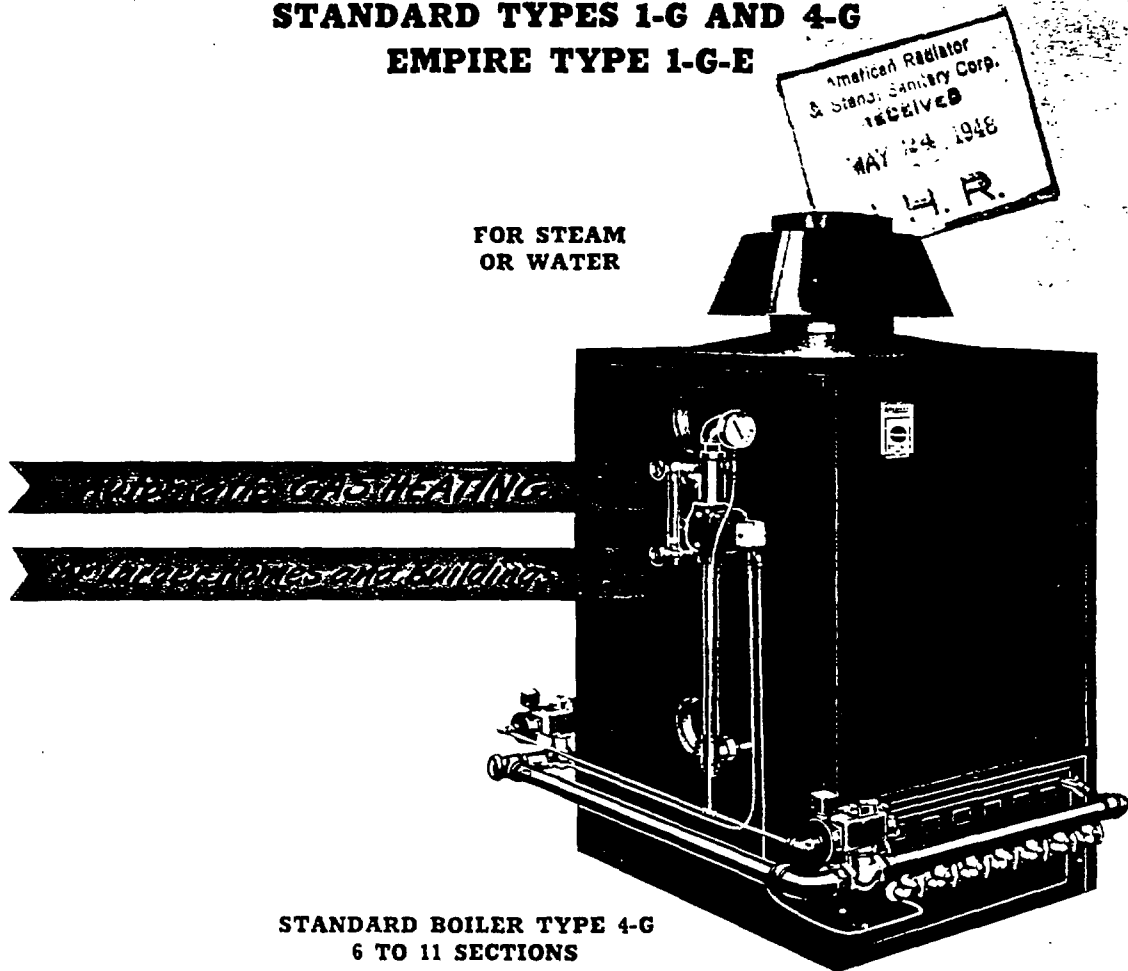


AMERICAN GAS BOILERS

**STANDARD TYPES 1-G AND 4-G
EMPIRE TYPE 1-G-E**

**FOR STEAM
OR WATER**



**STANDARD BOILER TYPE 4-G
6 TO 11 SECTIONS**

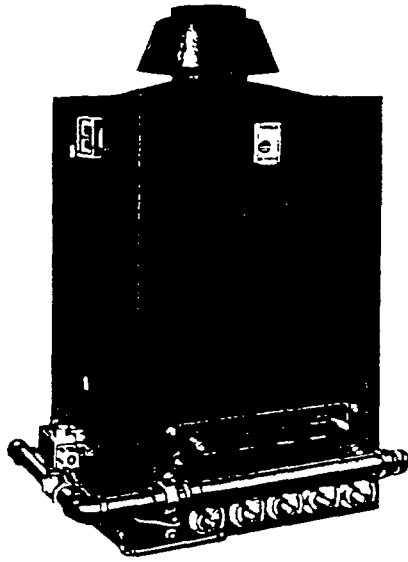
AMERICAN-Standard
First in Heating and Plumbing

