

How to

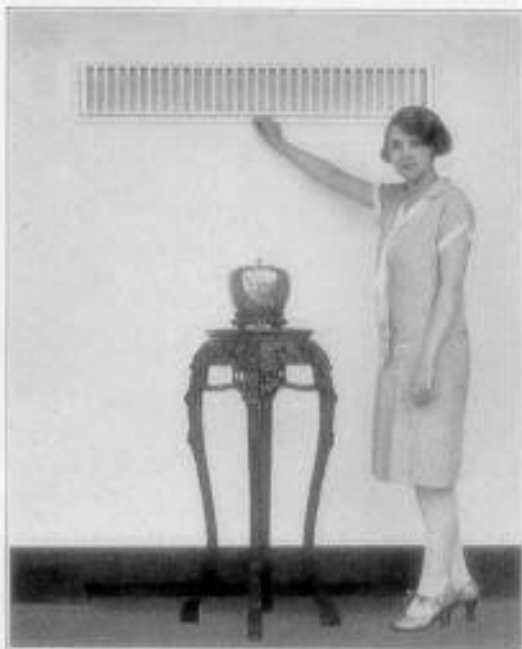
Select

and

Install

Trane Concealed Heaters

Fig. 1. An unretouched photograph of a typical Concealed Heater installation. Heat is controlled by opening or closing the shutter grille. Note that the air inlet at the floor line is practically invisible. Photos showing this equipment at various stages during installation are given in this bulletin, starting on page 26.



Trane Concealed Heaters are used on heating systems to eliminate radiators. Any heating system that would ordinarily use radiators, pipe coils, or similar heat diffusing apparatus can be equipped with these modern successors to radiators.

They are designed for installation in walls of buildings. Nothing is visible on the completed job except a very small heat inlet at the floor and an outlet grille in the wall, as shown in Fig. 1.

The outlet grille in this photo, by the way, is the largest size needed for the largest Trane Heater. There are three shorter lengths for use where less capacity is required.

Concealed Heaters are furnished in various lengths, widths, and heights for installation in every conceivable place. They may be used on either inside or outside walls, under windows or elsewhere; they may be built into window seats, or built into wall cupboards, bookcases, etc., in such a way that they are entirely hidden from view. Floor space is never required. The capacity of Trane Concealed Heaters is not reduced due to this method of making an installation.

Bulletin 24

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A Trane Concealed Heater is made by placing spaced copper fins or sheets upon a copper tube. Steam or hot water passes through the tube, heating it and its fins. Air, reaching the spaced fins, is heated and passed off into the room.

Any heating system is designed in exactly the same way for Concealed Heaters as it would be for cast iron radiation, although, of course, roughing-in dimensions must be considered. Capacities of Concealed Heaters are given in square feet of direct radiation, so the matter of figuring heater sizes is unchanged. Boiler capacities are figured exactly as they always have been figured.

The function of this bulletin is to give information that will be useful in connection with the selection and installation of Trane Concealed Heaters. A large number of actual installation photographs are included. It is not practical, of course, to show every condition that may come up on every installation. The views included in this bulletin are typical, however, and should be valuable even though variations are necessary to meet requirements of any particular job.

The Trane Company, La Crosse, Wisconsin, U. S. A.

(SEE INDEX ON BACK PAGE)

Trane Concealed Heaters

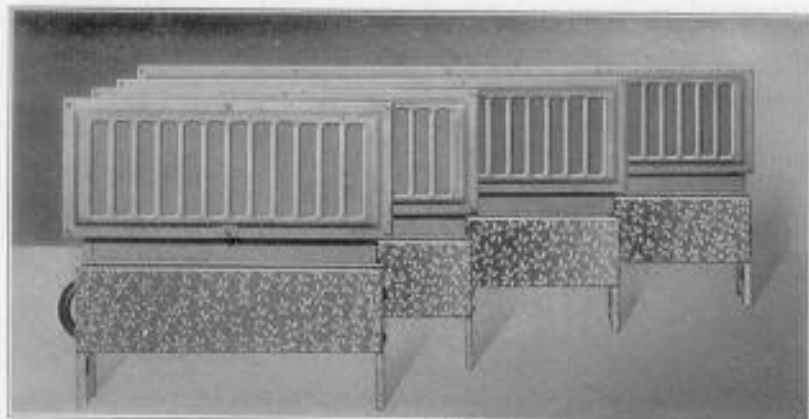


Fig. 2. Trane Concealed Heaters are furnished in four lengths — 18", 24", 36", and 48", with boots and shutter grilles to fit, as illustrated. Each of these lengths of heaters may be obtained in any of the widths shown in Fig. 3. Photos show boot on heater. This equipment makes a complete concealed installation 18 1/4" high, figuring from floor to top of air outlet, as explained in Fig. 7, page 4. An intermediate stack will be required for anything higher. These outlets are designed for 1/2" plaster walls. If thicker walls are to be used we must be notified in advance so proper boots and shutter grilles may be furnished.

