Power
OCTOBER
1962

INDUSTRIAL PLANT DESIGN SURVEY

- Steam-plant design data covering 173 installations
- Air-conditioning facts about 121 projects
- Electric-distribution details of 159 plants

The survey which follows is by far the largest sampling of industrial energy-systems design ever published in POWER. These 31 pages summarize trends and spell out design features selected from newly completed or modernized industrial plants—some still under construction, others not yet off the drawing board. Our survey covers three significant energy-systems areas: *steam generation* (beginning on page 78), *air conditioning* (p 88) and *electrical distribution* (p 98).

The industrial steam-generation survey goes back many years as a POWER service to readers, while our air-conditioning and electrical-distribution segments are of more recent vintage. The electric survey begins at the utility mains, includes any in-plant generation, continues on through primary and secondary distribution and key load characteristics. On comparing this air-conditioning survey to last year's, you will note the revamping of type and quantity of information included.

To compile all this material, we tap many sources for leads on new installations. Then we send questionnaires asking for the kind of detail we believe you, the readers of POWER, are interested in. Questionnaires are sent to engineers closely allied with the installation: consultants, too, are a prime source of information. So our tabulations represent current design and construction features based on a sizable sampling. From them you can get a timely, accurate idea of what trends may be shaping up.

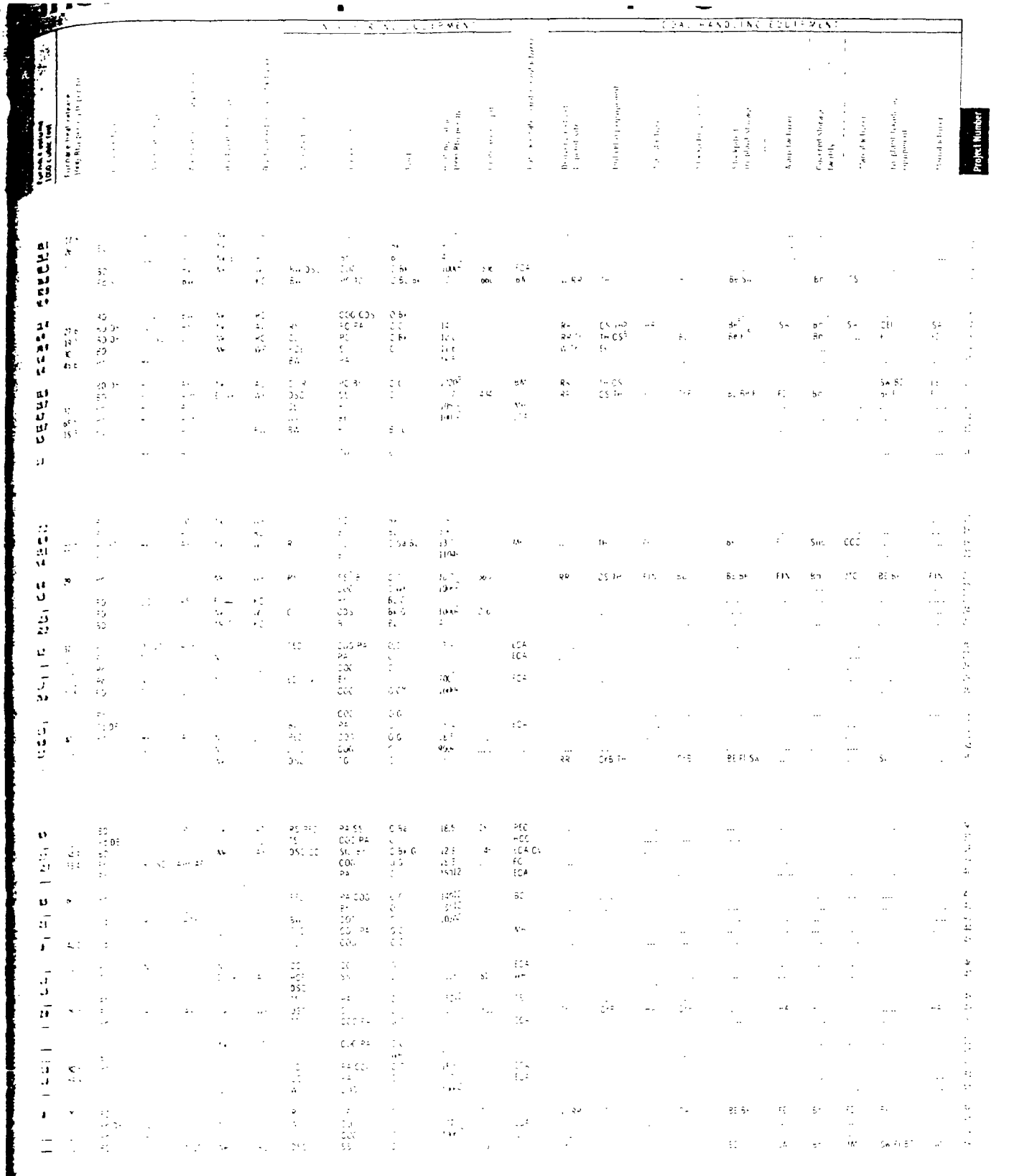
But keep in mind that this survey has its limitations. The project listings, extensive as they are, are still samples and not complete lists. Don't use the survey to add up total values, or where incompleteness could distort results.

