 6	[illegible]	WS TE	WS TE	We	0 [illegible]	100	16 0	12	TE	2	230	SW	S	M	600	WE	2	340	BF	S	M	1250	WE	18
72	65 0	34 0	77 0	244 9	WS FG	WS	Re	7 0	76 6	29 8	[illegible]	ST Pd	2	204	WE	V	M	2500	WE	N	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	19
73	85	80	76	440	WS Ex	WS TE	Re	12	[illegible]	22	24	Pc	2	414	SW	D,V	M	2250	WE		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	20
74	85	82	76	440	WS Ex	WS TE	Re	12	135	20	24	Pd	2	414	SW	D,V	M	2250	WE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21
75	125 1	22 0	33 4	339 8	WS	WS TE	Re	-0 0	96	16 0	8	DB	2	221	SW	V	M	400	GE	2	314	SW	D	M	1000	GE	22
	105 4	23 6	60 [illegible]	277 5	WS TE	WS TE	Re	-0 10	93 5	17 6	32	DE [illegible]	2	210	AS	Lc	M	700	EM	2	295	AS	Hy	M	1000	EM	23
	76 5	65 7	62 6	[illegible]68 4	[illegible]	[illegible]	Re	36	121 0	23 1	24	ST Pd	2	308	AS	Hy	M	2500	AC	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24
	21 0	24 0	75 5	477	WS TE FG	TE FG	Re	19	112 5	24 2	[illegible]	Pc	2	294	AS	D,Hy	M	2250	[illegible]	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25
[illegible]	121 0	24 0	79 8	437	WS TE FG	TE FG	Re	19	112 5	24 0	[illegible]	Pc	2	294	AS	D Hy	M	2250	[illegible]	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26
76	61 0	47	24 0	169	FW	D	Re	8 7	91	12[illegible]	24	Pc	2	256	BF	Hy	M	1250	WE	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27
77	61 0	47 [illegible]	24 0	172	FW	D	Re	8 7	91	12[illegible]	24	Pc	2	256	BF	Hy	M	1250	WE	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28
78	122 7	22 9	64 [illegible]	300	WS	WS TE	Re	[illegible]	122	94 0	32	DB	2	270	SW	D,V	M	700	EL	2	369	GF	D	M	1000	EL	29
79	123 7	22 0	64 0	300	WS	WS TE	Re	-0 25	122	94 0	32	DE	2	270	SW	D,V	M	700	EL	2	369	GF	D	M	1000	EL	30
[illegible]	N	N	N	N	[illegible]	[illegible]	[illegible]	[illegible]	0 4[illegible]	46 6	[illegible]	Pc	1	[illegible]	[illegible]	V	M	[illegible]	FM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31
[illegible]	N	N	N	N	[illegible]	[illegible]	[illegible]	[illegible]	0 4[illegible]	46 6	[illegible]	Pc	1	[illegible]	[illegible]	V	M	[illegible]	FM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32
80	76 4	35 9	62 [illegible]	490 8	TE	TE	Re	-0 5	138 8	34 8	32	DE	2	230	BF	V	M	700	EL	2	335	BF	S,Hy	M	1750	EL	33
81	72 0	26 8	56 0	238	WS TE	WS TE	Re	-0 10	85 0	17 0	30	DE	2	290	SW	V	M	770	WE	2	350	SW	V	M	1500	WE	34
82	164 6	36 8	107 4	346 8	WS TE	WS TE	Re	10	256	33 0	64	DE	4	250	AS	V	M	2000	AC	N	[illegible]				[illegible]	[illegible]	35
83	164 6	38 6	[illegible]	346 8	WS TE	WS TE	Re	10	256	33 0	64	DB	4	250	AS	V	M	2000	AC	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36
84	164 6	36 6	[illegible]	348 8	WS TE	WS TE	Re	10	256	33 0	64	DE	4	250	AS	V	M	2000	EL	N			[illegible]	[illegible]	[illegible]	[illegible]	37
85	164 6	36 6	[illegible]	346 8	WS TE	WS TE	Re	10	[illegible]	33 0	64	DE	4	250	AS	V	M	2000	EL		[illegible]			[illegible]	[illegible]	[illegible]	38
86	90 [illegible]	80 [illegible]	[illegible]	354 [illegible]	Pre	[illegible]	Re	0 [illegible]	[illegible]	24	24	DE	2	335	BF	D	M	1[illegible]	DE	2	53[illegible]	BF	D	M	2000	GE	39
87	90 [illegible]	80 [illegible]	[illegible]	354 [illegible]	Pre	[illegible]	Re	0 [illegible]	[illegible]	24	24	DE	2	335	BF	D	M	1[illegible]	DE	2	53[illegible]	BF	D	M	2000	GE	40
88	119 [illegible]	[illegible]	36 [illegible]	307 [illegible]	WS TE FG	WS TE	Re		153 [illegible]	12 [illegible]	[illegible]	Pc	2	[illegible]	[illegible]	Hy	M	[illegible]	[illegible]	N	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	41
89	43 [illegible]	[illegible]	[illegible]	142 [illegible]	WS	WS TE	Re	5 95	93 8	24	16	Pc	2	280	AS	Hy	N	1500	GE		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	42
90	65 9	29 7	[illegible]	142 4	WS FG	WS FG	We	[illegible]	[illegible]	13[illegible]	8	Pc	2	185	AS	S,D Hy	N	1000	AC	N	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	43
91	107 6	40 [illegible]	26 5	574 4	WS FG	WS	Re	-0 [illegible]	139 [illegible]	[illegible]	16	DE	2	315	AS	D Hy	N	1000	GE	2	48[illegible]	AS	D Hy	M	1500	GE	44
92	107 6	40	28 5	574 4	WS FG	WS	Re	-0 [illegible]	139 [illegible]	[illegible]	16	DB	2	315	AS	D Hy	M	1000	GE	2	48[illegible]	AS	D Hy	M	1500	GE	45
93	107 6	40 [illegible]	28 5	574 4	WS FG	WC	Re	-0 [illegible]	139 [illegible]	16 [illegible]	16	DE	2	315	AS	D Hy	M	1000	GE	2	48[illegible]	AS	D Hy	M	1500	GE	46
94	107 6	40 [illegible]	[illegible]	574 4	WS FG	WS	Re	-0 [illegible]	139 [illegible]	16 [illegible]	16	DE	2	315	AS	D	M	1000	AC	2	48[illegible]	AS	D Hy	M	1500	AC	47

- American Hoist & Derrick Co
- A O Smith Corp
- Alco Products, Inc
- American Standard, Ind Div
- Allen-Sherman-Hoff Co
- Aerotec Corp
- Forge Co
- Iverson Pumps, Inc
- ...ener Co
- ...n Pump Co
- ...engineering Co Inc
- BA - Babcock & Wilcox Co
- CB - Chain Belt Co
- CE - Combustion Engineering Inc
- CFB - C-E Raymond Div
- CHW - C-H Wheeler Mfg Co
- CIW - Clyde Iron Works
- COC - Cochrane Corp
- CT - Caterpillar Tractor Co
- CV - Coppus Vulcan Div Blackmer Co
- DL - Delaval Steam Turbine Co
- DP - Diamond Power Specialty Corp
- EL - Elliott Co
- EM - Electric Machinery Mfg Co
- FC - Fairfield Engineering Co
- FM - Fairbanks, Morse & Co
- FW - Foster Wheeler Corp
- GE - General Electric Co
- GF - Green Fuel Economizer Co, Inc
- GR - Grissom-Russell Co
- GW - Graver Water Conditioning Co
- HA - Hunter-Ash Corp
- HCC - Hagan Chemicals & Controls, Inc
- HL - Hall Laboratories
- HM - Hays Manufacturing Co
- HP - Hevi & Patterson, Inc
- HR - Hewitt-Robins Inc
- HT - Hunnebohn & Terry, Inc
- IB - Industrial Brownhoist Corp
- IE - Illinois Electronic Systems
- IN - Infilco, Inc
- IR - Ingersoll-Rand Co
- IW - Illinois Water Treatment Co
- KC - Koppers Co, Inc
- LAC - Louis-Allis Co
- LB - Link-Belt Co
- LN - Leeds & Northrup Co
- McK - McKiernan-Terry Co
- McN - McNally Pittsburg
- MR - Milton Roy Co
- MS - Maryland Shipbuilding & Drydock Co
- ON - O'Neal Steel Inc
- PC - Pennsylvania Crusher
- PM - Permutit Co, Div Pfaudler Permutit