Fig. 3. Trane Concealed Heaters are furnished in four widths — 4", 6", 8", and 12", as shown. Two 4" Heaters are united to make the 8" type, and two 6" Heaters are united to make the 12" type. The 4" Heaters are designed for installation in an ordinary "2x4" wall, so called; and the 6" Heaters are designed for installation in an ordinary "2x6" wall. Special wall construction is necessary to accommodate the 8" and 12" Concealed Heaters.

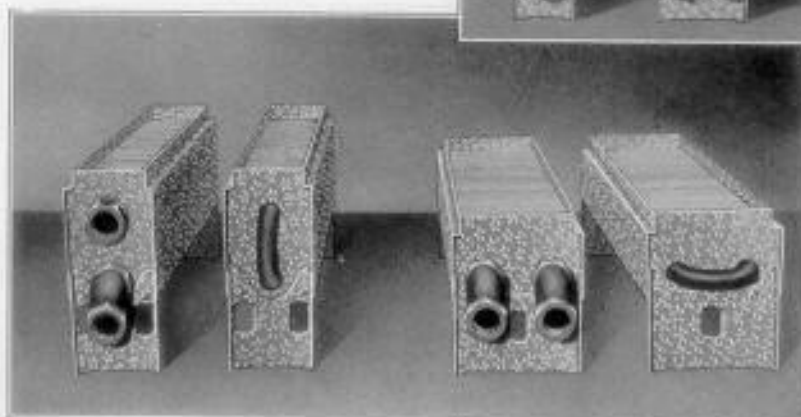
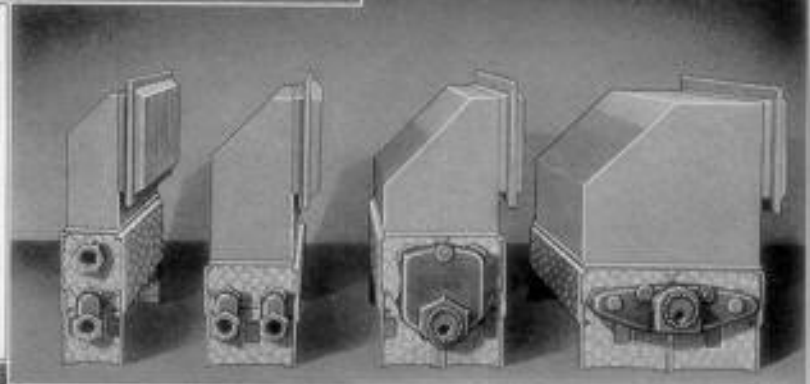
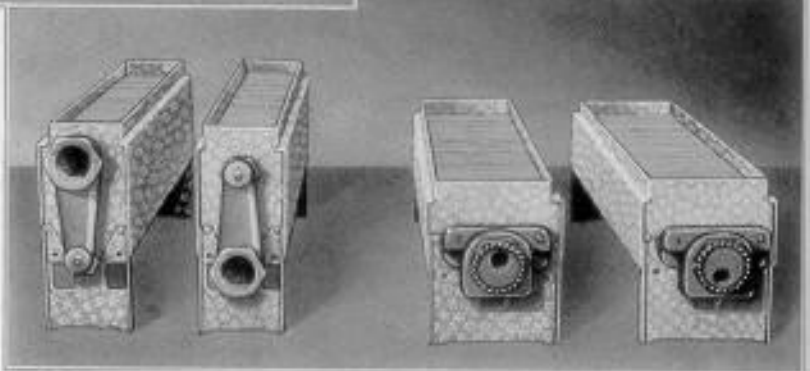


Fig. 4. Typical same end (S.E.) connections are shown here on a 4" Concealed Heater (left) and on a 6" Concealed Heater (right.) These heaters are made up of a copper U-tube upon which are placed the closely spaced copper fins that give Trane Heaters their enormous capacity in very small space. Note the U-bend in the tube. The 8" Heaters are not available with same end connections. The 12" Heaters are furnished with same end connections when necessary, but opposite end connections are recommended.