PLAINTIFF'S EXHIBIT
GE-117

1962 design survey: typical industrial

Note that each listing covers 4 pages. Project number helps you track a specific installation after you turn facing page

Project Number	Location	Name of plant	Owner or operating plant	Date of installation or startup	Principal subcontractors	BOILERS: No. of new boilers	Manufacturer	Operating pressure, psig	Operating temperature, F	Boiler type	Capacity each, lb per hr	Boiler and waterwalls	Economizer	Superheater	Air heater
						SURFACE, 1,000 SQ FT									
	Reserve Mining Co. c/o E. W. Davis Assoc.	Silver Bay, Minn.	Sargent & Lundy	Ex	1961	Pr	1	B-W	1850	1,005	WT	575	1,013			146.6
	[illegible]	Brunswick, Ga.	M. A. Simons International Ltd.	....	1962	Pr		CE	1,250	825	WT	1,100	324	1,010	....	39.4
	[illegible]	Brunswick, Ga.	M. A. Simons International Ltd.	Ex	1962	Pr	1	CE	1,250	825	WT	577	142.1	34.0	....	13.5
	[illegible]	Dayton, Ohio	Ralph Engineering Co.	Ex	1962	Pr	1	B-W	900	650	WT, FT	390	....	41.3	7.7	22.1
	[illegible]	Lester, Pennsylvania	J. E. Sirrine Co.	New	1963	Pg, Pr	2 or 3	B-W	840	490	WT, FT	650	192	56	....	40.1
												750	192	47.1	23.0	65
	[illegible]	Pennsylvania, Pa.	M. W. Kellogg Co.	Ex	1963	Pg, Pr	1	B-W	875	650	WT	700	192	....	....	58.3
	Crocker-Burbank & Co.	Fitchburg, Mass.	Kenneth R. Harrington	Ex	1962	Pg, Pr	1	RS	875	825	WT, FT	415	102	14	9.6	45.4
	[illegible]	Christopher, Ohio	....	Ex	1963	Pg, Pr	1	CE	875	850	WT, FT	300	76.9	14	9.8	41
	[illegible]	Newport, Ind.	....	New	1963	Pg, Pr	1	A-T	650	700	WT, FT	52	8.9	4.6	3	....
	[illegible]	[illegible], Mass.	....	Ex	1962	Pr	1	B-W	650	450	WT, FT	300	59	....	3	39
	[illegible]	Delaware, Ky.	J. E. Sirrine Co.	New	1962	Pr	1	[illegible]	650	750	WT, FT	745	158	....	20.1	84.3
	[illegible]	[illegible]	R. W. Kinney, Inc.	New	1962	Pg, Pr, SH	1	B-W	650	825	WT, FT	235	29.4	7.9	....	9.0
	[illegible]	[illegible], Ga.	United Energy Constructors	New	1962	Pr	2	A-T	640	750	WT, FT	235	7.9	....	6	18.2
	[illegible]	[illegible], Ind.	Brown & Root, Inc.	New	1962	Pr	1	A-T	650	750	WT, FK	97	9.4	....	....	7.0
	D. W. [illegible]	Pearlington, Miss.	Fluor & Spitz	Ex	1962	Pr-R		B-W	615	750	WT, FT	54.1	13.8	4.2	2.7	....
	[illegible]	[illegible] River, Ohio	Consolidated Western Steel	New	1962	Pg, Pr	2	B-W	615	650	WT	80	24.9	7.4	....	....
	[illegible]	[illegible], Canada	M. A. Simons, Ltd.	New	1961	Pr	1	FW	660	750	WT	295	29.9	....	....	20.8
	[illegible]	[illegible], B.C., Canada	M. A. Simons, Ltd.	New	1961	Pr	1	CE	600	750	WT	224	95	0.1	11.2	12.8
