

# Radiation Reference Tables

## RADIATOR RATINGS

The output of a radiator is measured in square feet of direct radiation. To determine the number of square feet of direct radiation in a radiator

1. Identify the style of radiator—See Fig. 1 below.
2. Measure the height and width of the radiator.
3. Count the number of tubes in a section.
4. Count the number of sections.
5. Determine the square feet of radiation per section from the appropriate table and multiply by the number of sections.

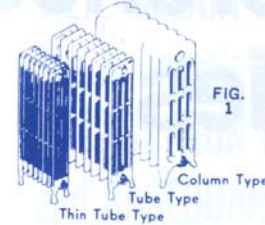


FIG. 1

Fig. 1 shows the relative sizes of radiator styles. All are four tube, eight section radiators but each rating is different.

## EXAMPLE

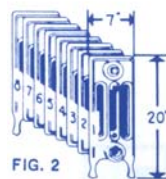


FIG. 2

Fig. 2 shows a tube type radiator, 20" high by 7" wide. There are four tubes per section and eight sections. The table on page four shows this size radiator has 2¼ square feet of radiation per section. 2¼ times 8 (the number of sections) equals 18 square feet of direct radiation in the radiator.

**NOTE:** All radiator dimensions and ratings in this booklet are approximate. Ratings should be used for checking the total radiation connected to an existing boiler.



The Professionals' Company

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## OLD STYLE COLUMN RADIATORS

SQ. FT. OF RADIATION PER SECTION






| Width→     | NO. OF COLUMNS |     |     |      |      |      |
|------------|----------------|-----|-----|------|------|------|
|            | 1              | 2   | 3   | 4    | 5    | 6    |
| Width→     | 4½"            | 7¾" | 9"  | 11½" | 12½" | 12½" |
| Height In. | 45"            | 38" | 32" | 26"  | 23"  | 22"  |
|            | 3½             | 5   | 6   | 10   | —    | —    |
|            | 3              | 4   | 5   | 8    | 10   | —    |
|            | 2½             | 3½  | 4½  | 6½   | 8½   | —    |
|            | 2              | 2¾  | 3¾  | 5    | 7    | 7    |
|            | 1¾             | 2½  | 3¼  | 4½   | —    | —    |
|            | 1½             | 2¼  | 3   | 4    | 6    | 6    |
|            | 1½             | 2   | 2¾  | 3½   | 5    | 5    |
|            | 1½             | 1¾  | 2¼  | 3    | 5    | 4½   |
|            | —              | —   | —   | —    | —    | 4    |
|            | —              | —   | —   | —    | 4    | 3¾   |
|            | —              | 1½  | —   | —    | —    | —    |
|            | —              | —   | —   | —    | 4    | 3    |
|            | —              | —   | —   | —    | 3    | 3    |

## TUBE TYPE RADIATORS

SQ. FT. OF RADIATION PER SECTION

| Width→     | NO. OF TUBES |     |     |     |      |
|------------|--------------|-----|-----|-----|------|
|            | 3            | 4   | 5   | 6   | 7    |
| Width→     | 5"           | 7"  | 8¾" | 9¾" | 12½" |
| Height In. | 38"          | 36" | 32" | 26" | 23"  |
|            | 3½           | 4¼  | 5   | 6   | —    |
|            | 3½           | 4¼  | 5   | 6   | 7    |
|            | 3            | 3½  | 4½  | 5   | 6    |
|            | 2½           | 2¾  | 3½  | 4   | 5    |
|            | 2            | 2½  | 3   | 3½  | 4½   |
|            | —            | —   | —   | —   | 4½   |
|            | 1¾           | 2¼  | 2¾  | 3   | 3¾   |
|            | —            | —   | —   | —   | 3½   |
|            | —            | —   | —   | —   | 3    |
|            | —            | —   | —   | —   | 3    |
|            | —            | —   | —   | —   | 2½   |

**THIN TUBE RADIATORS**  
SQ. FT. OF RADIATION PER SECTION

| Width→     | NO. OF TUBES  |   |   |  |   |
|------------|---|---|---|--|---|
|            | 2   | 3   | 4   | 5  | 6   |
|            |  |  |  |  |  |
| Height In. |   |   |   |  |   |
| 38"        | 2.5   | 2.6   | —   | —  | —   |
| 32"        | 2.0   | 2.4   | —   | —  | 3.7   |
| 26"        | —   | —   | 2.4   | 3.0  | 3.0   |
| 25"        | 1.6   | 1.6   | 2.0   | —  | 3.0   |
| 23"        | —   | —   | —   | 2.1  | —   |
| 22"        | 1.3   | 1.4   | 1.8   | —  | —   |
| 20"        | —   | —   | 1.8   | —  | 2.3   |
| 19"        | 1.1   | 1.2   | 1.6   | —  | 2.3   |
| 17"        | —   | —   | —   | 2.0  | —   |