Central-station installations TABLE 1 continued

Project number	BOILER FEED PUMPS								FUELS						FIRING								
	Capacity each (kg/h)	Discharge pressure (barg)	Manufacturer	Flow control	Driver	Drive (hp)	Drive manufacturer	Fuel type	Heating value (kcal/kg or kcal/m³)	Ash fusion temperature (°C)	Fuel delivery method	Coal unloading system	Unloading system manufacturer	Handling system to storage	Handling system manufacturer	Coal firing equipment	Firing equipment manufacturer	No. pulverizers per boiler	Ash handling system	Ash handling system manufacturer	Soot blower type	Soot blowing medium	Soot blower manufacturer
1	1635[29]	2910	BJ	S[29]	T	5800	AE	D	13 5	2552[24]	RR	Dump	Ex	Cb Bu	SA	Cv	PC	4[31]	Pn,Hyd	sC	Ret	Air	DP
	1562[28]	2650		R^{28}	M	2000																	
	1632[25]	277			DM	400																	
2	2100	2800	FR	Hy	DM	3500	SE	C	13 2	2100	RR	CS	nR	Cb Bu	HR	P	RS	5	Pn,Hyd	.	Ret	Air	CV
3	2135	2906	...	R	DM	2500	.	C	13 0	2000	RR	CS	Ex	Cb	CB	P	CE	4	Hyd	.	Ret	Air	. . .
4	2000	2960	PP	Hy	DM	3000	AC	C	13 5	2350	Ba	CT	. . .	SC	CT	P	CE	5	Hyd	sC	.	Air	...
5	1300	2840	PP	Hy	DM	2500	AC	C	13 5	2350	Ba	.	. . .	SC	CT	P	CE	5	Hyd	sC	Ret	Air	DP
6	2121	2669	WO	S	ST	3300	SE	C	13 0	2500	RR,Tr	Dump	AE	Cb	SA	P	CE	5	Hyd	ASH	Ro,Ret	St	DP
7	2140	2068	BJ	S	ST[28]	2700	SE	C	13 7	2369	Ba	CT	nE	Bu,Sc	LB	P	CE	8	Pn,Hyd		Pp,Ret	Air	DP
8	2340	2400	DL	Hy	W,ST[29]	2900	WE	C,O	12 0	2350	RR	Dump	LB	Cb Bu	LB	P	CE	6	Pn	sC	Sta,Ro,	St	DP
														Sc	BA						Ret	Air	
9	2645	2605	FR	Hy	DM	4500	EL	C	13 0	2000	RR	Dump		Cb Bu		Cv	.	.	Pn,Hyd	sC	Sta,Ro,	St	DP
																				ASH	Ret		
10	2130	3000	AC	Hy	M,ST[30]	3000	AC	C	13 7	2100		. . .	.			P	CE	6	Hyd	nA	Ret	Air	DP
11	1390	3000	PP	R	DM	3000	SE	C	13 0	2100	Sh	sb	.	Bu	nR	P	BW	6	Hyd	ASH	Ret	Air	DP
12	.	.	.	Hy				C,O,G	13 4	2400	.	Dump		Cb Bu		P	.	4	Pn,Hyd	..	..	.	.
13	750	1300	WO	Hy	DM	900	AC	FPC,O	13 3	2500	Cb	..		Cb		P	FW	2	..	....	.	.	.
14	2243	3000	PP	Hy	DM	3500	SE	C	13	2100	RR	Dump	LB	Cb		P	CE	5	Hyd	ASH	Pp,Ret	St	CV
15	2350	2954	FR	S	M,ST[32]	3813	SE	C	13 3	2900[22]	RR			Cb	FE	P	CE	4	Pn,Hyd	sC	Ro,Ret	Air	CV
16	1320	2940	FR	R	... [30]	10 300	. [30]	C,O,G	12 0	2100[22]	Sh	CT		Bu	..	P	CE	4	Pn,Hyd	...	Ro,Ret	Air	DP
	2400				DM	4400	AC																
17	1320	2960	FR	R	[30]	10 300	[30]	C,O[20]	12 0	2100[22]	Sh	CT	.	Bu	. . .	P	CE	4	Pn,Hyd		Ro,Ret	Air	DP
	2400				DM	4400	AC																
18	1424	2765	PP	S	T	5800	SE	C	13 15	2100	RR	Dump	LB	Cb	SA	P	CE	6	Pn	sC	Ret	Air	DP
19	1390	2820	FR	R,Hy	DM	2900	EL	C,O	13 0	2400	RR	Dump	LB	Cb Bu	LB	Cv	.	..	FA	sC	Ret	Air	CV
20	2730	2900	WO	S,Hy	2*30	...	.	C,O	13 5	....	Sh,Pi	.				..	. .		. .		Ret	St	DP
21	2730	2930	WO	S,Hy	2*30			C,O	13 5	.	Sh,Pi					..	.		...	...	Ret	St	DP
22	1580	2977	PP	Hy	DM	3600	SE	C	12 8	2100	RR	Dump	LB	Cb	SA	P	CE	4	Hyd	sC	Sta,Ret	St	CV
23	3100	2900	WO	ES	T[30]	2*240[30]	SE	C	13 0	2000	RR,Tr	Dump	LB	Cb Bu	LB	P	CE	4	Pn,Hyd	ASH	Ro,Ret	St	DP
24	2900	2460	WO	Hy	M,ST[32]	2*30	AC	C,O[20]	13 0	.	Ba,Pi	.	.			P[20]	.				Pp,Ret	Air	CV
25	1616[29]	2750	BJ	Hy	.	[3]	SE	C,O	13[27]		Pi	.	.			.	.	...			Ret	Air	CV
	2200[32]	2580	PP		DM	3500																	
26	1616[29]	2749	BJ	Hy	T	[30]	SE	C,O	13[27]		Pi					..			.		Ret	Air	CV
	2200[32]	2582	PP		DM	3500																	
27	1616[29]	2570	PP	Hy	T	[3]	SE	C,O	13[27]		Pi					..	.	.		..	Ret	Air	DP
	2200[32]	2400	PP		M	3500	AC																
28	1616[29]	2570	PP	Hy	T	[3]	WE	C,O	13[27]		Pi					.	.		..	. .	Ret	Air	DP
	2200[32]	2400			M	3500	AC																
29	1485	2553	R	S	M,ST[31]	4650	SE	C,O	13 0	2500	RR	CS	SA	Cb Bu	FA	P	CE	4	Hyd	ASH	Ret	St	DP
30	1585	2553	FR	S	M,ST[31]	4650	WE	C,O	13 1	2500	RR	CS	LB	Cb Bu	LB	P	CE	4	Hyd	ASH	Ret	St	DP
31			R	R	M		LAC	C	.							..							
32			R	R	M		LAC	C,O,G															
33	1620	2749	WO	Hy	DM	3400	SE	C	13 5	2000	Ba,RR	CS,Bau	SH	Cb	SA	P	CE	8	Hyd	sC	Ret	St	CV
34	2740	2550	FR	Hy	DM	3600	AE	C	13 2	2200	Ba	CT	Ex	Cb	Ex	P	CE	4	Hyd,Pn	sC	Ro,Ret	Air	CV
35	1580	2460	BJ	Hy	T[30]	2,300	[30]	C	13 6	1900	Ba	CT	Ex		ST	P	CE	5	Pn,Hyd	sC	Ret	St	CV
	2165	2560		R	DM	3400	SE																
36	1,340	2360	BJ	Hy	T[30]	12,400	[3]	C	13 5	900	Ba	CT	LB	Cb	LB	P	CE	6	Pn,Hyd	sC	Ret	St	CV
	2,165	2560		R	DM	3400	SE	[3]															
37	1,340	2360	BJ	Hy	T[30]	12,400	[3]	C	13 5		Ba					.	.		. . .	.	. .	St	CV
	2,165	2560		R	DM	3400	SE																
38	1,340	2360	BJ	Hy	T[30]	12,400	[3]	C	13 5											.	. .	St	CV
	2,165	2560		R	DM	3400	SE																
39	1,340	2360	WO	R	M	3400	AC	C	13 5		Ba,Pi												
40	2360	2910	WO	R	M	3400	AC	C	13 5		Ba,Pi												
41			R	R	M			C	13 2		Ba,Pi					..					Ret		
42	2755	2750	BJ	Hy	DM	3400	AC	C	13[27]		Pi												
43	2,165	2748	WO	S,Hy	DM	3400	AC	C,O	13		Ba,Pi										Ret	St	CV
44	2,165	2748	WO	Hy	M	3400	AC	C	13	2550	RR	Dump	Ex	Cb	CN,Cb	P	BW	6	Pn	ASH	Pp,Ret	St	DP
45	2,165	2,749	WO	Hy	M	3400	AC	C	13	2550	RR	Dump	Ex	Cb	CN,Cb	P	BW	6	Pn	ASH	Pp,Ret	St	DP
46	2,165	2749	WO	Hy	DM	3400	AC	C	13	2550	RR	Dump	Ex	Cb	CN	P	BW	6	Hyd	ASH	Pp,Ret	St	DP
47	2,165	2749	WO	Hy	DM	3400	AC	C,O	13	2550	RR	Dump	Ex	Cb		P	BW	6	Hyd	ASH	Pp,Ret	St	DP

