

are considered consistent with good practice, although there are boilers which have high efficiencies and also operate at higher transmission rates.

TESTING AND RATING CODES

The Society has adopted four solid fuel testing codes, a solid fuel rating code, and an oil fuel testing code.

ASHVE Standard and Short Form Heat Balance Codes for Testing Low-Pressure Steam Heating Solid Fuel Boilers—Codes 1 and 2—(Revision of June, 1929),¹ provide a method for conducting and reporting tests to determine heat efficiency and performance characteristics.

ASHVE Performance Test Code for Steam Heating Solid Fuel Boilers—Code No. 3—(Edition of 1929)¹ is intended for use with ASHVE Code for Rating Steam Heating Solid Fuel Hand-Fired Boilers.² The object of this test code is to specify the tests to be conducted, and to provide a method for conducting and reporting tests to determine the efficiencies and performance of the boiler.

The ASHVE Standard Code for Testing Steam Heating Boilers Burning Oil Fuel,³ (Adopted June, 1932), provides a standard method for conducting and reporting tests to determine the heating efficiency and performance characteristics when oil fuel is used with steam heating boilers.

The ASHVE Standard Code for Testing Stoker-Fired Steam Heating Boilers,⁴ (Adopted June, 1938), provides a test method for determining the efficiency and performance characteristics of any stoker and boiler combination burning any type of solid fuel, such as anthracite or bituminous coal.

The *Steel Boiler Institute, Inc.* has adopted a Rating Code for Commercial Steel Boilers and Residential Steel Boilers, and for Testing Oil-Fired Residential Steel Boilers (Fifth Edition as Revised Jan. 1, 1948). The commercial boilers (defined as those having 129 to 2500 sq ft of heating surface) are rated in square feet (steam) on the basis of heating surface with limitations set for grate area, furnace volume, and furnace height.

TABLE 1. SBI NET RATING DATA FOR RESIDENTIAL STEEL BOILERS—OIL FIRED^a

SBI NET RATING			Minimum Furnace Volume Cu Ft	Heating Surface Sq Ft
Sq Ft Steam	Sq Ft Water	Btu		
275	440	66000	2.5	16
320	510	77000	2.9	19
400	640	96000	3.6	24
550	880	132000	5.0	32
700	1120	168000	6.4	41
900	1440	216000	8.2	53
1100	1760	264000	10.0	65
1300	2080	312000	11.8	77
1500	2400	360000	13.6	88
1800	2880	432000	16.4	106
2200	3520	528000	20.0	129
2600	4160	624000	23.6	153
3000	4800	720000	27.3	177

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

TABLE 2. SBI RATINGS FOR COMMERCIAL STEEL BOILERS

MECHANICALLY FIRED										Flow Tappings		
Hand Fired										Min- imum Grate Area Sq Ft	Steam Outlet Return I.P. Se In.	
SBI Rating			SBI Net Rating			SBI Rating						
Sq Ft Steam	Sq Ft Water	Btu	Sq Ft Steam	Sq Ft Water	Btu	Sq Ft Steam	Sq Ft Water	Btu				
2,190	3,500	526,000	1,800	2,880	432,000	1,800	2,880	432,000	1,500	2,400	7.9	3
2,680	4,280	643,000	2,200	3,520	528,000	2,200	3,520	528,000	1,830	2,930	8.9	3
3,160	5,050	758,000	2,600	4,160	624,000	2,600	4,160	624,000	2,170	3,470	9.7	3
3,650	5,840	876,000	3,000	4,800	720,000	3,000	4,800	720,000	2,500	4,000	10.5	3
4,250	6,800	1,020,000	3,500	5,600	840,000	3,500	5,600	840,000	2,920	4,670	11.4	3
4,860	7,770	1,166,000	4,000	6,400	960,000	4,000	6,400	960,000	3,330	5,330	12.2	3
5,470	8,750	1,313,000	4,500	7,200	1,080,000	4,500	7,200	1,080,000	3,750	6,000	13.4	3
6,080	9,720	1,459,000	5,000	8,000	1,200,000	5,000	8,000	1,200,000	4,170	6,670	14.5	3
7,290	11,660	1,750,000	6,000	9,600	1,440,000	6,000	9,600	1,440,000	5,000	8,000	16.4	4
8,500	13,600	2,040,000	7,000	11,200	1,680,000	7,000	11,200	1,680,000	5,830	9,330	18.1	4
10,330	16,520	2,479,000	8,500	13,600	2,040,000	8,500	13,600	2,040,000	7,080	11,330	20.5	4
12,150	19,440	2,916,000	10,000	16,000	2,400,000	10,000	16,000	2,400,000	8,330	13,330	22.5	4
15,180	24,280	3,643,000	12,500	20,000	3,000,000	12,500	20,000	3,000,000	10,420	16,700	25.6	4
18,220	29,150	4,373,000	15,000	24,000	3,600,000	15,000	24,000	3,600,000	12,500	20,000	28.4	4
21,250	34,000	5,100,000	17,500	28,000	4,200,000	17,500	28,000	4,200,000	14,580	23,330	30.9	4
24,290	38,860	5,830,000	20,000	32,000	4,800,000	20,000	32,000	4,800,000	16,670	26,670	33.2	4
30,360	48,570	7,286,000	25,000	40,000	6,000,000	25,000	40,000	6,000,000	20,830	33,330	37.4	6
36,430	58,280	8,743,000	30,000	48,000	7,200,000	30,000	48,000	7,200,000	25,000	40,000	41.2	6
42,500	68,000	10,200,000	35,000	56,000	8,400,000	35,000	56,000	8,400,000	29,170	46,670	44.7	6

^a Oil, gas or bituminous stoker-fired coal. Minimum furnace volumes for anthracite, stoker-fired, are not specified in this code.

^b Bituminous, stoker-fired.

^c The tapping sizes shown for boilers having 129 to 800 sq ft of heating surface, inclusive are adequate for forced hot water.