

forced to thoroughly mix and complete combustion is secured.

Twice more, three times in all, the gases are forced to travel through flues the full length of the boiler in constant contact with the largest possible heating surface, giving up to the water the maximum number of heat units before passing out of the boiler.

When the fire is banked at night, the deep fuel bed slowly cokes the coal forming an incandescent bed that ignites

# RADIATOR LOADS AND DIMENSIONS

| Boiler No. | *Direct Cast Iron Radiator Loads, Sq. Ft. |       | Height of Water Line, Inches | Grate Area Sq. Ft. | Coal Capacity, Cu. Ft. | Outlets | Min. Chimney Sizes |                   |
|------------|-------------------------------------------|-------|------------------------------|--------------------|------------------------|---------|--------------------|-------------------|
|            | Steam                                     | Water |                              |                    |                        |         | Height Feet        | Dimensions Inches |
| 750        | 4700                                      | 7755  | 66                           | 18.29              | 29.67                  | 3-5"    | 55                 | 24 x 24           |
| 850        | 5350                                      | 8825  | 66                           | 21.33              | 34.68                  | 4-5"    | 60                 | 24 x 24           |
| 950        | 5850                                      | 9655  | 66                           | 21.33              | 34.68                  | 4-5"    | 65                 | 24 x 28           |
| 1050       | 6500                                      | 10725 | 66                           | 24.37              | 39.69                  | 5-5"    | 70                 | 24 x 28           |
| 1150       | 7000                                      | 11550 | 66                           | 24.37              | 39.69                  | 6-5"    | 80                 | 28 x 28           |
| 1250       | 7650                                      | 12620 | 66                           | 27.41              | 44.71                  | 6-5"    | 90                 | 28 x 32           |
| 1350       | 8150                                      | 13450 | 66                           | 27.41              | 44.71                  | 6-5"    | 95                 | 32 x 32           |

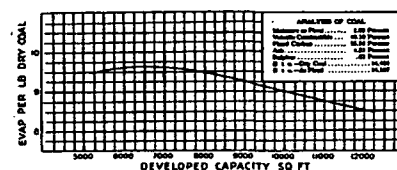
\*See Guaranteed Heating.

Height including trimmings 92 inches; width 82 inches. Specify if back or top outlet smoke hood is required.

the fresh charge in the morning and enables the boiler to reach its full capacity, easily and quickly.

The efficiency of the 50-inch series of Capitol Smokeless Boilers is shown strikingly by the typical performance curve below. The chart is based on many individual tests and the ratings are fixed conservatively. Notice the high volatile coal used for these tests.

PERFORMANCE CURVE No. 1150 CAPITOL BOILER



# Capitol Smokeless Boilers—40" Series

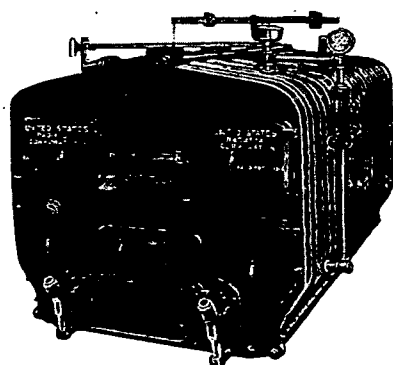
The Capitol Testing Laboratory has gone even farther than designing the most efficient smokeless boilers known. The 40-inch series has a 49-inch water line. No lower water line is necessary for any room with a ceiling high enough to allow men to work.

Not only fuel is saved; building costs are cut. No pit is needed. Construction savings alone, particularly where water in the basement must be guarded against and where foundations must be cut in rock, frequently pay for the entire heating plant. For large installations in such locations a tandem of 40-inch Capitol Boilers is often used in preference to a single boiler of larger size.

Important as this exclusive advantage is, however, it is secondary to the remarkable economy that results from the efficient operation of the Capitol 40-inch series.

With no pit required and no base section on this boiler, installation is simplified. Any bituminous coal or lignite may be used successfully; burned economically and smokelessly by any ordinary fireman.

Auxiliary air is admitted just above the fuel bed through passageways cast across the entire width of the front boiler section. The size of the air passages are correctly proportioned by the Capitol Testing Laboratory and need no adjusting. The greater portion of the air is taken from the subpit. The remainder enters the passageways through openings in the clinker door. The amount of air drawn



No. 1140 Capitol Smokeless Boiler

in is automatically regulated to the rate of combustion in the exact amounts required.

This pre-heated air with its original oxygen sweeps across the fuel bed until it reaches a water-containing curtain cast in a section near the back, which forces it to mingle with the gases as they pass beneath it.