PP = Pacific Pumps Inc
RC = Research Cottrell Inc
RCA = Radio Corporation of America
RS = Republic Steel Workers Ltd
RM = Republic Manufacturing Co Ltd
RC = Rodgers & Weikert Inc
RS = Ruth Stoker Corp
SA = Stephenson-Adamson Mfg Co
SH = Stothert and Pitt
West Horsley Electric Co Ltd
WO = Worthington Work S Corp

SH = Sun Oil Corp
SE = Sterling Engr Co
SE = United Conveyor Corp
VE = Vogt Machine Co Inc
WE = Westinghouse Electric Corp
WE = Wheeler Machinery Co
WE = Wickes Boiler Co Div
Wickes Engineering & Construction Co
WB = Worthington Corp
YB = Yarnall-Waring Co

Ag = Admiralty
Ags = Admiralty Impregnated
Al = Aluminum
AlB = Aluminum Bronze
AsAg = Arsenical Admiralty
As = Arsenical Aluminum Rubber
Asl = Asphalt Lined Cast Iron
BE = Bridge
Bau = Bauxite
Bu = Bituminous
C = Coal Bituminous

CC = Cross compound
Cl = Clam
CN = Cupro Nickel
Cb = Carbon
Con = Condenser
CS = Coal Stoker
CS = Coal Subbituminous
CT = Coal Tower
Cy = Cyclone
De = Demineralizer
Dump = Dumper

Eq =
El =
EV =
EE =
FA =
FPC =
G =
GC =
H =
HP =
HC =

Project Number	Main generating pressure, psig	Main generating temp, F	Main boiler manufacturer	Description	Steam flow, lb per hr	No. of boilers	Fuel(s)	Fuel-air heating medium	Feedwater pH	System manufacturer	Notation	Capability each unit, gross kw	Turbine type	Turbine manufacturer	Exhaust pressure, psia	No. of bleed points	No. stages turbine exhaust	Main generator rating	Generator voltage, kv	Generator cooling	Combustion control note	Feedwater control note	Closed circuit TV note	Total boiler cost, incl. turbine-generator, new units, $/kw	Total generating plant cost, incl. switching, new units, $/kw	Project Number
1	117	GR WC	H	125	1	AAP	RP	WO	De	8.5	GW	1	190	TC	WE	0.75	6	3	25	224	H_2 HC	BM	BM	N	2734	340	1
2	—	WE	Hot	74	2	A	Rc	WE	Sc, Ev	10	MP	5	253	TC	WE	1.75	7	3	18	265	H_2 HC	.	AS	. .	2940	422	2
3	91	. . . .	H Hot	94	2	AC		. . .	De	8	Ex	23	140	TC	GE	0.5	7	2	16.0	173	H_2	.	.	. .	3060	429	3
4	131.7	WE	H	137	2	AS AC	RP	AC	Sc	8	. . .	1	250	TC	GE	0.75	6	2	22	26 6	. . .	.	.	. .	4950	2M	4
5	124	WE	H	76	2	AS AC	RP	WO	De	8	PM	1	175	TC	GE	0.75	7	2	18.0	192	H_2	BM	BM	DP	4740	529	5
6	55	AC	H	100	1	AC	J Rc	IR	De	8.5	IW	1	250	TC	GE	0.5	8	3	18	320	H_2 HC, GC	.		.	4450	556	6
7	134	AOS	H	350	1	AC		FW	De	8.5	.	1 19	530	CC	GE	0.5	7	4	20	663	HC, GC	.	. . .	.	9200	1107	7
8	99.8	CFE	H	180	1	AC	J Rc	FW	De	8.8	. .	1 19	325	CC	WE	0.5	7	2	18	221 173	H_2	BM	BM	DP	8150	1056	8
9	82	WE, GW GF COC	H, Hot	200	1	. . . .	.	WO	De	8.5	IW	1 19	325	CC	WE	0.5	7	2	18	416	HC, GC	RF	RF	IE DP	7600	867	9
10	76.9	AC, AP	H, Hot	100	1	AC	Rc	YU	De	9.5	COC	1	265	CC	AC	0.5	8	4	16	156 21	HC, GC	RF	RF		1750	265	10
11	—	CFE	Hot	115	1	ACI	RP	FW	De	9.5	COC	1	265	CC	WE	0.5	8	4	16	160 21	HC, GC	RM	CV		3500	530	11
12	—	. . . .	.	.	.	. .	Rc	. . . . .	. . . .	. . . .	. . . .	1	150	TC	. . . .	. . . .	. . .	. .	13.8	.	.	.	.	.	366	183	12
13	—	GF	H	55	2	CN	RP	AC	De	8	Ex	1 23	44	TC	AC	0.75	5	2	13.8	76.8	H_2	BM	BM	.	2100	316	13
14	79	GW	H	165	2	AC	RP	FW	De	9.2	.	1	245 25	TC	GE	0.75	6	2	20	320	H_2 C	.	.	.	1734	245 29	14
15	100	WE, Ec	H, Hot	90	1	AC	RP	IR	De	8.7	IW	1 19	225 4	CC	GE	0.75	4	1	15.5	150	H_2	EN	HCC	N	2850	435	15
16	101.5	GR COC WE	H, Hot	115	1	CN	J Rc	WE	Ev, De	9.0	. . . .	1 19	225	CC	GE	0.5	7	2	18	260	H_2	HCC	HCC	. . .	3675	225	16
17	101.5	GR, COC WE	H, Hot	115	1	CN	J Rc	WE	Ev De	9.0	. . .	1 19	225	CC	GE	0.5	7	2	18	260	H_2	HCC	HCC	.	3350	450	17
18	40	AP, WC	H	95	1	AC	.	WO	De	9.0	PM	1 19	210	CC	GE	0.5	7	1	13.8	128	H_2	BM	BM	DP	4340	560	18
19	125	FW	H	90	1	PAC	J Rc	IR	De Sc	7.0	COC	1 23	193	TC	GE	0.75	7	2	20	224	H_2	.	.	.	1200	193	19
20	—	CFE YC	Hot	137	.	AIE	.	YU	Sc, Ev	8.5	Ex	1 5, 37	325	CC	WE	0.75	7	4	18	192	HC, GC	BM	BM	DP	6696	985	20
21	—	CFE YC	Hot	130	1	AIB	.	YL	Sc, Ev	8.5	Ex	1 5, 37	325	CC	GE	0.75	7	4	18	192	H_2	BM	BM	DP	8856	1310	21
22	109.5	GP SWC WC	H, Hot	110	2	SN	J	WE	De	. . . . .	GW	1	191	TC	GE	0.5	7	. . .	22	221	H_2 C	BM	BM	. .	2070	635	22
23	93	GR	H, Hot	110	2	AS AC	RP	WO	De	8	GW	1 19	175	CC	GE	1.75	7	1	13.8	230	H_2	BM	BM	DP	3900	525	23
24	5	YC	Hot	260	.	AIE	Rc	WE	De	8.8	COC	1 37	342	CC	WE	0.62	8	4	18	456	H_2 GC	.	.	.	5910	927	24
25	3	. . . . .	H, Hot	145	2	AIE	J RP	IR	Sc Ev	8.8	. . . .	1 5, 19	310	CC	GE	0.75	8	1	18	370	H_2	HCC	HCC	. .	7000	1000	25
26	147.3	. . . .	H, Hot	45	.	AIE	J RP	IR	Sc Ev	8.8	.	1 5, 19	310	CC	GE	0.75	8	1	18	370	H_2	HCC	HCC	. .	7000	1000	26
27	116.8	CFE	H, Hot	137	1	AIE	J RP	IR	De	9	PM	1 5, 19	210	CC	GE	0.75	7	1	13.8	256	H_2	BM	BM	N	6220	860	27
28	115.4	WE	H, Hot	105	1	AIB	J RP	IR	De	9	PM	1 5, 37	210	CC	WE	0.75	8	2	13.8	256	HC	BM	BM	N	6220	860	28
29	100	CFE	H	130	1	AC	J	IR	Ev	8.8	GR	1	235	TC	GE	0.75	7	1	22	282	H_2 Ev	BM	BM	DP	3670	467	29
30	101	CFE	H	115	1	CN	J	IR	Sc Ev	8.8	GR	1	235	TC	WE	0.75	7	3	22	282	H_2 HC GC	BM	BM	DP	4295	626	30
31	—	. . . .	.	. . .		.		. . . . .	Sc^{21}		. . .	.	. . . .	.		. . . .	. .		. . . .		.	HM	. .	. .	865		31
32	—	. . . .	.	. . .		.		. . . .	Sc^{20}	. . .	. . .	. . .	. . . .	. . . . .		.	.		. . . .		.	HM	. .		1505		32
33	125	GP COC	H, Hot	125	2	AS CL	.	CHW	De	9	GW	1	216	TC	AC	0.75	6	3	20	256	H_2 HC	BM	BM	. . .	2490	329	33
34	. . . .	GF	H	70	.	AIE	J Rc	CHW	Sc Ev	9 e	. . .	1	150	TC	GE	1.75	6	1	20	175	H_2 C	BM	BM	N	1150	150	34
35	154	GF YL	H	190	.	AIE	.	CHW	Ev	. .	. . .	1 19	337	CC	AC	1.0	7	2	25	225 223	HC, GC	HCC	HCC	HCC	. .	. . . .	35
36	156	GP YL	H	190	1	AIE	.	CHW	Ev			1 19	357	CC	AC	1.0	7	2	20	227 213	HC, GC	HCC	HCC	AD	10 070	1459	36
37	159	CFE	H	190	1	AIE		CHW	Ev	. . . .	. . .	1 19	363	CC	GE	1.0	7	2	20	212 234	HC, GC	HCC	HCC	HCC	2507	363	37
38	157	CFE	. . .	190	.	AIE	.	CHW	Ev	. . .	.	1 19	363	CC	GE	1.0	7	1	20	211 234	HC, GC	HCC	HCC	HCC	3000	726	38
39	175	YL, COC	H	130	.	AIE	. . .	FW	De	9.5	. . . .	1 5	300	TC	GE	1.75	7	3	20	300	H_2 C	.	. . .	N	3100	435	39
40	175	YL, COC	H	130	1	AIE	. . . .	FW	De	9.5		1 5	300	TC	GE	1.75	7	3	20	332	H_2 C	.	. . .	N	3050	735	40
41	75	. . .	. . . .	125	.	CN		WE	. . .	. . .	.	1	204	TC	GE	1.75	7	3	20	280	. . .	.	.	.		. . .	41
42	144	GP	H	115	1	CN	. . . .	FW	Sc Ev	10.2	AP	5	227 25	TC	GE	1.75	7	1	18	276	H_2 Cl		.	.	2620	327 25	42
43	100	CFE	H	. . .	2	AIE		WC	Ev	. . .	. .	1 5	137 23	TC	WE	0.75	7	2	13	160	H_2				1350	225	43
44	88.8	YL, GW	H, Hot	150	1	AC	RP	FW	De	. . .	. . .	1 19	250	CC	GE	1.0	6	1	13	320	H_2	BM	BM	N	650	1000	44
45	88.8	YL, GW	H, Hot	150	1	AC	RP	FW	De	. . .	. . . .	1 19	250	CC	GE	1.0	6	1	13	320	H_2	BM	BM	N	6800	1000	45
46	93.6	YL, GW	H, Hot	145	1	AC	RP	FW	De		.	1 37	250	CC	WE	1.0	6	4	13	320	H_2	BM	BM	N	6800	1000	46
47	93.6	YL, GW	H, Hot	145	.	AC	RP	CHW	De	. . .	. .	1 37	250	CC	WE	1.0	6	4	13	288	H_2	BM	BM	N	6600	1000	47