**PLAINTIFF'S
EXHIBIT**

ASI-295

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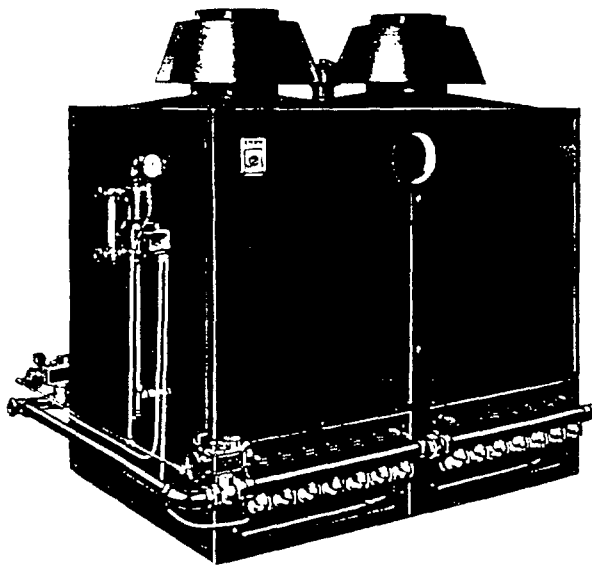
STANDARD GAS BOILERS TYPES 1-G AND 4-G



Standard Gas Boiler Type 1-G.

ECONOMY

AMERICAN Gas Boilers are made exclusively for gas burning. Therefore our engineers were free to use their ingenuity in designing and coordinating all the various factors that compose the units, — heating surface, burners, controls and other essentials, — so that maximum heat output would be obtained. The resultant high efficiency and accurate control is an assurance of lowest operating and maintenance cost compatible with ample comfort in the rooms.



Standard Gas Boiler Type 4-G
13 sections and up.

AMERICAN Gas Boilers are outstanding examples of good engineering and manufacturing skill. They bring the advantages and convenience of automatic gas heating to homes and buildings of all types and sizes. Designed by gas heating experts of long experience, they possess a host of features which assure efficient, fuel-saving and carefree performance. These are illustrated and described on next page.

Whether used singly or in battery, AMERICAN Gas Boilers may be depended upon for satisfactory heating and enduring service.

PRECISION CONTROLS

For utmost safety and economy AMERICAN Gas Boilers are equipped with precise, dependable controls. Among them is the special Thermotor Throttling Valve that works from the room thermostat. This regulates the flow of gas to burners, controlling it precisely so that proper temperature of boiler water or right steam pressure is maintained for providing the heat desired in the rooms. If, for any reason, pilot light should be extinguished the Thermotor Valve prevents flow of gas to the burners, — thus assuring absolute safety.

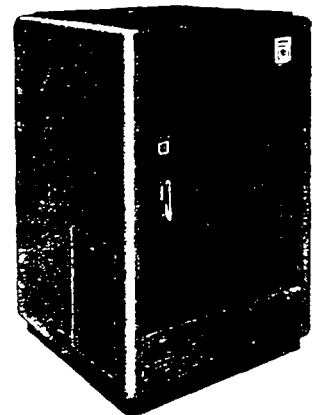
SPACE SAVING—HEAVY INSULATION

Due to their trim, compact design, AMERICAN Gas Boilers take up surprisingly little room when installed. Therefore, no valuable space that might be utilized for other purposes is wasted. Then too they are neatly jacketed, as illustrated, adding greatly to the appearance of the complete installation.

Underneath the substantial steel jacket of these boilers is a thick layer of Air-Cell Asbestos insulation. This effectively prevents excessive heat loss into basement, helps reduce operating costs and keeps the jacket cooler.

EMPIRE BOILER-TYPE 1-G-E

Embodies the same design characteristics and precision controls as the Standard 1-G Boiler, but has a streamlined jacket that conceals draft hood and controls. For ratings, data and dimensions see page 5.



ENGINEERED FOR EFFICIENT DEPENDABLE HEATING

CANOPY — made with a rust-resisting finish for maximum durability, and set in putty-filled groove, forming perfect gas-tight joint.