Then they hit the lower, solid portion of a water-filled bridgeway (which requires no fire-brick), mix completely,

# RADIATOR LOADS AND DIMENSIONS

| Boiler No. | *Direct Cast Iron Radiator Loads, Sq. Ft. |       | Height of Water Line, Inches | Grate Area Sq. Ft. | Coal Capacity, Cu. Ft. | Outlets | Min. Chimney Sizes |                   |
|------------|-------------------------------------------|-------|------------------------------|--------------------|------------------------|---------|--------------------|-------------------|
|            | Steam                                     | Water |                              |                    |                        |         | Height Feet        | Dimensions Inches |
| 740        | 2500                                      | 4125  | 49                           | 8.15               | 10.40                  | 2-5"    | 50                 | 18 x 18           |
| 840        | 3000                                      | 4950  | 49                           | 10.31              | 13.30                  | 2-5"    | 55                 | 18 x 20           |
| 940        | 3500                                      | 5775  | 49                           | 10.31              | 13.30                  | 2-5"    | 60                 | 20 x 20           |
| 1040       | 4050                                      | 6680  | 49                           | 12.47              | 16.30                  | 3-5"    | 65                 | 20 x 24           |
| 1140       | 4500                                      | 7425  | 49                           | 14.63              | 19.25                  | 3-5"    | 70                 | 24 x 24           |
| 1240       | 4900                                      | 8085  | 49                           | 14.63              | 19.25                  | 3-5"    | 75                 | 24 x 28           |
| 1340       | 5400                                      | 8910  | 49                           | 16.79              | 22.20                  | 3-5"    | 75                 | 24 x 28           |

\*See Guaranteed Heating.

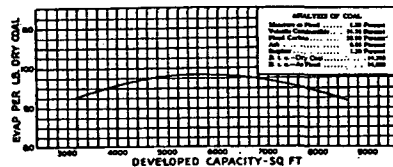
Height including trimmings 71 inches; width 75 inches. Equipped with combination top and back outlet smoke-hood.

and every smoke-producing particle is turned into heat before the gases pass through two openings in the upper portion of the bridgeway.

Back to the front of the boiler they must go, through two bottom flues and then return through two top flues, heating water every inch of the way, before they pass out of the boiler.

Without the foregoing facts the performance chart shown below might be hard to believe. Any fair test will substantiate this curve of efficiency that has no equal in the smokeless boiler field.

PERFORMANCE CURVE No. 1140 CAPITOL BOILER



# Capitol Smokeless Boilers—27" Series

Smokeless boilers are as desirable for large residences and small apartments as they are for larger commercial buildings, since smoke is a particular nuisance around homes. In addition, smokeless operation means greatest fuel economy in small installations as well as large.

To meet this large and growing demand, the Capitol 27-inch series Smokeless Boiler has been designed.

Capitol ease of operation and mechanical certainty of proper auxiliary air supply, important in the larger sizes, become a necessity in a small installation which has not an attendant who devotes as much time to its care.

Any fireman can shovel soft coal into a 27-inch series Boiler and operate it smokelessly. No special skill or attention is required.

Auxiliary air is admitted through fixed openings in the fire door which never need adjusting. Together with the volatile gases it sweeps toward the back. They meet an inverted bridgeway or curtain. Are deflected downward. As they pass under, they receive an additional supply of oxygen from a slot in the curtain. Then, hitting the rear wall, the oxygen mixes thoroughly with the gases and combustion is completed in the back of the fire box.

All the smoke is burned before the gases enter the flues. Twice more they travel the full length of the boiler, getting the utmost heating value out of every pound of coal.

# RADIATOR LOADS AND DIMENSIONS

| Boiler No. | *Direct Cast Iron Radiator Loads, Sq. Ft. |       | Height of Water Line, Inches | Grate Area Sq. Ft. | Coal Capacity, Cu. Ft. | Outlets | Min. Chimney Sizes |                   |
|------------|-------------------------------------------|-------|------------------------------|--------------------|------------------------|---------|--------------------|-------------------|
|            | Steam                                     | Water |                              |                    |                        |         | Height Feet        | Dimensions Inches |
| 627        | 1000                                      | 1650  | 45 1/2                       | 5.32               | 7.93                   | 2-4"    | 40                 | 12 x 12           |
| 727        | 1225                                      | 2020  | 45 1/2                       | 6.55               | 9.75                   | 2-4"    | 40                 | 12 x 12           |
| 827        | 1450                                      | 2390  | 45 1/2                       | 7.78               | 11.37                  | 3-4"    | 45                 | 12 x 12           |
| 927        | 1675                                      | 2760  | 45 1/2                       | 9.01               | 13.09                  | 3-4"    | 45                 | 12 x 16           |
| 1027       | 1900                                      | 3135  | 45 1/2                       | 10.24              | 14.81                  | 3-4"    | 45                 | 12 x 16           |
| 1127       | 2125                                      | 3505  | 45 1/2                       | 11.47              | 16.53                  | 3-4"    | 50                 | 12 x 16           |
| 1227       | 2350                                      | 3875  | 45 1/2                       | 12.70              | 18.25                  | 4-4"    | 50                 | 12 x 16           |

\*See Guaranteed Heating.