	Charmin Paper Products	Green Bay, Wis.	Sargent & Lundy	Ex	1962	Pr	1	RS	500	650	WT, FT	280	70.3	....	9	51
	[illegible]	Lake Charles, La.	....	Ex	1962	Pg, Pr	1	VO	500	750	WT, FT	80	7.3	1.0	....	....
	[illegible]	Toledo, Iowa	....	Ex	1963	SH	1	SBC	500	750	WT	150	4.0	....	....	....
	[illegible]	[illegible], Pa.	Fluor Engrs.	New	1961	Pr	2	VO	600	750	WT	150	47.3	11.8	....	....
	[illegible]	[illegible], Ark.	Stone & Webster Engrs. Corp.	Ex	1960	Pr	1 or 2	CE	600	750	WT, FT	450	....	....	....	....
	[illegible]	Southern Penn.	M. A. Simons, International Ltd.	New	1961	Pr	1	CE	600	750	WT	190	24.3	....	8.2	22.9
	[illegible]	Dupree, Penn.	M. A. Simons International Ltd.	New	1961	Pr	1	CE	600	750	WT	92	22	....	10.0	10.0
	[illegible]	Putnam, Wash.	W. D. Stevens & Co.	Ex	1962	Pg, SH		[illegible]	600	735	WT, FT	100	3.1	....	....	1.6
	[illegible]	[illegible]	[illegible]	New	1962	Pr		K	350	Sat	WT, FK	20	2.6	.1	.1	.1
	[illegible]	[illegible], Ariz.	[illegible]	New	1961	Pr	2	B-W	450	575	WT	70	....	....	....	....
	[illegible]	[illegible]	Stone & Webster International, Ltd.	Ex	1962	Pr	2	CE	650	960	WT, FK	200	7.8	....	....	.1
	[illegible]	Pennington, Ont., Canada	[illegible]	Ex	1961	Pr	1	CE	450	750	WT	115	25	7.5	3.6	11.0
	[illegible]	Pineco, Ohio	[illegible]	Ex	1961	Pr	1	FW	350	Sat	WT	47	....	....	....	....
	[illegible]	[illegible], Mass.	[illegible]	Ex	1962	Pg, Pr, SH	1	B-W	350	750	WT, FK	76	8.5	....	....	....
	Amoco Chemicals Co.	Joliet, Ill.	Lockwood Greene Engrs.	Ex	1961	Pr	1	FW	325	900	WT, FT	250	3.2	....	....	....
	[illegible]	Joliet, Ill.	[illegible]	Ex	1962	Pg, Pr	1	[illegible]	320	Sat	WT, FT	40	4.1	....	....	....
	[illegible]	[illegible], Wash.	[illegible]	Ex	1962	Pg, Pr	2	VO	310	575	WT, FT	150	....	....	....	....
	[illegible]	Battle Ground, Ind.	Ariel Engrs. Corp.	New	1962	Pr	1	RS	1,410	950	WT, FT	320	94	....	....	65.2
	[illegible]	[illegible], Ky.	[illegible] Dr. Raymond	New	1962	Pr	2 or 3	B-W	700	738	WT, FT	343	....	....	....	....
	[illegible]	[illegible], Ind.	[illegible] Engrs. & Constructors Co.	New	1962	Pr	1 or 2	CE	700	825	WT, FT	1,210	272	....	....	....
	[illegible]	[illegible], Ohio	....	Ex	1962	Pg, Pr	1	B-W	700	900	WT, FT	384	106	....	20	65.9
	[illegible]	[illegible], Pa.	[illegible] & Assoc.	Ex	1962	Pr	1	B-W	700	825	WT	1,000	....	....	....	....
	[illegible]	[illegible]	[illegible]	Ex	1961	Pg, Pr	1	[illegible]	700	750	WT	350	82	....	....	....
	[illegible]	[illegible]	[illegible]	New	1962	Pr	1	B-W	700	900	WT, FT	700	192