DRAFT HOOD — Prevents either excessive drafts or down-drafts from affecting proper combustion.

METAL-TO-METAL JOINT — machine ground, gas-tight. No cement or putty used.

POP SAFETY VALVE — A. S. M. E. standard. Prevents excess pressure from building up in boiler.

STEAM GAUGE — On water boilers, combination altitude gauge and thermometer located here.

STEAM CONNECTION — leads from steam dome of boiler to diaphragm of main throttling valve.

RESETTING LOW WATER CUT-OUT — completely shuts off supply of gas to main burners if the water line on steam boiler reaches a low point.

GAS VALVE — electrically operated from room thermostat. Steam Pressure or Water Temperature throttles gas flow to maintain required conditions. Upper limit and manual control also embodied in same valve.

GAS PRESSURE GOVERNOR — Governor is connected at this point and maintains gas pressure at a fixed maximum.

ADDITIONAL GAS VALVE — All 1-G Boilers include at least two gas valves. Sizes larger than 21 sections include four gas valves. Multiple gas valves provide smooth, quiet operation, each valve handles a smaller volume of gas. As with dual carburetion, smaller volume for better control.

STEAM DIAPHRAGM — steam from dome actuates diaphragm, throttling gas when desired steam pressure is reached. On water boilers, we furnish at this point an accurate water temperature control device which is readily adjustable and similarly throttles the gas flow when boiler water reaches desired temperature.

THERMOSTATIC PILOT — Keeps thermomotor valve closed unless pilot is burning properly. Operates mechanically.

EFFICIENT BURNER — Parallel sets of raised drilled port burners are standard; one set enters from the front of the boiler, the other set from the rear. Smaller gas volume per burner provides quiet operation. Ribbon burners for manufactured gas are optional.

Cutaway View — Standard Boiler — Type 4-G (6 to 11 Section) — Illustrated.

PINTYPE CAST IRON SECTION — the most effective type of cast iron heat-absorbing surface. Rapidly and efficiently absorbs the heat from the rising columns of hot gases and transfers this heat to the water within boiler.

CLEANOUT OPENING — provides easy access for cleaning flue surfaces of sections.

JACKET — Metal and finished in dark Canyon Red and Black.

THICK ASBESTOS AIR-CELL INSULATION — effectively prevents excess heat loss from boiler.

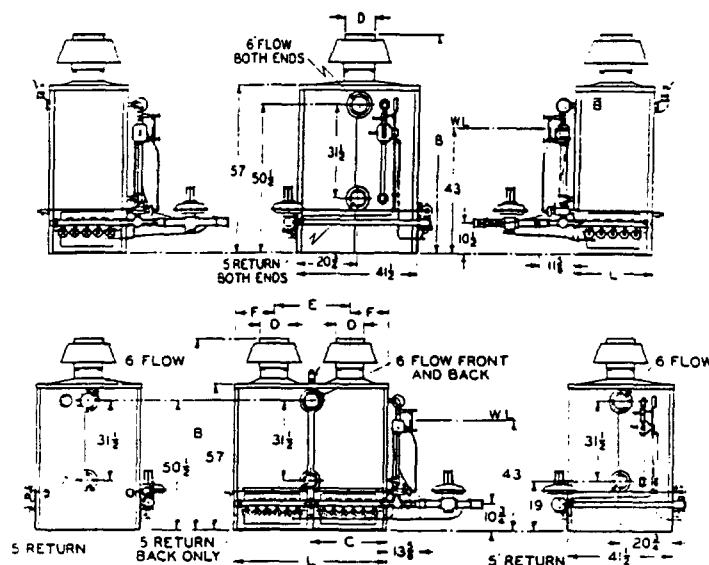
VENTURI MIXER TUBE — induces proper velocity to gas and primary air, and obtains the correct mixture of gas and air.

Note: An outstanding feature of larger Standard Gas Boilers is the number of flow tappings provided. For example, types 4-G-13 to 4-G-21 inclusive have 4-6", types 4-G-22 to 4-G-31 have 6-6", and types 4-G-33 to 4-G-41 have 8-6" flow tappings. Their use slows down steam velocity and helps prevent entrainment of water.

Complies with National Safety Requirements. Approved by American Gas Association.