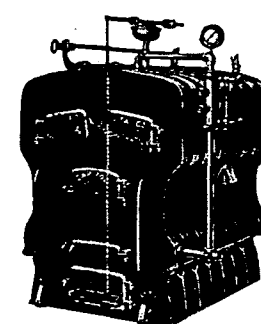
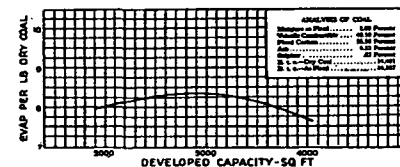
Height including trimmings 68 3/4 in.; width 50 1/2 in. Specify if back or top outlet smoke hood is required.

Banking the fire is as simple as stoking it. When the main drafts are closed, the green coal cokes slowly in the deep fire box. An incandescent bed is formed that quickly ignites the fresh fuel shoveled in the next morning and swiftly floods the house or apartment with grateful warmth.

Every detail in the Capitol 27-inch series Smokeless Boiler is likewise designed for easy and reliable operation. Even the flue doors are extra large, a convenience in keeping the flues clean, although Capitol smokeless combustion minimizes the soot, the heat losses it causes, and the task of cleaning it out.

The high heating efficiency of Capitol 27-inch series Smokeless Boilers over a remarkably wide range of operating capacities, is clearly shown in the authoritative performance curve given below.

PERFORMANCE CURVE No. 1127 CAPITOL BOILER



No. 827 Capitol Smokeless Boiler

# CAPITOL FIVE COLUMN RADIATORS

| No. of Sections | Length Inches | Surface                       |                                 |                                 |                                 |                                 |
|-----------------|---------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|                 |               | 37" Height 5 sq. ft. per Sec. | 32" Height 4.3 sq. ft. per Sec. | 26" Height 3.4 sq. ft. per Sec. | 23" Height 2.9 sq. ft. per Sec. | 20" Height 2.5 sq. ft. per Sec. |
| 2               | 5             | 10                            | 8.6                             | 6.8                             | 5.8                             | 5.0                             |
| 3               | 7 1/2         | 15                            | 12.9                            | 10.2                            | 8.7                             | 7.5                             |
| 4               | 10            | 20                            | 17.2                            | 13.6                            | 11.6                            | 10.0                            |
| 5               | 12 1/2        | 25                            | 21.5                            | 17.0                            | 14.5                            | 12.5                            |
| 6               | 15            | 30                            | 25.8                            | 20.4                            | 17.4                            | 15.0                            |
| 7               | 17 1/2        | 35                            | 30.1                            | 23.8                            | 20.3                            | 17.5                            |
| 8               | 20            | 40                            | 34.4                            | 27.2                            | 23.2                            | 20.0                            |
| 9               | 22 1/2        | 45                            | 38.7                            | 30.6                            | 26.1                            | 22.5                            |
| 10              | 25            | 50                            | 43.0                            | 34.0                            | 29.0                            | 25.0                            |
| 11              | 27 1/2        | 55                            | 47.3                            | 37.4                            | 31.9                            | 27.5                            |
| 12              | 30            | 60                            | 51.6                            | 40.8                            | 34.8                            | 30.0                            |
| 13              | 32 1/2        | 65                            | 55.9                            | 44.2                            | 37.7                            | 32.5                            |
| 14              | 35            | 70                            | 60.2                            | 47.6                            | 40.6                            | 35.0                            |
| 15              | 37 1/2        | 75                            | 64.5                            | 51.0                            | 43.5                            | 37.5                            |
| 16              | 40            | 80                            | 68.8                            | 54.4                            | 46.4                            | 40.0                            |
| 17              | 42 1/2        | 85                            | 73.1                            | 57.8                            | 49.3                            | 42.5                            |
| 18              | 45            | 90                            | 77.4                            | 61.2                            | 52.2                            | 45.0                            |
| 19              | 47 1/2        | 95                            | 81.7                            | 64.6                            | 55.1                            | 47.5                            |
| 20              | 50            | 100                           | 86.0                            | 68.0                            | 58.0                            | 50.0                            |
| 21              | 52 1/2        | 105                           | 90.3                            | 71.4                            | 60.9                            | 52.5                            |
| 22              | 55            | 110                           | 94.6                            | 74.8                            | 63.8                            | 55.0                            |
| 23              | 57 1/2        | 115                           | 98.9                            | 78.2                            | 66.7                            | 57.5                            |
| 24              | 60            | 120                           | 103.2                           | 81.6                            | 69.6                            | 60.0                            |
| 25              | 62 1/2        | 125                           | 107.5                           | 85.0                            | 72.5                            | 62.5                            |

\*Allow 1/4 inch for each bushing in estimating length of radiators.

Each section is 8 3/4 inches wide. Width of legs, 8 3/4 inches.

Above Radiators tapped 1 1/2 inches at top and bottom.

Distance from floor to center of lower tapping, 4 1/2 inches.

Distance from floor to center of upper tapping:

37" Height — 35 1/4"

32" Height — 30 1/4"

26" Height — 24 1/4"

23" Height — 21 1/4"

20" Height — 18 1/4"

