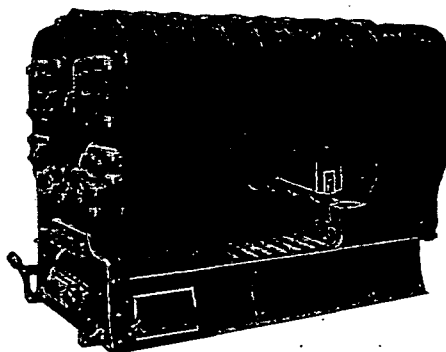


27 Inch, S230 and S270 Series

Another line of Capitol Smokeless Boilers is exemplified by the 27 inch, S230 and S270 Series, of which the latter is illustrated in the interior view at the right.

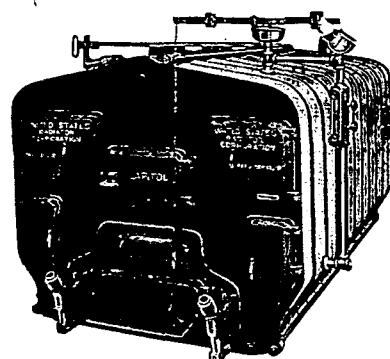
These are regular updraft boilers so designed that they may be operated smokelessly with proper attention. The important smokeless feature of these boilers is the inverted bridgwall or curtain section through which heated auxiliary air filters over the fire for complete combustion. When firing these boilers the coking method should be applied, that is, the initial fire should be pushed to the rear of the grate and new fuel added at the front. The gases distilled from the green coal pass under the curtain where they mix with auxiliary air. The combustible mixture is forced to pass close to the surface of the hot coke fire at the rear where combustion takes place.



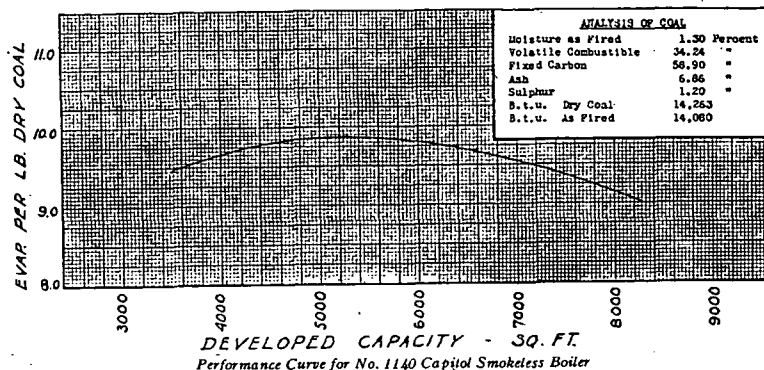
Interior View S870 Series Capitol Smokeless Boiler

40 Inch Series

A more recent Smokeless Boiler development of the United States Radiator Corporation is the 40 Inch Series. The operation of the 40 Inch Series is similar to that of the S230 and S270 except that auxiliary air enters through patented air passages in the front section. Admission of air at the front permits combustion of a large part of the gases before they pass under the curtain. As the gases pass under the curtain they are heated to a higher temperature and combustion is completed as they enter the flues. The Performance Curve shown below is typical of this type of boiler.



40 Series Capitol Smokeless Boiler



Performance Curve for No. 1140 Capitol Smokeless Boiler

50 Inch Series

The largest of the more recent series of Capitol Smokeless Boilers developed by the Capitol Testing Laboratory is that known as the 50 in. series.

These boilers contain a large furnace where bituminous coal undergoes rapid combustion. The main air supply is admitted through the grates and the fuel bed. Auxiliary air for smokeless combustion is admitted at the front of the furnace through passages leading from the ashpit to a point just above the level of the fuel bed. This air is properly proportioned for best results. It is pre-heated and mixes with the volatile gases distilled from the fuel.

An additional supply of auxiliary air is furnished through an inverted bridgwall or curtain section. This air is also pre-heated and filters over the fire, assuring most complete combustion and highest efficiency.