STANDARD GAS BOILERS

TYPE 4-G RATINGS AND DIMENSIONS



Boiler No.	* AGA Output 1,000 Btu	AGA RATING SQ. FT.		INSTALLED RADIATION SQ. FT.		* Firing Rate 1,000 Btu per Hour	No. of Sections	No. of Burners	B	C	D (Diam. Flue)	I	F	L	Gas Conn.
		Steam	Water	Steam	Water										
1-G-6	180	2,000	3,200	1,390	2,225	600	6	10	71	.....	11	.....	.....	27	2
1-G-7	576	2,100	3,810	1,690	2,705	720	7	12	75	.....	12	.....	.....	31	2
1-G-8	672	2,800	4,180	1,995	3,190	810	8	11	77	.....	13	.....	.....	35	2
1-G-9	768	3,200	5,120	2,300	3,685	960	9	16	77 3/4	.....	14	.....	.....	39	2
1-G-10	861	3,600	5,760	2,610	4,180	1,080	10	18	79 1/2	.....	15	.....	.....	43	2 1/2
1-G-11	960	4,000	6,400	2,925	4,680	1,200	11	20	80	.....	16	.....	.....	47	2 1/2
1-G-13	1,152	4,800	7,680	3,570	5,710	1,440	13	21	75	30 5/8	2-12	30 1/4	15 1/2	61 1/4	2 1/2
1-G-15	1,311	5,600	8,960	4,230	6,770	1,680	15	28	77	31 5/8	2-13	31 1/4	17 1/2	69 1/4	2 1/2
1-G-17	1,536	6,400	10,240	4,900	7,810	1,920	17	32	77 3/4	38 5/8	2-11	38 1/4	19 1/2	77 1/4	2 1/2
1-G-19	1,728	7,200	11,520	5,560	8,910	2,160	19	36	79 1/2	42 5/8	2-15	42 1/4	21 1/2	85 1/4	3
1-G-21	1,920	8,000	12,800	6,210	9,930	2,400	21	40	80	46 5/8	2-16	46 1/4	23 1/2	93 1/4	3
1-G-22	2,016	8,400	13,110	6,520	10,130	2,520	22	42	77	31 5/8	3-13	31 1/4	17 1/2	103 1/2	2-2 1/2
1-G-25	2,301	9,600	15,360	7,450	11,920	2,880	25	48	77 3/4	38 5/8	3-11	38 1/4	19 1/2	115 1/2	2-2 1/2
1-G-28	2,592	10,800	17,280	8,380	13,110	3,210	28	51	79 1/2	42 5/8	3-15	42 1/4	21 1/2	127 1/4	2-2 1/2
1-G-31	2,880	12,000	19,200	9,320	14,910	3,600	31	60	80	46 5/8	3-16	46 1/4	23 1/2	139 1/4	2-2 1/2
1-G-33	3,072	12,800	20,180	9,910	15,900	3,810	33	61	77 3/4	38 5/8	4-11	38 1/4	19 1/2	153 3/4	2-3
1-G-37	3,156	14,400	23,010	11,180	17,880	4,320	37	72	79 1/2	42 5/8	4-15	42 1/4	21 1/2	169 3/4	2-3
1-G-41	3,810	16,000	25,600	12,120	19,860	4,800	41	80	80	46 5/8	4-16	46 1/4	23 1/2	185 3/4	2-3

* The output ratings and firing rates are approved by the American Gas Association.
 Ratings shown are for elevations up to 2,000 feet. For elevations above 2,000 feet, ratings shall be reduced at the rate of 5% for each 1,000 feet above sea level.
 Note: All dimensions shown are in inches.
 For data on regular control equipment furnished see Price Book.
 Drilled port burners are regular equipment. Ribbon burners are optional in territories where manufactured gas is used.



AMERICAN & Standard RADIATOR & Sanitary

CORPORATION
 PITTSBURGH 30, PA.

00411

STANDARD GAS BOILERS TYPES 1-G AND 4-G

CAST IRON CONSTRUCTION

AMERICAN Gas Boilers are made of cast iron, the metal of the ages, which accounts for their sturdy construction and lasting qualities. With proper care these boilers will last indefinitely.

EASY INSTALLATION

Type 1-G and 4-G Boilers come in individual sections which may be carried through any ordinary doorway. They are easily and quickly assembled, due to accuracy of machining interchangeable parts. On 1-G Boilers a long steam header can be used, utilizing flow tappings on both the left and right hand ends of boiler. On longer boilers considerable savings can be effected in installation, because steam flow tappings are provided on front and rear surfaces, making the header shorter and reducing weight to be handled.