- Wood
- Waste heat
- Water tube
- Wood waste
- Chemical recovery unit
- Btu per cu ft
- Revised data previously listed
- 10-61
- Outdoor unit
- Existing

- Unit designed to reclaim heat from exit gas for mill water heating
- Pressurized spreader stoker installation
- Revised data previously listed
- And dust furnace gas
- High temperature water
- Million Btu per sq ft
- Thousand Btu per cu ft
- And psychiatric hospital

MANUFACTURERS

- AC - Allis-Chalmers Mfg Co
- AF - Aerofin Corp
- AM - American-Marsh Pumps, Inc
- AMC - American Monorail Co
- APH - Air Preheater Corp
- AS - American-Standard Ind Div
- ASH - Alter-Sherman-Hoff Co
- AT - Aerotec Corp
- AU - Aurora Pump Div
- AWS - American Water Softener Co
- BAC - Bird-Archer Co
- BB - Beaumont Birch Co, Inc
- BC - Barber-Colman Co
- BE - Belt Laboratories Inc
- BES - Bower Engrg & Supply Co, Inc
- BF - Buffalo Forge Co
- BJ - Byron Jackson Pumps, Inc
- BM - Bailey Meter Co
- BP - Browning Mfg Co
- BU - Buell Engineering Co Inc
- BW - Babcock & Wilcox Co
- CE - Cleaver Brooks Co
- CC - Coen Co
- CCC - Custodis Construction Co
- CCI - Cleveland Controls Inc*
- CE - Combustion Engineering Inc
- CF - Clarage Fan Co
- CHB - Chicago Blower Corp
- CHW - C H Wheeler Mfg Co
- COC - Cochrane Corp
- COP - Copous Engineering Corp
- CPT - Continental Products of Texas
- CS - Canadian Sirocco Ltd
- CTB - Carling Turbine-Blower Co
- CV - Copes-Vulcan Div, Blaw-Knox Co

Table 1 continued

Compiled by P. J. Bender, Associate Editor and Althea Thornton

CONDENSERS

Project Number	Boiler [illegible]	Total plant [illegible]
[illegible]	[illegible]	[illegible]

RV - Robinson Ventilating Co
RW - Kelvinate Water Conditioning Co
SA - Stephens-Adamson Mfg. Co
SBC - Springfield Boiler Co
SC - Superior Combustion Industries, Inc.
SW - Sturtevant Div., Westinghouse Electric Corp.
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
UC - United Conveyor Corp.

[illegible] - Union Iron Works
[illegible] - U.S. Electrical Motors Inc.
[illegible] - Henry Vogt Machine Co.
WC - Williamson Co.
WE - Westinghouse Electric Corp.
WEC - Wagner Electric Corp.
WH - Wheelco Instruments Div.
[illegible] - Wickes Boiler Co.
WO - Worthington Corp.
[illegible] - Western Precipitation Corp.
WP - Warren Pumps Inc.
WS - Wilson-Snyder Works, U.S. Steel Corp.