**WEIL-McLAIN BASEBOARD RADIATION RATINGS**  
Capacities per Lineal Foot in BTU/Hr. with 65° F. Entering Air

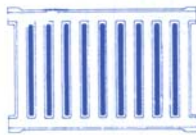
**CAST IRON BASEBOARD**

| MODEL | STEAM RATING<br>SQ. FT. STEAM<br>@ 215° F. | WATER FLOW RATE — 500 LBS./HR. OR 1 GPM                  |     |     |     |     |     |     |
|-------|--|--|-----|-----|-----|-----|-----|-----|
|       |  | AVERAGE WATER TEMPERATURE BETWEEN INLET AND OUTLET — °F. |     |     |     |     |     |     |
|       |  | 150  | 160 | 170 | 180 | 190 | 200 | 215 |
| No. 9 | 3.35                                       | 390  | 450 | 510 | 570 | 640 | 700 | 800 |

**CONVECTOR BASEBOARD**

| MODEL   | WATER FLOW RATE — 500 LBS./HR. OR 1 GPM                  |     |     |     |       |       |       |       |
|---|--|-----|-----|-----|-------|-------|-------|-------|
|   | AVERAGE WATER TEMPERATURE BETWEEN INLET AND OUTLET — °F. |     |     |     |       |       |       |       |
|   | 170  | 180 | 190 | 200 | 210   | 220   | 230   | 240   |
| Model 75 WLT<br>(3/4" Tube)<br><b>THERMA TRIM</b> | 500  | 570 | 630 | 690 | 760   | 820   | —     | —     |
| Model 75 H<br>(3/4" Tube)<br><b>HIGH TRIM</b>     | 680  | 760 | 850 | 940 | 1,030 | 1,110 | 1,200 | 1,290 |

**WALL TYPE RADIATORS**



| Size            | Sq. Ft. Per Radiator |
|-----------------|----------------------|
| 13½" x 17" x 3" | 5                    |
| 13½" x 21" x 3" | 6                    |
| 13½" x 22" x 3" | 7                    |
| 13½" x 29" x 3" | 9                    |

**SECTIONAL WALL TYPE RADIATORS**



| Height                        | 37" | 26½" | 21½" | 15" | 13¾" |
|-------------------------------|-----|------|------|-----|------|
| Sq. Ft. Radiation Per Section | 2½  | 1¾   | 1½   | 1   | ¾    |

**RADIATOR RATING STANDARDS**

A SQUARE FOOT OF STEAM RADIATION is based on a heat emission of 240 BTU per hour per square foot, with standard 70° F. air temperature and 215° F. steam temperature in the radiator. A SQUARE FOOT OF WATER RADIATION is based on a heat emission of 150 BTU per hour per square foot, with standard 70° F. air temperature and an average water temperature in the radiator of 170° F.

A different rate of heat emission will be obtained when the average water temperature in the radiator is higher or lower than 170° F. See table below.

EXAMPLE: A structure has a calculated heat loss of 63,000 BTU and an average water temperature in the radiators of 200° F. As shown in the heat emission table, with 200° F. average water temperature, the heat emission is 210 BTU per square foot of radiation. Therefore the footage which must be used in selecting radiators is 300 sq. ft. (63,000 ÷ 210 = 300). Select the boiler on 63,000 BTU net rating.

HEAT EMISSION based on Room Temperature of 70° F.

| AVERAGE WATER TEMP. IN RADIATORS °F |     |     |     |     |     |     |     |
|-------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| 150                                 | 160 | 170 | 180 | 190 | 200 | 210 | 215 |
| HEAT EMISSION BTU PER HOUR SQ. FT.  |     |     |     |     |     |     |     |
| 110                                 | 130 | 150 | 170 | 190 | 210 | 230 | 240 |

See Your  
**WEIL-McLAIN DISTRIBUTOR**  
For A Complete Choice  
of **CAST IRON BOILERS**  
and **BASEBOARD RADIATION**



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