CHIMNEY DATA

It is of utmost importance that products of combustion be removed by providing a flue connection and chimney of adequate size and of proper construction.

To avoid any appreciable draft which would result in unnecessary heat losses or improper combustion, all AMERICAN Gas Boilers are provided with Draft Hoods. Dampers must not be used.

Chimneys should be of the best construction, lined with glazed tile or terra cotta with carefully cemented joints. They should be sufficiently high to insure a regular draft under all weather conditions, and should extend 3 feet above flat buildings or 2 feet above the ridges of peak-roofs — this applies particularly to adjoining buildings.

The following table gives the diameters in inches of round flues recommended for different heights of chimneys for individual boilers and batteries of more than one.

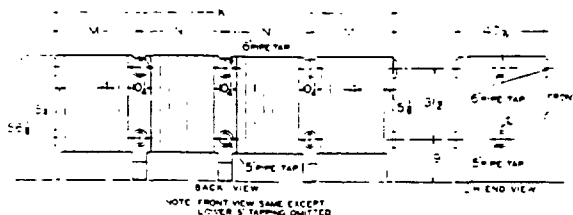
FLUE SIZE RECOMMENDATIONS

Boiler No.	CHIMNEY HEIGHT IN FEET				Boiler No.	CHIMNEY HEIGHT IN FEET				Boiler No.	CHIMNEY HEIGHT IN FEET				Boiler No.	CHIMNEY HEIGHT IN FEET			
	10	20	40	80		10	20	40	80		10	20	40	80		10	20	40	80
DIAMETER INCHES					DIAMETER INCHES					DIAMETER INCHES					DIAMETER INCHES				
1-G-1	6	6	6	6	4-G-9	12	11	11	10	4-G-28	20	19	18	17	4-G-33	30	28	28	26
1-G-5	7	7	6	6	4-G-10	12	12	11	11	4-G-31	22	20	19	18	4-G-37	32	30	28	28
1-G-6	8	7	7	7	4-G-11	13	12	12	11	4-G-33	22	20	19	19	4-G-41	31	32	30	28
1-G-7	8	8	7	7	4-G-13	14	13	13	12	4-G-37	24	22	20	20	.....	.....	.....	.....	.....
1-G-8	8	8	8	8	4-G-15	15	14	13	13	4-G-41	24	24	22	20	3 Boilers	.....	.....	.....	.....
1-G-9	9	8	8	8	4-G-17	16	15	14	14	2 Boilers	.....	.....	.....	.....	4-G-28	.....	32	30	30
1-G-10	9	9	8	8	4-G-19	17	16	15	14	4-G-22	26	24	22	22	4-G-31	.....	34	32	30
1-G-11	9	9	9	8	4-G-21	18	17	16	15	4-G-25	26	26	24	22	4-G-33	.....	36	32	32
1-G-6	10	9	9	9	4-G-22	18	17	16	16	4-G-28	28	26	26	24	4-G-37	.....	38	34	34
1-G-7	11	10	10	9	1-G-25	19	18	17	16	1-G-31	30	28	26	26	4-G-41	.....	40	36	34
1-G-8	11	11	10	10															

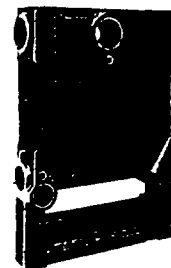
*Flue sizes for 10 foot chimneys are for special installations where greater height is impossible or impracticable. Not recommended for general practice. Heights are measured from the boiler.

If other than round flues are used the area must be the effective equivalent of the round flue.

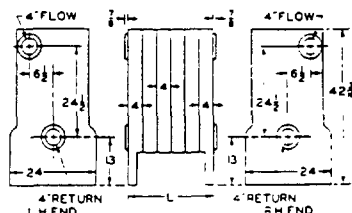
LAYOUT OF TAPPINGS - TYPE 1-G



A typical section assembly is illustrated at the left and shows location of flow and return tappings. Boiler illustrated is a 1-G-33. Intermediate section casting is shown at right. Location of flow and return tappings, as well as top connecting nipple openings are shown.