- Bump hopper
- Condenser honeyc
- Hydraulic coupling
- Hydraulic
- Steam jet
- Liquid
- ...ter
- ...nical
- ...erizer

- PAc - Phosphorized Admiralty
- P - Pipeline
- Pn - Pneumatic
- Pr - Pressure type
- R - Regulator
- Ret - Retractacie
- Rc - Rotary pump or blower
- RP - Reciprocating pump
- RR - Railroad
- S - Speed control
- Sb - Self unloading boat
- SC - Single cylinder
- Sc - Scraper
- Sh - Ship
- So - Softener
- SS - Stainless steel
- St - Steam
- Sta - Stationary
- T - Turbine drive
- TC - Tandem compound
- Tr - Truck
- 19 - 3600/1800 rpm
- 20 - Future
- 21 - For each of 2 generators
- 22 - Softening temperature
- 23 - Preferred standard
- 24 - 1/4 size, reduced pressure for startup
- 25 - Nameplate
- 26 - Zeolite and deaerator
- 27 - Stu per cu ft
- 28 - Half size
- 29 - Main pump
- 30 - Main turbine shaft
- 31 - Crushers
- 32 - Start-up pump
- 33 - Initially, shell only
- 34 - Liquid
- 35 - Boosters
- 36 - Full capacity standby
- 37 - 3600/3600 rpm
- 38 - Spare and start-up pump
- 39 - Generator shaft
- 40 - Above structure