Fig. 5. Typical opposite end (O.E.) connections are shown here on a 4" Concealed Heater (left) and on a 6" Concealed Heater (right). On these heaters, U-bends are removed and brass fittings are substituted. Fittings used on the 8" and 12" Concealed Heaters are shown in Fig. 3. All Trane Concealed Heater legs have a screw hole at the front and back edges of each leg. These holes are provided for bolting legs to heaters, but only the front holes are used on any given installation. This is because the front holes are the only ones that are accessible after a heater has been completely installed.



Stacks for Concealed Heaters

The capacity of a Trane Concealed Heater depends upon the length and width of the copper heater, and upon the height of the stack that is placed over the heater. The longer and wider a heater is, the more capacity it will have; and, within limits, the higher the stack the greater the capacity of any given heater.

Heaters illustrated in Figs. 2 and 3 are shown exactly as furnished, equipped with boot and shutter grille only. Their capacities may be found in the table given below by reading the numbers associated with a height of 18 $\frac{3}{4}$ inches.

By placing an intermediate stack between the heater and the boot an effect results as shown in Fig. 6. This particular stack forms a concealed outlet 72" high—the maximum recommended height for ordinary installations. We do not furnish intermediate stacks, but directions for making them are given in this bulletin.

The Concealed Heater shown in Fig. 6 is of the 4" width, and is 24" long. Its capacity with boot and grille only is 17 sq. ft.; by adding the inexpensive stack shown, the capacity is increased to 32 $\frac{1}{2}$ sq. ft. These figures are selected from the capacity table below. Since no exact capacity is given for 72", we merely interpolate between the listed capacity for a 55" height and the listed capacity for a 75" height.

The term height as used in the capacity table refers to the space from the bottom of the air inlet to the top of the air outlet.

Since the edge of the outlet grille is 1 $\frac{3}{8}$ " wide, the actual overall height of a Concealed Heater from finished floor is 1 $\frac{3}{8}$ " more than indicated in the height column of the table. See Fig. 7, page 4.

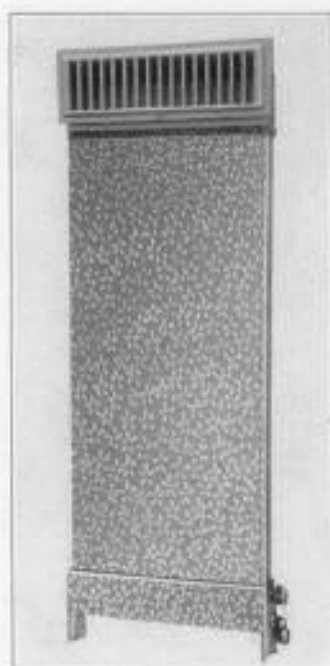


Fig. 6. By placing a simple galvanized iron stack between the Trane Concealed Heater and the Trane Boot and Shutter Grille, any desired height of outlet grille is secured. Within limits, the higher the outlet grille is, the more capacity you will obtain from a given Heater.

Figuring Capacities

The heat required for any given room is figured in terms of square feet of radiation exactly as you always have figured it. Then by referring to the capacity table given below, the proper heater lengths and widths, as well as proper stack heights, may be selected.

In general, on account of appearance it is desirable to use a uniform stack height in a building. A height of six feet seems to be most popular, and, due to the design of Trane Heaters, extremely good results are secured with the 72" height. Lining up with tops of door or window casings usually gives excellent effect in rooms.

The width of heater selected depends upon building construction. Four inch heaters may be installed in ordinary two-by-four walls (i.e., walls using 1 $\frac{3}{8}$ "x3 $\frac{1}{2}$ " studs); Six inch heaters require standard two-by-six walls (1 $\frac{3}{8}$ "x5 $\frac{1}{2}$ "); Eight and Twelve inch heaters always require special construction and therefore are usually placed under window seats or concealed in chests of drawers, built-in book cases, or similar places.

