

tested, the flue gas temperature and analysis, the minimum overall efficiency, the draft loss through the boiler, and the heat release in the combustion chamber are subjected to limitation by the code.⁵ Oil-fired boiler ratings are established by tests using gun-type oil burners and commercial grade No. 2 fuel oil. Stoker-fired ratings are based on the *Gross I=B=R Output* obtained by oil-fired tests. Gas-fired ratings for boilers having gross outputs greater than 300,000 Btu per hour, where no *A.G.A. Rating* is published, are based on the *Gross I=B=R Output* obtained by oil-fired tests. Gas-fired ratings for boilers having gross outputs less than 300,000 Btu per hour, where no *A.G.A. Rating* is published, are established by gas-fired tests with atmospheric, single-port-type burners using natural or manufactured gas or a mixture of these two

TABLE 2. SBI NET RATING DATA FOR Table 2 STEEL BOILERS—OIL-FIRED^a

SBI NET RATING			MINIMUM FURNACE VOLUME Cu Ft	MINIMUM HEATING SURFACE Sq Ft
Steam		Water Btuh		
Sq Ft (1)	Btuh (2)	(3)	(4)	(5)
275	66,000	74,000	2.5	16
320	77,000	87,000	2.9	19
400	96,000	108,000	3.6	24
550	132,000	149,000	5.0	32
700	168,000	189,000	6.4	41
900	216,000	243,000	8.2	53
1100	264,000	297,000	10.0	65
1300	312,000	351,000	11.8	77
1500	360,000	405,000	13.6	88
1800	432,000	486,000	16.4	106
2200	528,000	594,000	20.0	129
2600	624,000	702,000	23.6	153
3000	720,000	810,000	27.3	177
3500	840,000	945,000	31.8	206
4000	960,000	1,080,000	36.3	236
4500	1,080,000	1,215,000	40.9	265
5000	1,200,000	1,350,000	45.4	294

^a Stoker-Fired and Gas-Fired SBI Net Rating not greater than oil-fired rating. Hand-Fired Net SBI Rating (Steam) not greater than 14 times the square feet of heating surface.

gases. The *A.G.A. Output Rating* of a gas-designed boiler may be used in determining the *Net I=B=R Rating*.

The *Net I=B=R Rating* is determined from the *Gross I=B=R Output* by applying specified *Piping and Pickup Factors* which range from 2.36 to 1.40 for hand-fired boilers, and from 1.56 to 1.288 for automatically-fired steam boilers, and from 1.333 to 1.288 for automatically-fired hot water boilers. In all cases, the factor decreases as the boiler size increases. Table 3 is abstracted from the 1951 *I=B=R Boiler Rating Tables* in the code and illustrates the relationship between *Net I=B=R Rating* and *Gross I=B=R Output*.

The *American Gas Association* rates gas-designed boilers at 80 percent of the *A.G.A. Input Rating*. These ratings are determined by performance tests described in the *A.G.A. Approval Requirements for Central Heating Appliances*.