LAYOUT OF TAPPINGS - TYPE 1-G

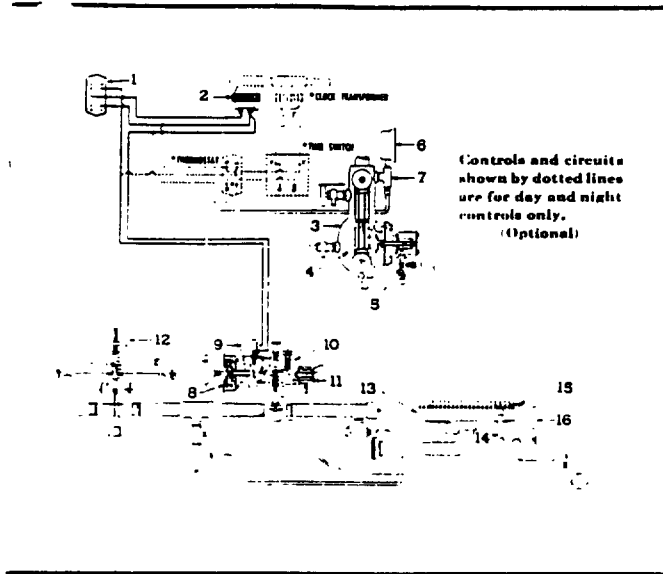


A typical assembly is also shown at left, illustrating the flow and return tappings of a Type 1-G Boiler. The boiler illustrated is a 1-G-6. Photograph of an end section casting is also shown at right.



STANDARD GAS BOILERS TYPES 1-G AND 4-G

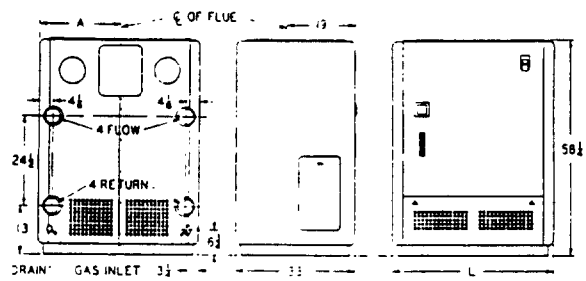
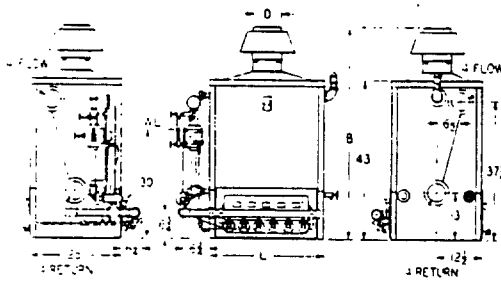
CONTROL ASSEMBLY



The drawing at left illustrates an assembly of typical steam boiler controls. Pressure of gas flow is regulated by gas pressure governor (12). Thermostatic pilot (16 and 11) must be lighted to permit Thermotor valve (10) to open. Room thermostat (1) opens or closes Thermotor valve (10) electrically. Thermotor valve (10) throttles by steam pressure through tubing connecting diaphragm (8) of Thermotor to fitting (7) at the top of the low water cut-off (3).

Ignition pilot (11) is supplied directly from pilot cock and height of flame is determined by setting of a small gas cock. Gas flow to thermostatic pilot (16) and runner pilot (15) passes through small valve (5) on low water cut-off (3). In event of low water, float (1) drops and thermostatic pilot (16) is extinguished, thereby closing Thermotor valve (10). Ignition pilot (11) remains lighted throughout heating season and serves to re-ignite runner pilot (15) and thermostatic pilot (16) when proper water level is resumed. Transformer (2) is used to reduce voltage to the Thermotor element (9) from 115 to about 24 volts. Additional data on controls furnished on request.

STANDARD TYPE 1-G • Ratings and Dimensions • EMPIRE 1-G-E



Boiler No	*A.G.A. Output (1,000) Btu	A.G.A. RATING SQ. FT.		INSTALLED RADIATION SQ. FT.		*Firing Rate (1,000) Btu per Hour	No. of Sections	No. of Burners	A		D (Perm. Fluor.)	L		Gas Conn.
		Steam	Water	Steam	Water				Empire Standard Only	Boiler Only		Standard	Empire	
1-G-1	116	610	980	100	640	183	4	3	16	51½	6	19	32	1¼
1-G-5	186	775	1,210	515	825	232.5	5	1	18	56¾	7	23	36	1¼
1-G-6	225	940	1,500	630	1,010	282	6	5	20	56½	8	27	10	1¼
1-G-7	265	1,105	1,770	745	1,190	331.5	7	6	22	57	8	31	14	1½
1-G-8	305	1,270	2,030	860	1,375	381	8	7	21	59¼	9	35	18	1½
1-G-9	344	1,135	2,300	980	1,565	130.5	9	8	26	58½	9	39	52	2
1-G-10	384	1,600	2,560	1,100	1,760	180	10	9	28	59¼	9	13	56	2
†1-G-11	424	1,765	2,820	1,215	1,945	529.5	11	10		59	10	17		2