TABLE 2

1960 design survey of typi

Compiled by: BGA Skrotzki, Associate Editor
and Althea Thornton

Project Number	Company	Location	Plant Name	Consulting Engineers	Unit No.	Unit rating, first unit	First operation, new unit	Throttle pressure, psig	Steam Temperature, F: Throttle	Steam Temperature, F: Reheat	
58	Arizona Public Service Co	Joseph City, Arizona	Cholla	Ebasco Services, Inc	1	5-62	1300	1000	1000		5
59	Atlantic City Electric Co	Beesleys Point, N.J.	Beesleys Point	Bechtel Corp.	1	11-62	1300	1000	1000		12
60	Boston Edison Co	Everett, Mass.	Mystic	Jackson & Moreland Inc.	6	5-61	1300	1000	1000		1
61	Central Illinois Light Co	Near Bartonville, Ill.	E.D. Edwards	Commonwealth Associates Inc.	1	5-60	1300	1000	1000		1
62	Iowa-Illinois Gas & Electric Co	East Davenport, Iowa	Riverside	Sargent & Lundy	6[9]	5-61	1300	1000	1000		1
63	Iowa Power & Light Co	Tracy, Iowa	Tracy	Black & Veatch	2	1964	1300	1000	1000		12
64	Iowa Public Service Co	Near Sioux City, Iowa		Ebasco Services, Inc.	1	4-64	1300	1000	1000		1
65	Kansas Power & Light Co	Tecumseh, Kan.	Tecumseh	Black & Veatch	8	4-62	1300	1000	1000		5
66	Louisville Gas & Electric Co	Louisville, Ky.	Cane Run	Pioneer Service & Engrg Co.	4	4-62	1300	1000	1000		1
67	Monongahela Power Co	Willow Island, W.Va.	Willow Island	Sanderson & Porter	2	10-60	1300	1000	1000		12
68	Southwestern Electric Power Co	Morris County, Texas	Wilkes	Sargent & Lundy	1	4-63	1300	1000	1000		5
69	Utah Power & Light Co	Kemmerer, Wyo.	Kemmerer	Bechtel Corp.	1	8-63	1300	1000	1000		5
70	Indianapolis Power & Light Co	Indianapolis, Ind.	Elmer W. Stout	Gibbs & Hill, Inc.	6[3]	6-61	1535	1000	1000		1
71	Columbus & Southern Ohio Electric Co	Conesville, Ohio	Conesville	Black & Veatch	3	1962	1450	1000	1000		12
72	Interstate Power Co	Sterburn, Minn.	Fox Lake	Sargent & Lundy	3	7-62	1450	1000	1000		1
73	Iowa Electric Light and Power Co	Marshalltown, Iowa	Sutherland		3	5-61	1450	1000	1000		1
74	Pacific Power & Light Co	Glenrock, Wyo.	Dave Johnston	Ebasco Services, Inc.	2[9]	11-60	1450	1000	1000		12
75	Southwestern Public Service Co	Amarillo, Texas	Nichols	Self	2	5-62	1450	1000	1000		12
76	Tucson Gas, Electric Light & Power Co	Tucson, Ariz.	Irvington	Sanderson & Porter	3	5-62	1450	1000	1000		12
77	Wisconsin Power & Light Co	Cassville, Wis.	Nelson Dewey	Sargent & Lundy	2	12-62	1450	1000	1000		1
78	Southern Nevada Power Co	East Las Vegas, Nev.	Clark	Stearns-Roger Mfg Co.	3[3]	5-61	1250	950			5
79	Black Hills Power & Light Co	Rapid City, S.D.	Ben French	Stearns-Roger Mfg Co.	1	11-60	850	900			12
80	Public Service Co. of Oklahoma	Doloran, Okla.		Black & Veatch	3		235	400			1
81	San Diego Gas & Electric Co.	National City, Calif.		Pioneer Svc & Engrg Co.	15	5-60	225	397			1

MUNICIPAL, FEDERAL AND COOPERATIVE INSTALLATIONS

2	City of Jacksonville	Jacksonville, Fla.	Talleyrand		10	12-61	1890	1500	1000		12
3	San Antonio Public Service Board	San Antonio, Texas	J.T. Tuttle	Gibbs & Hill, Inc.	4	6-63	1900	1005	1005		5
4	Salt River Power District	Mesa, Ariz.	Agua Fria	Bechtel Corp.	3	5-61	1800	1000	1000		12
65	Springfield City Utilities	Springfield, Mo.	James River	Burns & McDonnell Engrg Co.	32	4-60	1350	950		1	
66	City of Colorado Springs	Colorado Springs, Colo.	South Steam Plant	Lutz & May	5	10-62	1250	950		1	
67	Lansing Board of Water and Light	Lansing, Mich.	Moores Park	Body, Benjamin & Woodhouse, Inc.	1	6-61	1250	950		1	
68	Holland Board of Public Works	Holland, Mich.	James DeYoung	Black & Veatch	4	6-61	945	900		1	
69	City of Gainesville	Gainesville, Fla.		Ebasco & Goethe	1	6-61	675	900		1	
70	Detroit Municipal Power Plant	Detroit, Ohio	Delray	Beisswenger-Hoch & Assoc.	3	5-60	800	900		1	
71	Raton Public Service Co.	Raton, N.Mex.	Raton	Burns & McDonnell Engrg Co.	6	10-61	630	635		1	
72	Grand Haven Board of Light & Power	Grand Haven, Mich.	Island	Lutz & May	1[9]	4-61	600	625		1	
73	City of Grand Haven	Grand Haven, Mich.	Island	Lutz & May	2[9]	4-61	600	625		1	
74	Holyoke Gas & Electric Dept.	Holyoke, Mass.	City Electric Station	J. Kennedy	2	6-61	350[14]	450		1	
75	Winnetka Water & Light Dept.	Winnetka, Ill.	Winnetka	Sargent & Lundy	1	7-60	450	750			
76	City of Breese	Breese, Ill.		Peters-Schmidt		7-60	110	700		1	
77	City of Piqua	Piqua, Ohio	Piqua Dam		2	5-61				1	