CAPITOL SMOKELESS BOILERS—Ratings and Dimensions

No.	Rating, Square Feet		Height Water Line Inches	Grate Area Square Feet	Coal Capacity Cubic Feet	Outlets and Inlets Inches	Minimum Chimney Sizes	
	Steam	Water					Height Feet	Dimensions Inches
627	1800	2975	45 1/2	5.32	7.50	2-4"	40	12x12
727	2200	3625	45 1/2	6.55	9.28	2-4"	40	12x12
827	2500	4275	45 1/2	7.78	11.00	3-4"	45	12x12
927	3000	4925	45 1/2	9.01	12.48	3-4"	45	12x16
1027	3400	5575	45 1/2	10.24	14.15	3-4"	45	12x16
1127	3800	6225	45 1/2	11.47	15.81	3-4"	50	12x16
1227	4200	6875	45 1/2	12.70	17.50	4-4"	45	12x16
S237	2800	4650	55	10.94	16.49	3-4"	45	16x16
S238	3250	5450	55	12.77	19.22	3-4"	50	16x16
S239	3700	6150	55	14.61	21.96	3-4"	55	16x16
S240	4150	6900	55	16.44	24.70	4-4"	60	16x16
S241	4600	7600	55	18.27	27.44	4-4"	60	16x20
408	3300	5280	49	8.15	9.00	2-5"	50	18x18
409	3850	6160	49	8.15	10.40	2-5"	55	18x18
410	4400	7040	49	10.31	13.30	3-5"	55	20x20
411	4950	7920	49	12.42	14.70	3-5"	55	20x20
412	5500	8800	49	12.47	16.30	3-5"	55	22x22
413	6050	9680	49	14.63	17.70	3-5"	60	24x24
414	6600	10560	49	14.63	19.25	4-5"	60	24x24
740	4475	7350	49	8.15	10.40	2-5"	50	18x18
840	5250	8650	49	10.31	13.30	2-5"	55	18x20
940	6025	9950	49	10.31	13.30	2-5"	60	20x20
1040	6800	11250	49	12.47	16.30	3-5"	65	20x24
1140	7575	12550	49	14.63	19.25	3-5"	70	24x24
1240	8350	13850	49	14.63	19.25	3-5"	70	24x28
1340	9125	15150	49	16.79	22.20	3-5"	75	24x28
S277	5475	9000	66	18.29	29.67	3-5"	55	24x24
S278	6400	10525	66	21.33	34.68	4-5"	60	24x24
S279	7325	12050	66	24.37	39.69	4-5"	65	24x24
S280	8250	13575	66	27.41	44.71	4-5"	70	28x28
S281	9175	15100	66	27.41	47.22	5-5"	75	28x32
S282	10100	16625	66	30.45	49.72	5-5"	80	32x32
S283	11025	18100	66	30.45	52.23	5-5"	85	32x32
S284	11950	19600	66	30.45	54.73	5-5"	90	32x36
750	7800	12875	66	18.29	30.95	4-5"	55	24x24
850	8850	14600	66	21.33	36.00	4-5"	60	24x24
950	9900	16325	66	21.33	36.00	4-5"	65	24x28
1050	10950	18050	66	24.37	41.20	5-5"	70	24x28
1150	12000	19775	66	24.37	41.20	5-5"	80	28x28
1250	13050	21500	66	27.41	46.22	5-5"	90	28x32
1350	14100	23225	66	27.41	46.22	5-5"	95	32x32
508	6275	10000	66	11.58	18.87	3-5"	60	24x24
509	7150	11400	66	14.62	23.73	4-5"	65	24x24
510	8025	13000	66	17.66	25.80	4-5"	70	24x28
511	8900	14250	66	17.66	28.59	4-5"	80	28x28
512	9775	15650	66	18.49	29.58	5-5"	85	28x32
513	10650	17050	66	21.53	34.51	5-5"	90	32x32
514	11525	18450	66	21.53	37.80	5-5"	90	32x32
515	12400	19850	66	24.57	41.09	6-5"	90	32x36
516	13275	21250	66	27.61	44.37	6-5"	90	36x36

*All 40 and 400 Series have two 6-inch inlets on rear of back section. All 27 Series have two 4-inch inlets on rear of back section.

Dimensions, inclusive of trimmings:

27 Series, height 68 1/4 inches, width 50 1/4 inches
S230 Series, height 78 inches, width 58 1/4 inches
400 Series, height 71 inches, width 75 inches

40 Series, height 71 inches, width 75 inches
S270 Series, height 92 inches, width 82 inches
50 Series, height 92 inches, width 82 inches
500 Series, height 92 inches, width 82 inches