*The output ratings and firing rates are approved by American Gas Association.

†Does not apply to Empire Boiler.

Ratings shown are for elevations up to 2,000 feet. For elevations above 2,000 feet ratings shall be reduced at the rate of 5% for each 1,000 feet above sea level.

Note: All dimensions shown are in inches

For data on regular control equipment furnished see Price Book.

Drilled port burners are regular equipment. Ribbon burners are optional in territories where manufactured gas is used.

CONVENIENT PAYMENTS

AMERICAN Gas Boilers, like all other American-Standard Products, are available for modernization on a convenient payment plan through the Heating and Plumbing Finance Corporation. Your Heating Con-

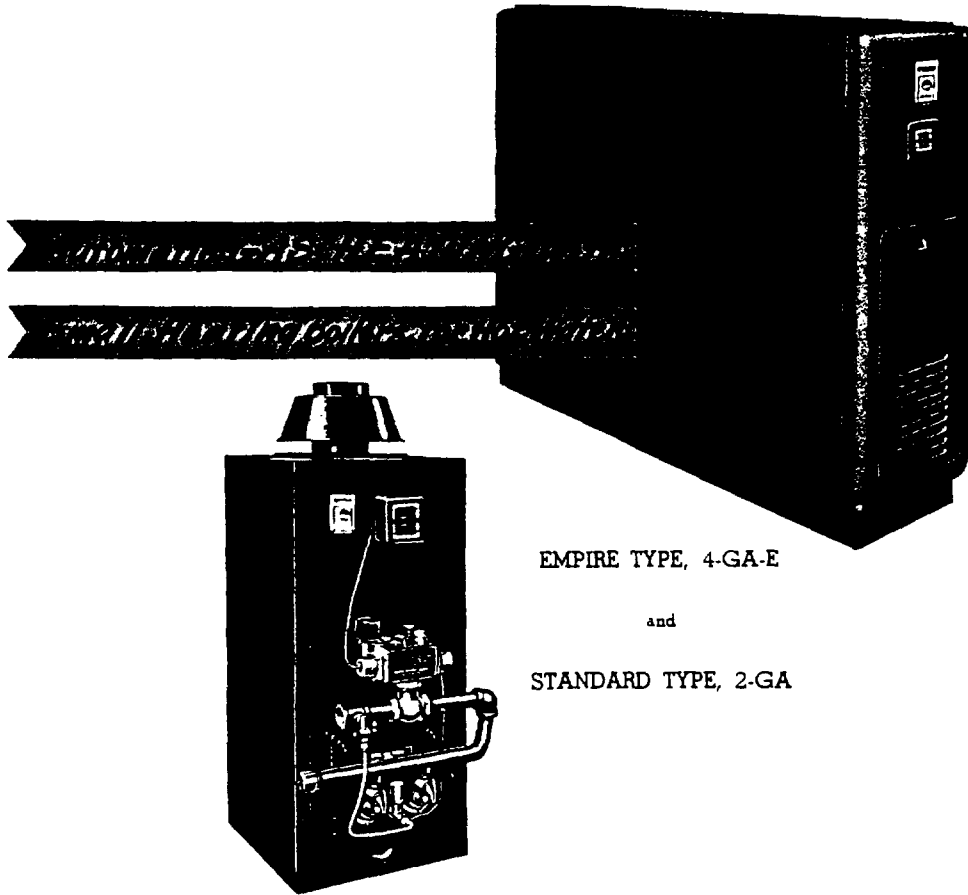
tractor can handle all details. Also consult your Heating Contractor and Engineer for practical advice concerning your heating problems and our products.