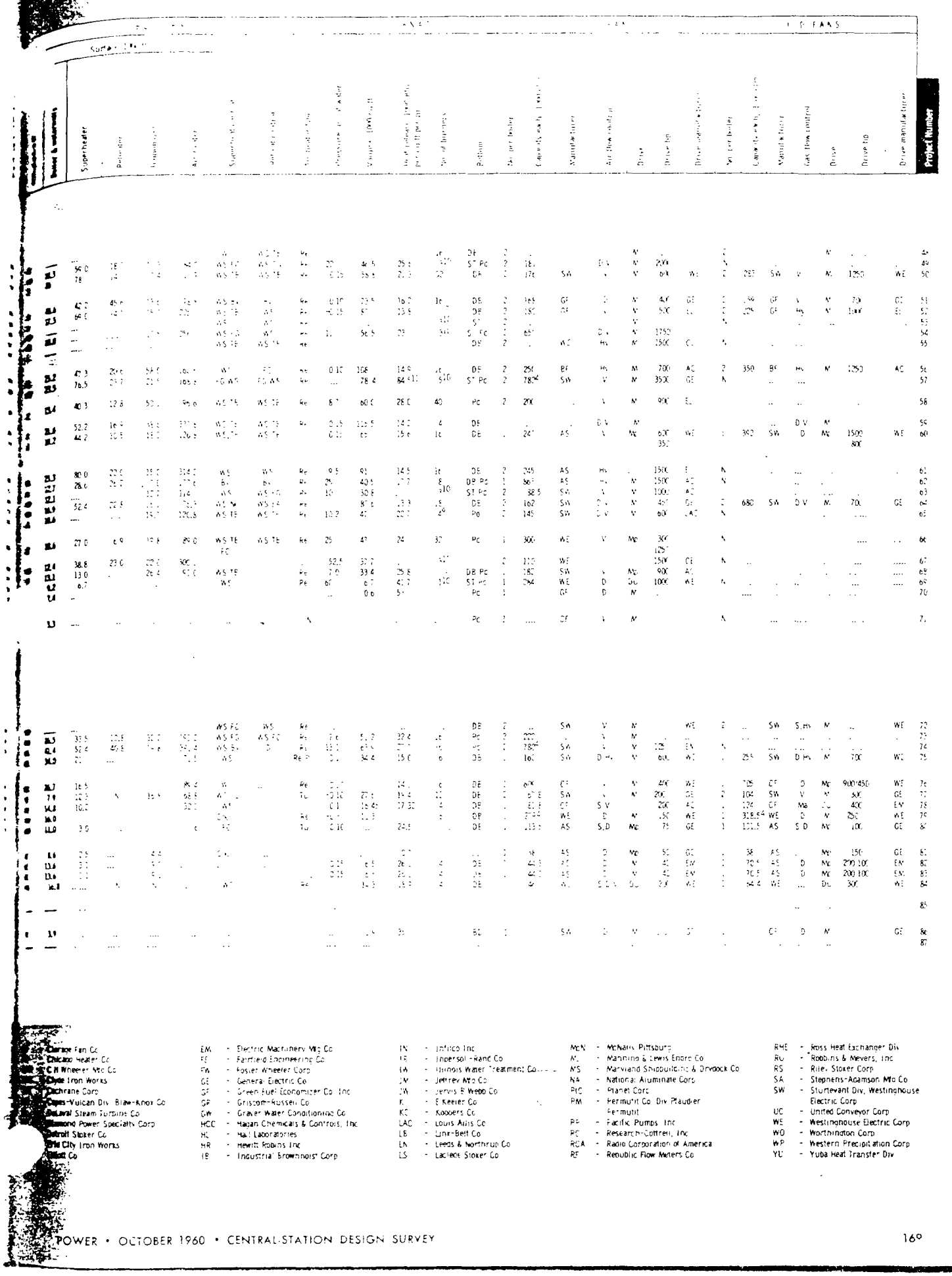
SYMBOLS USED ABOVE

BD	- Balanced draft	M	- Motor	WS	- Water spray	9	- Tangential
By	- Gas bypass	Mg	- Magnetic coupling	1	- 24 gas, 12 oil	10	- Cyclone
CDS	- Chain-grate stoker	Mo	- Two motors per fan	2	- Revised data, previous x-ested 12-62	11	- 1000 Btu per sq ft per hr
DeA	- Boiler water column	N	- None	3	- Revised data, previous x-ested 3-63	12	- Semi-outdoor unit
D	- Damper	Pr	- Pressurized			13	- Million Btu per hr
DS	- Dry bottom	Pz	- Plate			14	- Future 1250
FD	- Draft drive	Re	- Rate proportional	4	- 300 lb per hr	15	- Fuel oil heating boiler
EA	- Excess air	S	- Speed control	5	- Outdoor unit		
FD	- Forced draft fan	ST	- Split fan	6	- Revised data, previous x-ested 3-63		
GA	- Gas tempering	T	- Turbine drive	7	- Future 24 hrs		
HV	- Hydraulic coupling	V	- Variable control	8	- Space heating boiler		

MANUFACTURERS

AC	- Allis Chalmers Mfg Co.	AOS	- A.O. Smith Corp.
AD	- Allen B. DuMont Laboratories, Inc.	AP	- Alco Products, Inc.
		AS	- American Standard
		ASH	- Allen-Sherman-Hoff Co.
		BF	- Buffalo Forge Co.
		BI	- Delco Industrial Equipment
		BJ	- Byron-Jackson Pumps
		BM	- Bailey Meter Co.
		BP	- Bingham Pump Co.
		BU	- Buell Engineering Co.
		BW	- Babcock & Wilcox Co.
		CE	- Combustion Engineering

ew central-station installations



Project Number
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87

- Buffalo Forge Co
- Chicago Heater Co
- C-E-I-R Wheeler Mfg Co
- Clyde Iron Works
- Cochrane Corp
- Copes-Vulcan Div Blaw-Knox Co
- DeLaval Steam Turbine Co
- Diamond Power Specialty Corp
- Detroit Stoker Co
- Erie City Iron Works
- Foster Co

- EM - Electric Machinery Mfg Co
- FE - Fairfield Engineering Co
- FW - Foster Wheeler Corp
- GE - General Electric Co
- GF - Green Fuel Economizer Co Inc
- GR - Griscom-Russell Co
- GW - Graver Water Conditioning Co
- HCC - Hagan Chemicals & Controls, Inc
- HL - Hall Laboratories
- HR - Hewitt Robins Inc
- IB - Industrial Brownhoist Corp

- IN - Infilco Inc
- IR - Ingersoll-Rand Co
- IW - Illinois Water Treatment Co
- JM - Jeffrey Mfg Co
- JW - Jervis B Webb Co
- K - E Keeler Co
- KC - Koppers Co
- LAC - Louis Allis Co
- LB - Link-Belt Co
- LN - Leeds & Northrup Co
- LS - Lacleede Stoker Co

- McN - McNaily Pittsburg
- ML - Manning & Lewis Engrs Co
- MS - Maryland Shipbuilding & Drydock Co
- NA - National Aluminate Corp
- PC - Planet Corp
- PM - Permutit Co Div Pfaudler Permutit
- PS - Pacific Pumps Inc
- RC - Research-Cottrell, Inc
- RCA - Radio Corporation of America
- RF - Republic Flow Meters Co

- RHE - Ross Heat Exchanger Div
- RO - Robbins & Meyers, Inc
- RS - Riley Stoker Corp
- SA - Stephens-Adamson Mfg Co
- SW - Sturtevant Div, Westinghouse Electric Corp
- UC - United Conveyor Corp
- WE - Westinghouse Electric Corp
- WO - Worthington Corp
- WP - Western Precipitation Corp
- YU - Yuba Heat Transfer Div

Central-station installations TABLE 2 continued

Project Number	BOILER FEED PUMPS: Capacity (lb/hr)	Discharge pressure (psig)	Manufacturer	Number/unit	Drive	Driven by	Driver manufacturer	Fuel type	FUELS: Heating value (1000 Btu per lb)	Ash fusion temperature, F	Fuel delivery method	Coal unloading system	Unloading system manufacturer	Handling system to storage	Handling system manufacturer	Coal firing equipment	Firing equipment manufacturer	No. pulverizers per boiler	Ash handling system	Ash handling system manufacturer	Soot blower type	Soot blasting medium	Soot blower manufacturer	FIRING
48	1010	2290	AC	Hv	DM	1750	EL	C	...	....	RR	CS	...	Co,Bu		P	CE	4	Hyd	....	Ro,Ret	Air	....	
49	1790	2450	DL	R	DM	2900	GE	C	11.1	2250	RR	CS	SA,FE	Co	FE	Cy		...	Pn,Hyd	...	Ro,Ret	St	DP	
50	1140	2280	WO	Hv	DM	2500	WE	C,O	13.5	2200	RR	CS	HR	Bu	SA	P	CE	4	Pn	UC	Sta,Ret	St	CV	
51	2540	2265	AC	P	DM	7000	GE	C	10.5	2300	RR,Tr	CS	HR	Co,Bu	LB	P	CE	4	Pn,Hyd	UC	Ret	Air	DP	
52	490	2150	R	Hv	DM	750	EL	C,O	12.4	2000	RR,Pi	CS	FE	Bu	FE	P	CE	4	Hyd	UC	Ret	Air	DP	
53								C	14.6		RR,Tr					Cy					Ret	Air	....	
54				R	P	DM		C,O	12.5	2000	RR	CS		Co		Cy					Ret	Air	DP	
55				R	P	DM	2500	GE	C		RR	CS		Co		P	CE	4	Pn	UC	Ret	Air	CV	
56	900	2100	AC	Hv	DM	2500	AC	C,O	12.8	2300[22]	RR	CS	HR	Sc	HR	P	CE	4	... ...	....	Ret	St	CV	
57	274	2510[24]	BJ	...	DM	2250	GE	C	11.2	2450	Ba,RR	CS,Cl	CI,W	Co,Bu	LB,HR	Cy	PC		Hyd	UC	Ro,Ret	St	CV	
58	1300	2210	PP	Hv	DM	2500	EL	C	10801[8]		Tr Pi	...							...	...	....		....	
59	...			P				C,O,Cs	9.5	2150	Co			Co,Bu		P	CE	4	Pn,Hyd	....	Ro,Ret	St	CV	
60	975	2130	P	R	DM	1250	WE	C	11.0	2350	RR	CS	RO	Co	LB	P	CE	4	Hyd	UC	Ro,Ret	Air	DP	
61	590	2232	R	R	DM	2250	EL	C	10.6	2350[22]	Tr			Bu	Ex	P	CE	4	Hyd	....	Ret	Air	DP	
62	525	305	R	Hv	DM	300	AC	C,O	13.5		Tr								Hyd	SA	Ret	St	DP	
63	963	775	R	P	DM	990	AC	C,Cs,G	9.1	2100	RR,Pi	CS	LB	Co,Bu,Sc	LB	Cy		...	Hyd	UC	Ro,Ret	St	DP	
64	1350	560	BP	R	DM	2250	GE	C,Cs	10.8	2200	Tr	Hop	McN	Bu,Sc	McN	P	BW	6	Pn,Hyd	UC	Ret	Air	DP	
65	966	530	WO	S,Hv	DM	2900	LAC	C	10001[8]	-	Pi	...	...	....	....	-	-	-	....	..		....	.....	
66	850		PP	Hv	DM	1500		C	10801[8]		Pi	...	...	-	-	-	-	-	....	-	...	-	....	
67	...	...	...					C	12.4	2126	Ba	-	-	Co,Sc	FE	Cy	-		Hyd	UC	Ro,Ret	Air	DP	
68	750	500	AC	P	DM	1000	AC	C,O	10,001[8]		Pi	...		...	...				... ...	.....	... .		...	
69	250	1,000	AC	...	DM	250	AC	C,Cs	8	2160	RR	CS		Co	HR	Cy	...		Hyd	UC	Ro	St	DP	
70	-	-	-	R	P	W	...	WE	C,O	...	...	.....		-	....	..	...		-	-	-	-	DP	
71	...		PP			W	DE	C,O	...			-	...	...	..	..	-		N		-	St	DP	
72			PP	Hv		DM	2900	WE	C	13,0		Ta					-		-		...	St	....	
73	1620	2700	...	P			2900		C,O	10,700[18]		P,RR											....	
74	1221	2221	PP	Hv		DM	2500	DM	C,O	10801[8]	...	Pi,RR								...	...	...	....	
75	900	925	BJ	R		DM	900	WE	C,O	10801[8]	...	Pi,RR	CS	McN	Co,Bu,Sc	McN	P	RS	3	Hyd	UC	Ro,Ret	St	CV	
76	890	1550		Hv		DM	1000	-	C,O	8.5	2200	RR,Tr	...	-	Co,Sc	....	P	RS	3	Hyd	-	Ro,Ret	St	CV	
77	962	1215	PP	Hv		DM	1250	EL	C	12.8	2500	RR	Cr	LB	Cr	PC	P	CE	3	Pn	ASH	Ro,Ret	Air	CV	
78	900	1350	BP	P		DM	1400	GE	C	12.1	2470	CSU	...	...	-	-	P	PS	4	Hyd	UC	Ret	St	CV	
79	490	1240	AC	P		DM,T	750	AC	C,O	12.0		Tr,Pi										Ro,Ret	St	...	
80	450	1,155	PP	R		DV	900	WE	C	13.1	2200	RR	Tm		Bu	LM	DG	BW		Pn	...	Ro,Ret	St	DP	
81	1?	1??	?	?		LM	25	GE	C	9.3	2200	RR,Tr	Dump	FE	Co,Bu		SS,TT	EC		Pn	UC	Ro	St	CV	
82	650	75	PP	P		DM	750	DM	C,O	11.3	2170	Ba			Co,Bu	W	SS,TT	DSC		Hyd	UC	Ro	Air	CV	
83	750	775	PP	P		LM	750	DM	C,O	11.3	2170	Ba			Co,Bu	LM	SS,TT	DSC		Hyd	UC	Ro	Air	CV	
84	1,3	1?0	WH	P		LM,T	140	?	C,O,G	9.4	2200	RR,Tr Pi	CS		Co		P	PS	4	Pn	UC	As,Ret	St	DP	
85									C			RR,Tr												
86									C	10.0	2200	Tr					SS	CS		Pn	UC		St	CV	
87									C	12.4		RR,Tr	CS		Co		LF	...		Hyd		Ro,Ret	St	....	