Capacities of Concealed Heaters in Square Feet

Length Height	4" Concealed Heater				6" Concealed Heater				8" Concealed Heater				12" Concealed Heater			
	18"	24"	36"	48"	18"	24"	36"	48"	18"	24"	36"	48"	18"	24"	36"	48"
18 $\frac{3}{4}$	12	17	25	34	16	22	33	44	Use 6" Concealed				25	33	49.5	66
20	13	18	27	36	18	24	36	48	Heater for heights				27.5	36	55	72
22	14	18	28	37	19	25	38	51	under 25"				29.5	39.5	59	79
25	15	20	30	40	21	28	42	56	22	29.5	44	59	32.5	43.5	65	87
35	18	23.5	35	47	25	33	50	67	30	40	60	80	41	55	82.5	110
45	20	27	40	54	28	38	57	75	35	47	70.5	94	47	63	96	125
55	23	29.5	45	59	31	41	61	82	39	52.5	78	105	52	69	103.5	138
65	24	31.5	48	63	32	43	64	86	43	57	85.5	114	56	75	112.5	150
75	25	33	49	66	33	44	66	89	45.5	60.5	91	121	59	79	118.5	158
85	26	34.5	51	69	34	45	68	91	47	63	94	126	62	82.5	124	165

How to Order Intermediate Stacks

Intermediate stacks are ordered directly from your sheet metal man. Specifications for construction, as shown here and on page 5 should be given to him, along with size of stacks and quantities desired.

On a given job, grille outlets a certain distance from the floor will be desired. Since the height of the heater, boot, and grille is $18\frac{3}{8}$ " , it is only necessary to subtract this amount from the height as listed in the capacity table in order to find the height SH, Fig. 8, of intermediate stack required. This information is given in tabulated form below.

In the typical order for Concealed Heaters on page 6, we list 2-4"x36" heaters and 1-6"x36" heater. Suppose it is desired to get a capacity of 48 sq. ft. from the 4"x36" heaters, and a capacity of 60 sq. ft. from the 6"x36" heater. Referring to the capacity table on page 3 we find that the height of the outlet should be 65" for the 4"x36" heaters and approximately 55" for the 6"x36" heaters in order to give the desired capacity.

As a rule, however, it is desirable to have all heat outlets a uniform distance from the floor, so on the 6"x36" outfit we would use a stack of the same height as for the four-inch heaters, namely, 65". This will give an increased

capacity to the 6"x36" heater, but the increased cost is negligible since the only difference is due to the addition of ten inches of sheet metal stack.

Referring now to the table at the bottom of this page, we find that for a heat outlet 65" from the floor, our intermediate stack height (SH) should be $46\frac{5}{8}$ ".

Two of these stacks are for 4"x36" heaters, and one is for a 6"x36" heater. By referring to the dimension table below, it is easy to select dimensions "SW" and "SL" for the stacks.

An order to the sheet metal contractor for these stacks would give the following information:

2 sheet metal stacks $33\frac{3}{8}$ " wide, $35\frac{1}{2}$ " long, and $46\frac{5}{8}$ " high.

1 sheet metal stack $53\frac{3}{8}$ " wide, $35\frac{1}{2}$ " long, and $46\frac{5}{8}$ " high.

And add this note to your order:

Stacks to be made of 24 gauge galvanized iron in strict accordance with Trane drawings furnished with this order. Dimensions must be followed exactly as given. Drive slips are to be furnished with stacks. All joints must be air tight.

One of these bulletins may be turned over to the sheet metal man for his guidance if desired, or we will furnish drawings in blueprint form without charge upon request.

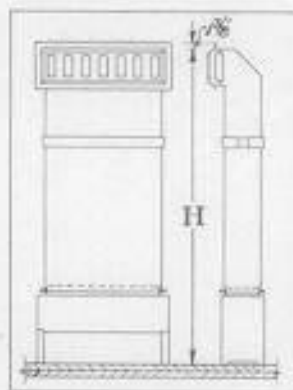


Fig. 7. The height referred to in Trane Concealed Heater capacity tables is measured from finished floor to top of air outlet opening in stack, and is shown by the letter H in this drawing. Note that the flange on the outlet grille extends $1\frac{3}{8}$ " over this amount, which extension may, in some cases, need consideration.