AMERICAN GAS BOILERS

EMPIRE and STANDARD
TYPE 1-GA, 2-GA, 4-GA

American Radiator
& Stand. Sanitary Corp.
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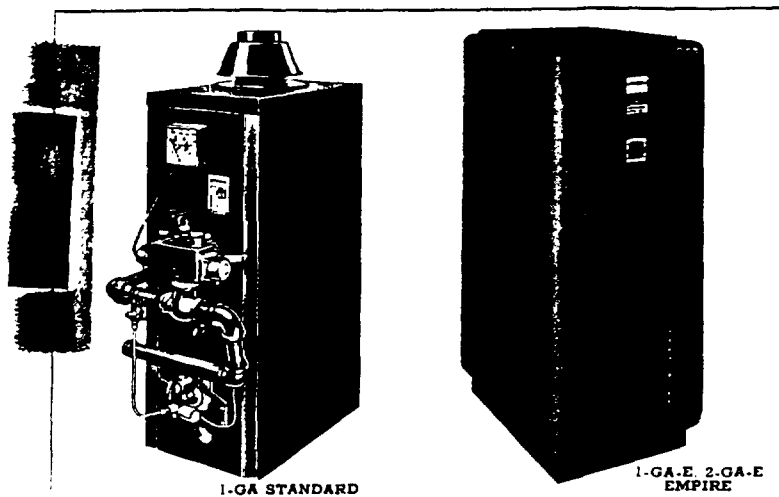
EMPIRE TYPE, 4-GA-E

and

STANDARD TYPE, 2-GA

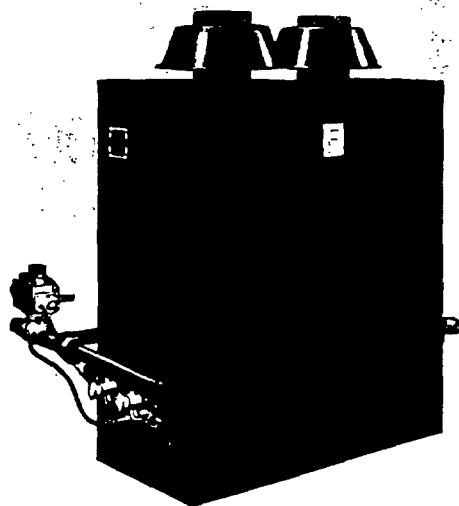
AMERICAN-Standard

First in heating . . . first in plumbing



1-GA STANDARD

1-GA-E, 2-GA-E
EMPIRE



4-GA STANDARD

Smart Modern Jackets in Attractive Colors

Empire Boilers bring new beauty to the modern basement. Their smartly designed jackets, in richly beautiful Canyon Two-Tone Red, completely conceal all controls. Only the striking metal name plate, shown here, and the face of the water gauge appear on the handsome jacket. The Empire blends harmoniously with any decorative plan. This name plate is found only on the boiler that is a masterpiece of engineering and designing . . . your assurance of efficiency, dependability and economy.



"EMPIRE" FOR BEAUTY

The Empire Boiler is the logical choice for beautiful heating equipment that blends harmoniously with any basement decorative scheme. Within its lustrous, colorful jacket are hidden all the efficient, automatic controls essential to perfect heating. Where both beauty and efficiency are desirable, the Empire provides the utmost in appearance as well as service.

"STANDARD" FOR UTILITY

When appearance of the heating plant is a secondary consideration, the Standard Boiler is recommended for dependable, automatic heating service. It has the same sensitive controls as the Empire. It has every feature that assures the utmost in safe, automatic operation.

Perfected Design

Both the Empire and Standard Boilers have been designed by gas experts — by engineers who are thoroughly familiar with this fuel and its application to home heating equipment. No single feature of these boilers is untried or unproved. In the laboratory and in the field the Empire and Standard have demonstrated their sound principles that result in economy and efficiency of operation. They are quality from top to bottom — inside and out!

Precision Controls

In both the Empire and Standard Boilers the desired room temperature is maintained without work or worry — thanks to their fine quality, precision controls. The exclusive Thermotor Throttling Valve operates from the thermostat. This valve gradually increases or reduces the gas consumption as the desired temperature of water in the boiler is reached, using only as much gas as needed. Overheating and underheating are prevented and safety assured by the special Thermotor Throttling Valve. With either the Empire or the Standard Boiler you can enjoy to the utmost the delightful comfort of radiator heating and its effortless operation with gas fuel.

These Quality Boilers Come in Many Sizes