SYMBOLS USED ABOVE

Ad - Admiralty
AGB - Admiralty Brass
Adi - Admiralty Inhibited
Al B - Aluminum brass
Al,Ni,C - Aluminum Nickel Copper
As,Cu - Arsen cal Copper
Ba - Barite
Br - Brass
Bz - Bulldozer
C - Coal, bituminous
Cb - Chain grate stoker
Cr - Crane
Cs - Car shaker
C,s - Coal, subbituminous
CSU - Cargo self unloader
Cv - Conveyor
De - Demineralizer
Dump - Dumper
E - Electrostatic
Ex - Exhauster
Gt - Testing equipment
G - Gas
H - Water
H2 - Hydrogen
HC - Hollow conductor
Hop - Dump hopper
Hot - Condenser, Norwell
Hy - Hydraulic coupling
Hyd - Hydraulic
J - Steam jet
L - Lignite
Lq - Liquid
M - Motor drive
Me - Mechanical
Mp - Two motors per fan
N - None
O - Oil
P - Pulverizer
PAd - Phosphorized Admiralty
Pi - Pipeline
Pn - Pneumatic
R - Regulator
Ret - Retractable
Ro - Rotary pump or blower
RR - Railroad
S - Speed control
SC - Single cylinder
Sc - Screaver
So - Softener
SS - Spreader stoker
St - Steam
Sta - Stationary
T - Turbine drive
Ta - Tanker
TC - Tandem com...
TG - Traveling gr...
TH - Track hopper
Tr - Truck
UF - Underfeed st...
Un - Off-on, with ...
17 - At 0.5 lb Hg
18 - Btu per cu ft
19 - Of existing pl...
20 - Nameplate ...
21 - Preferred st...
22 - Softening te...
23 - Double flow ...
24 - Differential pr...

Project Number	Main Steam Pressure, psia	Temperature, °F	Moisture, %	Reheat	Number of Loops	Number of Steam Generators per Loop	Number of Turbines	Gross Turbine-Generator Output, kw	Net Plant Output, kw	Net Plant Heat Rate, Btu/kwh	Net Plant Efficiency, %	Fuel	Fuel Enrichment, %	Moderator	Coolant	Number of Primary Coolant Circuits	Primary Coolant Flow, lb/hr	Primary Coolant Pressure, psia	Primary Coolant Temperature, °F	Core Diameter, ft	Core Height, ft	Core Volume, cu ft	Power Density, kw/cu ft	Specific Power, kw/kg U	Fuel Lifetime, effective full-power days	Fuel Cycle, yr	Fuel Inventory, kg U	Fuel Cost, mills/kwh	Ref.
1	97.4	600	Sat	No	1	4	1	11,000	10,000	10,240	33.3	UO2	2.5	H2O	H2O	1	1,000,000	1,500	500	6.5	6.5	215	46.5	37.5	1,000	1.5	4,000	2.5	1
2	125	950	0.5	No	1	1	1	12,500	11,000	9,300	36.7	UO2	2.5	H2O	H2O	1	1,000,000	1,500	500	6.5	6.5	215	46.5	37.5	1,000	1.5	4,000	2.5	2
3	101.7	600	Sat	No	1	4	1	11,000	10,000	10,240	33.3	UO2	2.5	H2O	H2O	1	1,000,000	1,500	500	6.5	6.5	215	46.5	37.5	1,000	1.5	4,000	2.5	3
4	.....	600	Sat	No	1	4	1	11,000	10,000	10,240	33.3	UO2	2.5	H2O	H2O	1	1,000,000	1,500	500	6.5	6.5	215	46.5	37.5	1,000	1.5	4,000	2.5	4
5	98.6	600	Sat	No	1	4	1	11,000	10,000	10,240	33.3	UO2	2.5	H2O	H2O	1	1,000,000	1,500	500	6.5	6.5	215	46.5	37.5	1,000	1.5	4,000	2.5	5
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	.....	CHW	Hot	No	2	Ad	J	CHW	De	6.8		1	175	TC	WE	0.75	6	1	36.0	176	GC	BM	BM	...		356			6
9	120	AS	F	100	2	Adl	J	AS	De	9.0		1	156	TC	GE	1.75	6	2	18	192	H2	BM	BM	N	3426	480			7
10	24.2	AOS,EL	F, Hot	75	2	Ad		MS	De,So, Ev	8.7	IW,COC, YU	1	165	TC	GE	1.75	6	2	18	192	H2	BM	BM	N	1760	232			8
11	112	GR,WO	F	80	2	Ad	J	WE	De	..	..	1	160	TC	GE	1.75	6	1	20	192	H2, HC	...	...	..	1100	160			9
12	114	WE	F	70	2	Ad	J	AC	De	.	...	1	150	TC	GE	1.75	7	2	18	192	H2			.	1200	150			10
13	82.7	YU,AP COC	F, Hot	55	2	AsAlCu	J	YL	Sc, Ev	6	PM	1	105	TC[23]	GE	1.75	5	2	13.8	107	H2	LN	BM	.	3260	372			11
14	55.3	GR,GA	F	75	2	Adl	J	WO	De	9	Ev	1	156	TC	WE	0.75	5	1	18.0	192			..	.	3000	450			12
15	395.6	GR	F	45	2	Ad	Ro	IR	De	.	IW	1	71	TC	GE	0.75	5	2	13.8	96	H2	...	.	.	765	104			13
16	72	WE	F	55	2	Ad	J	WE	De	.	COC,IW	.	82.5	TC	AC	0.75	5	1	13.8	96	H2	RF	RF	.	1200	150			14
17	66	EL	F	50	2	AsAd	J	IR	De,Ev	....	HT	1	100	TC	GE	1.0	5	1	13.8	115	H2	HCC	HCC	RC,A	1500				15
18	.....	...	F	...	.		J	.	So,Ev	..		1	100	SC	WE	0.75	5	2	13.8	135.7	H2	BM	BM	AD	500	1,12.5			16
19	25	YU,GW, AOS	F, Hot	55	2	..	J	AC	De	9.0	..	1	100	TC	AC	1.75	5	1	13.8	134	H2	.			1950	276			17
20	70.3	YU,GR	F	55	2	AsAd	J	WE	De	.	MR	1	100	TC	WE	0.5	4	1	13.8	107	H2	BM	BM	N	1400	200			18
21	66.3	AC	F	55	2	Ad	.	AC	Ev	.	NA	1	66	TC	WE	0.75	5	2	13.8	86.2	H2	BM	BM		1570	200			19
22	30.9	GP	F	15	2	Ad	J	AC	De	....	COC	1	22	SC	AC	0.75	4	1	13.8		H2	BM	BM		230	24.2			20
23	.....	.	.	.	.		.	.	De	....		.	.	.	..	...	..	..	.	.			..	.						21
24	...	..	.				.	.	So	....					.	...						.	...	.						22