The *Heating, Piping and Air Conditioning Contractors National As-*

TABLE 3. *I=B=R* BOILER RATING TABLE^a

HAND-FIRED										AUTOMATIC-FIRED									
Gross <i>I=B=R</i> Output 1000 Btu	Net <i>I=B=R</i> Rating				Piping and Pickup Factor	Time Available Fuel Will Last, Hr	Maximum Stack Height ^a Ft	Minimum Stack Area ^b Sq In.	Gross <i>I=B=R</i> Output 1000 Btu	Net <i>I=B=R</i> Rating				Piping and Pickup Factor		Minimum Stack Area ^b Sq In.	Maximum Allowable Draft Loss In. W.G.		
	Steam and water		Steam							Water	1000 Btu	1000 Btu	Sq Ft	Water	Steam				
	1	2	3	4														5	6
57	24	100	2.860	7.50	29.0	50	37	28	118	100	1.333	1.333	1.560	60	0.044				
218	68	400	2.268	6.32	38.5	54	144	110	183	400	1.333	1.333	1.525	50	0.068				
359	168	700	2.139	5.73	42.0	54	231	168	260	700	1.333	1.333	1.492	50	0.072				
489	240	1000	2.039	5.32	46.0	83	333	234	340	1000	1.333	1.333	1.456	52	0.084				
614	312	1300	1.967	4.99	49.0	110	451	338	312	1300	1.333	1.333	1.424	52	0.088				
735	384	1600	1.914	4.73	52.0	135	547	410	384	1600	1.333	1.333	1.424	56	0.108				
854	456	1900	1.872	4.49	54.5	160	642	482	456	1900	1.333	1.333	1.408	115	0.118				
970	528	2200	1.837	4.34	56.5	185	736	532	528	2200	1.333	1.333	1.394	135	0.130				
1093	600	2500	1.803	4.14	59.0	207	829	622	600	2500	1.333	1.333	1.382	155	0.141				
1192	672	2800	1.770	4.00	61.0	233	920	700	672	2800	1.333	1.333	1.369	173	0.152				
1298	744	3100	1.744	4.00	63.0	260	1011	784	744	3100	1.333	1.333	1.356	192	0.162				
1401	816	3400	1.717	4.00	64.5	275	1101	825	816	3400	1.333	1.333	1.349	211	0.172				
1502	888	3700	1.691	4.00	66.5	298	1189	892	888	3700	1.333	1.333	1.339	230	0.183				
1599	960	4000	1.666	4.00	68.0	315	1278	960	960	4000	1.331	1.331	1.331	249	0.192				
1728	1056	4400	1.634	4.00	70.0	337	1384	1066	1056	4400	1.320	1.320	1.320	274	0.206				
1849	1152	4800	1.605	4.00	71.5	358	1500	1152	1152	4800	1.310	1.310	1.310	297	0.206				
1968	1248	5200	1.577	4.00	73.0	376	1624	1248	1248	5200	1.301	1.301	1.301	318	0.206				
2086	1344	5600	1.552	4.00	74.5	393	1739	1344	1344	5600	1.294	1.294	1.294	339	0.206				
2197	1440	6000	1.526	4.00	76.0	409	1858	1440	1440	6000	1.290	1.290	1.290	359	0.206				
2307	1536	6400	1.502	4.00	77.5	426	1978	1536	1536	6400	1.288	1.288	1.288	377	0.206				
2415	1632	6800	1.478	4.00	79.0	446	2102	1632	1632	6800	1.285	1.285	1.285	395	0.206				
2505	1728	7200	1.450	4.00	80.5	464	2164	1680	1680	7200	1.283	1.283	1.283	405	0.206				
2605	1824	7600	1.427	4.00	81.5	481	2316	1800	1800	7600	1.280	1.280	1.280	426	0.206				
2738	1920	8000	1.406	4.00	83.0	497	2473	1920	1920	8000	1.283	1.283	1.283	438	0.206				
2874	2016	8400	1.409	4.00	85.0	497	2628	2016	2016	8400	1.283	1.283	1.283	446	0.206				
2997	2112	8800	1.400	4.00	87.0	515	2732	2160	2160	8800	1.283	1.283	1.283	467	0.206				
3123	2208	9200	1.393	4.00	89.0	533	2837	2280	2280	9200	1.283	1.283	1.283	486	0.206				
3260	2304	9600	1.380	4.00	91.0	552	2937	2360	2360	9600	1.283	1.283	1.283	504	0.206				
3380	2400	10000	1.368	4.00	93.0	570	3037	2440	2440	10000	1.283	1.283	1.283	522	0.206				
3493	2496	10400	1.356	4.00	95.0	588	3137	2520	2520	10400	1.283	1.283	1.283	540	0.206				
3608	2592	10800	1.344	4.00	97.0	606	3237	2600	2600	10800	1.283	1.283	1.283	558	0.206				
3726	2688	11200	1.332	4.00	99.0	625	3337	2680	2680	11200	1.283	1.283	1.283	576	0.206				
3847	2784	11600	1.320	4.00	101.0	643	3437	2760	2760	11600	1.283	1.283	1.283	594	0.206				
3970	2880	12000	1.308	4.00	103.0	662	3537	2840	2840	12000	1.283	1.283	1.283	612	0.206				
4094	2976	12400	1.296	4.00	105.0	680	3637	2920	2920	12400	1.283	1.283	1.283	630	0.206				
4220	3072	12800	1.284	4.00	107.0	699	3737	3000	3000	12800	1.283	1.283	1.283	648	0.206				
4347	3168	13200	1.272	4.00	109.0	717	3837	3080	3080	13200	1.283	1.283	1.283	666	0.206				
4476	3264	13600	1.260	4.00	111.0	736	3937	3160	3160	13600	1.283	1.283	1.283	684	0.206				
4607	3360	14000	1.248	4.00	113.0	755	4037	3240	3240	14000	1.283	1.283	1.283	702	0.206				
4740	3456	14400	1.236	4.00	115.0	773	4137	3320	3320	14400	1.283	1.283	1.283	720	0.206				
4874	3552	14800	1.224	4.00	117.0	792	4237	3400	3400	14800	1.283	1.283	1.283	738	0.206				
5010	3648	15200	1.212	4.00	119.0	810	4337	3480	3480	15200	1.283	1.283	1.283	756	0.206				
5147	3744	15600	1.200	4.00	121.0	829	4437	3560	3560	15600	1.283	1.283	1.283	774	0.206				
5286	3840	16000	1.188	4.00	123.0	847	4537	3640	3640	16000	1.283	1.283	1.283	792	0.206				
5427	3936	16400	1.176	4.00	125.0	866	4637	3720	3720	16400	1.283	1.283	1.283	810	0.206				
5569	4032	16800	1.164	4.00	127.0	884	4737	3800	3800	16800	1.283	1.283	1.283	828	0.206				
5713	4128	17200	1.152	4.00	129.0	903	4837	3880	3880	17200	1.283	1.283	1.283	846	0.206				
5858	4224	17600	1.140	4.00	131.0	921	4937	3960	3960	17600	1.283	1.283	1.283	864	0.206				
5999	4320	18000	1.128	4.00	133.0	940	5037	4040	4040	18000	1.283	1.283	1.283	882	0.206				
6142	4416	18400	1.116	4.00	135.0	959	5137	4120	4120	18400	1.283	1.283	1.283	900	0.206				
6286	4512	18800	1.104	4.00	137.0	978	5237	4200	4200	18800	1.283	1.283	1.283	918	0.206				
6431	4608	19200	1.092	4.00	139.0	997	5337	4280	4280	19200	1.283	1.283	1.283	936	0.206				
6577	4704	19600	1.080	4.00	141.0	1016	5437	4360	4360	19600	1.283	1.283	1.283	954	0.206				
6724	4800	20000	1.068	4.00	143.0	1035	5537	4440	4440	20000	1.283	1.283	1.283	972	0.206				

^a Extracted from Rating Table in 1951 edition of *I=B=R* Testing and Rating Code for Low Pressure Cast Iron Heating Boilers.
^b To be specified in catalog. ^c Maximum stack height which may be shown in catalog.