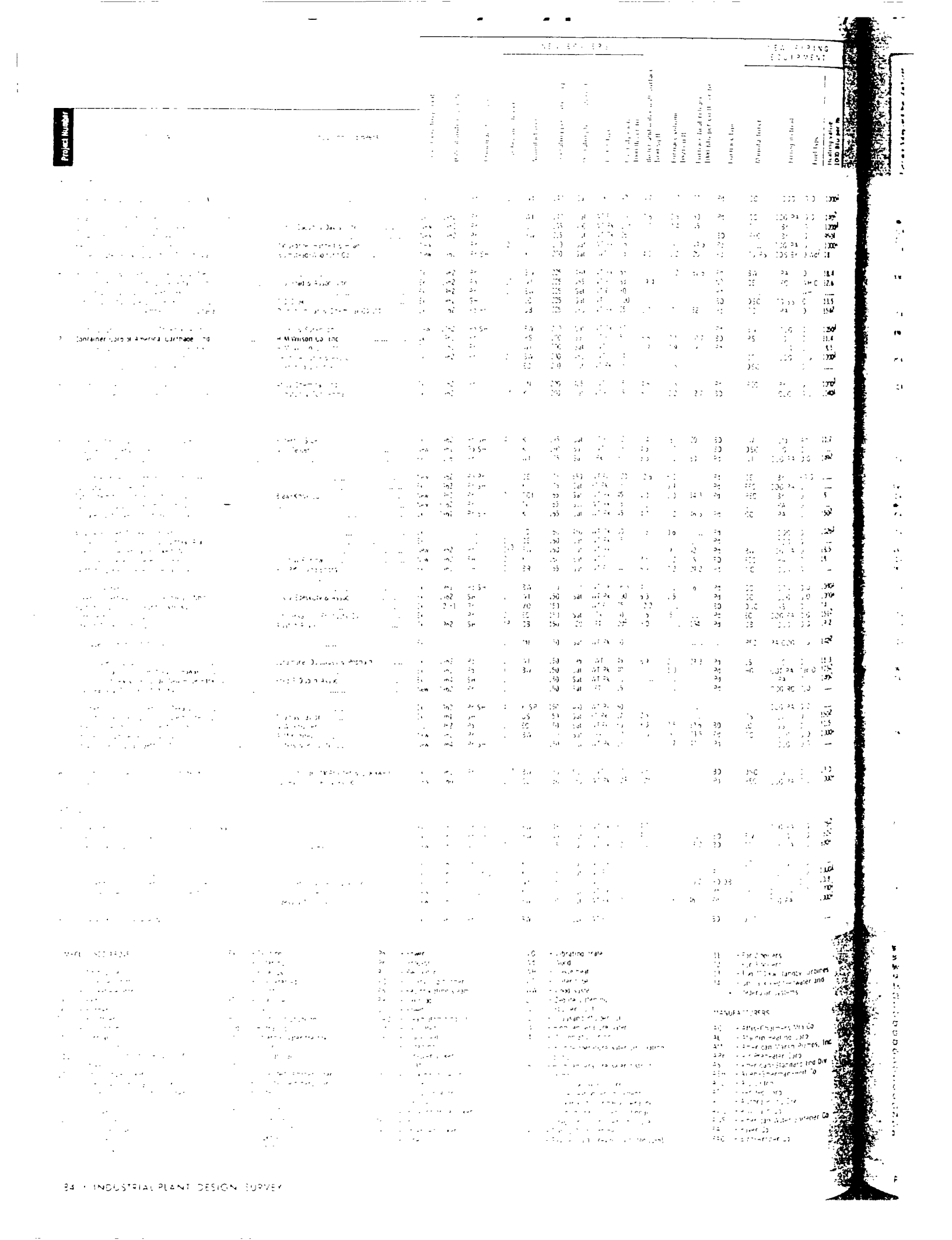
SYMBOLS USED ABOVE

AC - Auto-extraction
Ca - Coagulating
Cen - Centralized
Con - Condensing
CT - Cooling tower
D - Damper
Dem - Demineralizer
Dec - Decentralized
Du - Dual drive
E - Electrical
Es - Electrostatic

Ex - Existing
F - Filtering
H_2 - Hydrogen
Hy - Hydraulic coupling
Hyd - Hydraulic
In - Internal treatment
J - Steam jet
M - Motor
Me - Mechanical
MD - Mixed bed demineralizing
MU - Multibed demineralizing

N - None
NC - Noncondensing
Pn - Pneumatic
P - Regulator
Rp - Reciprocating
Ret - Retracting
S - Speed
Sat - Saturated
Sg - Softening
St - Steam
Su - Surface
T - Turbine

V - Vane
Z - Zeolite
5 - Existing
11 - Million Btu per hour
17 - Softening, zeolite
18 - For 3 boilers
19 - For 5 boilers
20 - High temperature water circulating pumps
21 - High temperature water district pumps



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Industrial plants below 250 psig

Project Number