Project Number	Main Steam Pressure, psia	Temperature, °F	Moisture, %	Reheat	Number of Loops	Number of Steam Generators per Loop	Number of Turbines	Gross Turbine-Generator Output, kw	Net Plant Output, kw	Net Plant Heat Rate, Btu/kwh	Net Plant Efficiency, %	Fuel	Fuel Enrichment, %	Moderator	Coolant	Number of Primary Coolant Circuits	Primary Coolant Flow, lb/hr	Primary Coolant Pressure, psia	Primary Coolant Temperature, °F	Core Diameter, ft	Core Height, ft	Core Volume, cu ft	Power Density, kw/cu ft	Specific Power, kw/kg U	Fuel Lifetime, effective full-power days	Fuel Cycle, yr	Fuel Inventory, kg U	Fuel Cost, mills/kwh	Ref.
25	100	WC	.	.	97.5	2	AsE	.	CHW	Ev	8.5	...	1	142	TC	AC	0.75	6	1		376	H2	BM	BM	AD	.	323		23
26	119.1	.	.	.	104	2	Ad	Ro	AC	De	10.6	....	1	165	TC	AC	1.25	6	1	18	205	H2, HC	.	.	.	2440	324		24
27	67	WE,GW	F, Hot		90	2	AsCu	J	IR	Sc,Ev	9.0	....	1	165	TC	GE	1.75	6	2	18	192	H2	BM	BM	DR	2700	376		25
28	70	PHL	F, Hot		25	2	Ad	J	MS	De	8.8	COC	1	44	TC	WE	0.75	5	1	13.8	58.8	H2	BM	BM	..	840	86		26
29	64	.	.	F	40	2	Ad	J	WO	Sc,Ev	....	..	1	44	TC[23]	WE	0.75	5	2	13.8	47.1	H2	...		..	775	70		27
30	63.6	AC,YU	F		35	2	Ad	J	WE	De	8.5	B1	1	50	TC	GE	0.75	5	1	13.8	56.6		BM	BM		1850	190		28
31	.	WE	F		15	2	.	J	CHW	.	....	M1	1	29.6	SC	GE	14.0	4	1	12.5	22	Al	RF	RF		590	46.6		29
32	65	WE	F		30	2	Ad	J	WE	De	7.6	PM	1	22	SC	WE	1.0	4	1	12.5	29.2	H2	BM	BM		660	57.5		30
33	875	M.	HO		75	2	Ad	J	AC	De	6.9	PM	1	75	SC	AC	1.75	3	1	6.2	9.4	Air	HCC			16	12.5		31
34	203	72	.	F, Hot	7.0	2	Ad		WO	Sc,Ev		.	1	7.5	SC	WE		3	1	13.8	9.5	Air	RF	RF		127	14		32
35	325	45	PHL,CH	F	10	2	Ad	J	WC	Sc,Ev	8.0	.	.	9.4	SC	EL	0.75	3	1	12.5	12.5	Air	BM	BM		251	18.6		33
36	315	45	PHL,CH	F	10	2	Ad	J	WO	Sc,Ev	8.0	.	.	9.4	SC	EL	0.75	3	1	12.5	12.5	Air	BM	BM	.	251	18.6		34
37	300	70	.	F	N	.	.	.	.	De	?	IN	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		35
38	.....	.....	.....	.....	35	2	AdE	.	AC	.....	..	...	1	10	SC	WE	0.5	3	1	12.5	12.5	.....	.....	.....	.	250	25.5		36
39	...	..	..	...	3.5	2	Ad	J	WE	Sc	.	PM	.	2.5	...	WE	14.0	.	.	...	...		.			52.5			37
40	.....	.	.	.	..	2	Bl	J	.....	Ev	..	..	1	20	SC	EL				.	...	H2				.			38

These footnotes are for Nuclear Survey on following page

MANUFACTURERS

- Allis-Chalmers Mfg Co
- ACF Industries, Inc
- U S Atomic Energy Commission
- Atomic Energy of Canada, Limited
- Aerojet General Corp
- Atomics International
- Alco Products, Inc
- Argonne National Laboratory
- A O Smith Corp
- Atomic Power Development Associates, Inc
- Burns & Roe, Inc
- Bauer & Wilcox Co, Inc
- Bechtel - Bechtel Corp
- CA - Commonwealth Associates
- EGNC - East Central Nuclear Group, Inc
- FW - Foster Wheeler Corp
- FWGNG - Florida West Coast Nuclear Group
- GA - Gilbert Associates
- GDC - General Dynamics Corp
- GE - General Electric Co
- GRC - Griscom-Russell Co
- H&F - H K Ferguson Co
- HTRDA - High Temperature Reactor Development Associates
- LASL - Los Alamos Scientific Laboratory
- Martin - Martin Co
- NRTS - National Reactor Testing Station, Idaho
- ORNL - Oak Ridge National Laboratory
- PWS - Peter Kiewit Sons, Co
- PRDC - Power Reactor Development Co
- PS&E - Pioneer Service & Engineering Corp
- S&L - Sargent & Lundy
- S&W - Stone & Webster Engineering Corp
- SS - Stainless steel
- Vitro - Vitro Engineering Corp
- West - Westinghouse Electric Corp

SYMBOLS

- a - Proposed
- b - No load
- c - Full load
- d - Initial
- e - Oil-fired superheater supplies 112 mwe of this total
- f - Mwt of space heating
- g - Approximate
- h - AEC Power Demonstration Program
- i - Pressure-tube reactor
- j - 20 mwt design, 61.7 mwt on test
- k - With new core being installed
- l - To test nuclear superheating
- m - Average
- n - Reactor only plus 5-yr fuel charges. Reactor feeds existing turbines
- o - Design
- p - Based on 50 mwt capacity
- q - At 30 mwt
- r - Nuclear Power Group paying $15 million for R & D
- s - 4.2 mwe from coal-fired superheater
- t - Central Utilities Atomic Power Assoc paying $3.0 million for R&D
- u - 12 mwe from nuclear superheating
- v - Superheating section has 93%-enriched UO2–SS cermet
- w - Guaranteed
- x - Expected
- y - Ultimate after 4-5 years
- z - Mwt for space heating
- 1 - Blanket of depleted-U pins
- 2 - APDA paying $14 million for R&D
- 3 - Blanket, 0.4% enriched U-Mo sodium-bonded in SS tubes
- 4 - Primary pressure
- 5 - Secondary pressure
- 6 - For second core, excluding R&D costs
- 7 - Excluding R&D costs
- 8 - Gas turbine components being developed at Fort Belvoir, Va
- 9 - With cooperation of Hydro-Electric Commission of Ontario and Canadian General Electric Co
- 10 - Gas flow, 1,000 lb per hr