Inside Dimensions for Intermediate Stack

Length of Heater	Heater 4" wide		Heater 6" wide		Heater 8" wide		Heater 12" wide	
	S W	S L	S W	S L	S W	S L	S W	S L
18"	$35\frac{1}{8}$ "	$18\frac{1}{4}$ "	$59\frac{1}{8}$ "	$18\frac{1}{4}$ "	$7\frac{1}{2}$ "	$18\frac{1}{4}$ "	$11\frac{1}{4}$ "	$18\frac{1}{4}$ "
24"	$39\frac{1}{8}$ "	$24\frac{1}{2}$ "	$63\frac{1}{8}$ "	$24\frac{1}{2}$ "	$7\frac{1}{2}$ "	$24\frac{1}{2}$ "	$11\frac{1}{4}$ "	$24\frac{1}{2}$ "
30"	$43\frac{1}{8}$ "	$30\frac{1}{2}$ "	$67\frac{1}{8}$ "	$30\frac{1}{2}$ "	$7\frac{1}{2}$ "	$30\frac{1}{2}$ "	$11\frac{1}{4}$ "	$30\frac{1}{2}$ "
48"	$59\frac{1}{8}$ "	$47\frac{1}{2}$ "	$83\frac{1}{8}$ "	$47\frac{1}{2}$ "	$7\frac{1}{2}$ "	$47\frac{1}{2}$ "	$11\frac{1}{4}$ "	$47\frac{1}{2}$ "

Note: SW (Stack Width) and SL (Stack Length) are inside measurements.

Intermediate Stack Heights

Height as in cap. tables	$18\frac{3}{8}$ "	20"	22"	24"	25"	30"	45"	55"	65"	75"	85"	95"	105"
Height of Intermediate stack "SH" required	0	$1\frac{3}{8}$ "	$3\frac{3}{8}$ "	$5\frac{3}{8}$ "	$6\frac{3}{8}$ "	$10\frac{3}{8}$ "	$20\frac{3}{8}$ "	$30\frac{3}{8}$ "	$40\frac{3}{8}$ "	$50\frac{3}{8}$ "	$60\frac{3}{8}$ "	$70\frac{3}{8}$ "	$80\frac{3}{8}$ "

How to Remove a Concealed Heater



Fig. 38. After taking off the removable baseboard on the concealed installation shown in Fig. 37, the first step toward removing the concealed heater is to disconnect the trap collar and remove the radiator trap. The radiator union elbow in the supply pipe is also disconnected at this time.

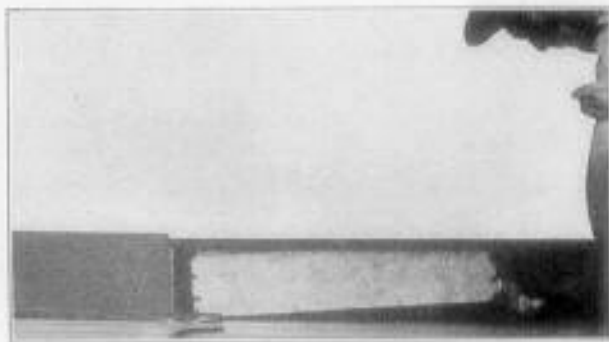


Fig. 41. Move heater away from supply pipe as far as it will go. The supply pipe on the heater will then clear the supply stub in the floor. This clearance is shown in Fig. 42. Heaters using opposite end connections are handled similarly.



Fig. 39. Next, lift U-bend end of heater as high as it will go and remove leg. This operation shows importance of having clearance between bottom of stack and shoulder on heater, as illustrated in Fig. 28, page 22.

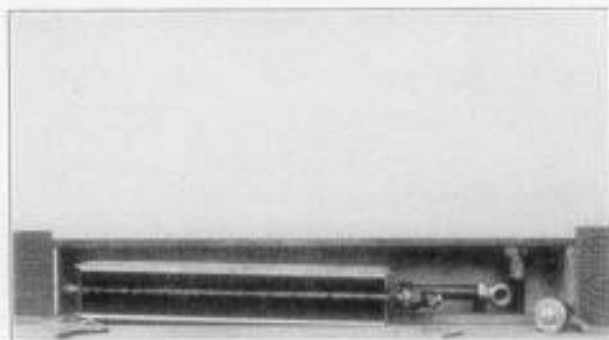


Fig. 42. Heater is now free and may be easily removed, bottom first, as shown. A twenty-four inch heater is used in these illustrations, but the procedure is the same for all lengths of four-inch type heaters. Six-inch type heaters come out similarly, but need not be turned on their side.



Fig. 40. Remove other leg in same manner. If stack has been properly constructed, and if a full $\frac{3}{4}$ " clearance has been provided between bottom of stack and shoulder of heater, the removal of heater legs is simple.



Fig. 43. Heater removed. Quarter-round on floor has not been disturbed. Opening is only $\frac{3}{4}$ inches from floor, making possible the use of standard 8" baseboard. See Fig. 54 for details of construction of removable section of baseboard.