

AIA, File No. 30-A  
(June, 1956)

AMERICAN-Standard

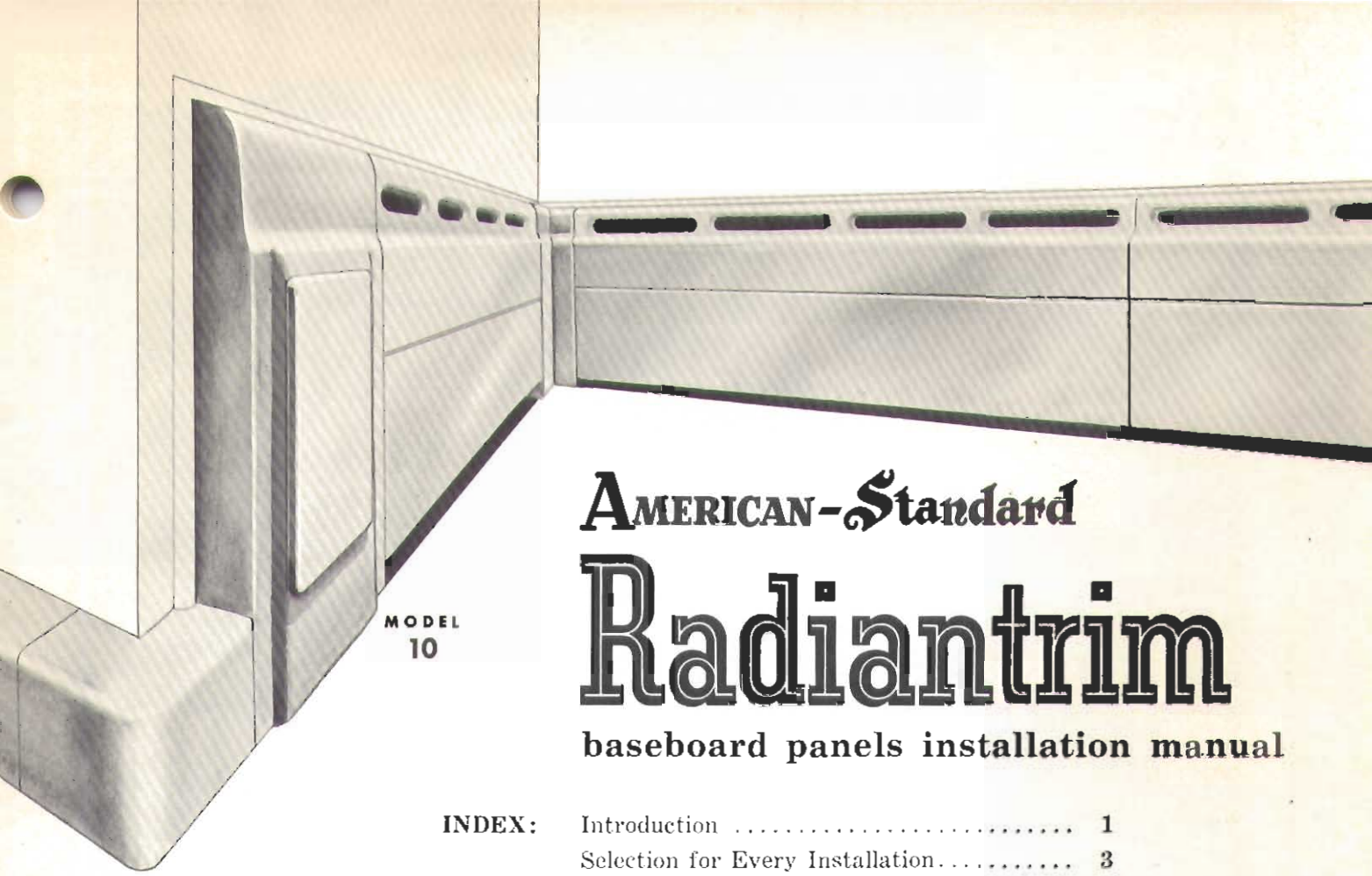
# Radiantrim

MODEL 10

*baseboard panels*

*Installation Manual*

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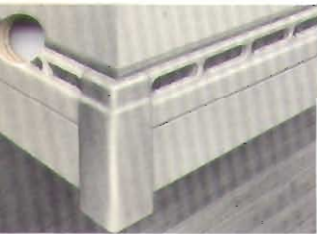


# AMERICAN-Standard Radiantrim

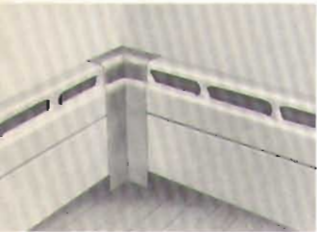
baseboard panels installation manual

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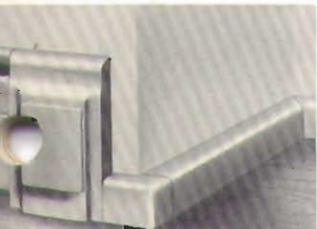
Projecting  
Corner Cover



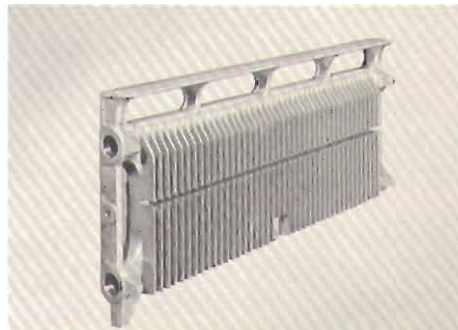
Inverted  
Corner Cover



Valve  
Enclosure



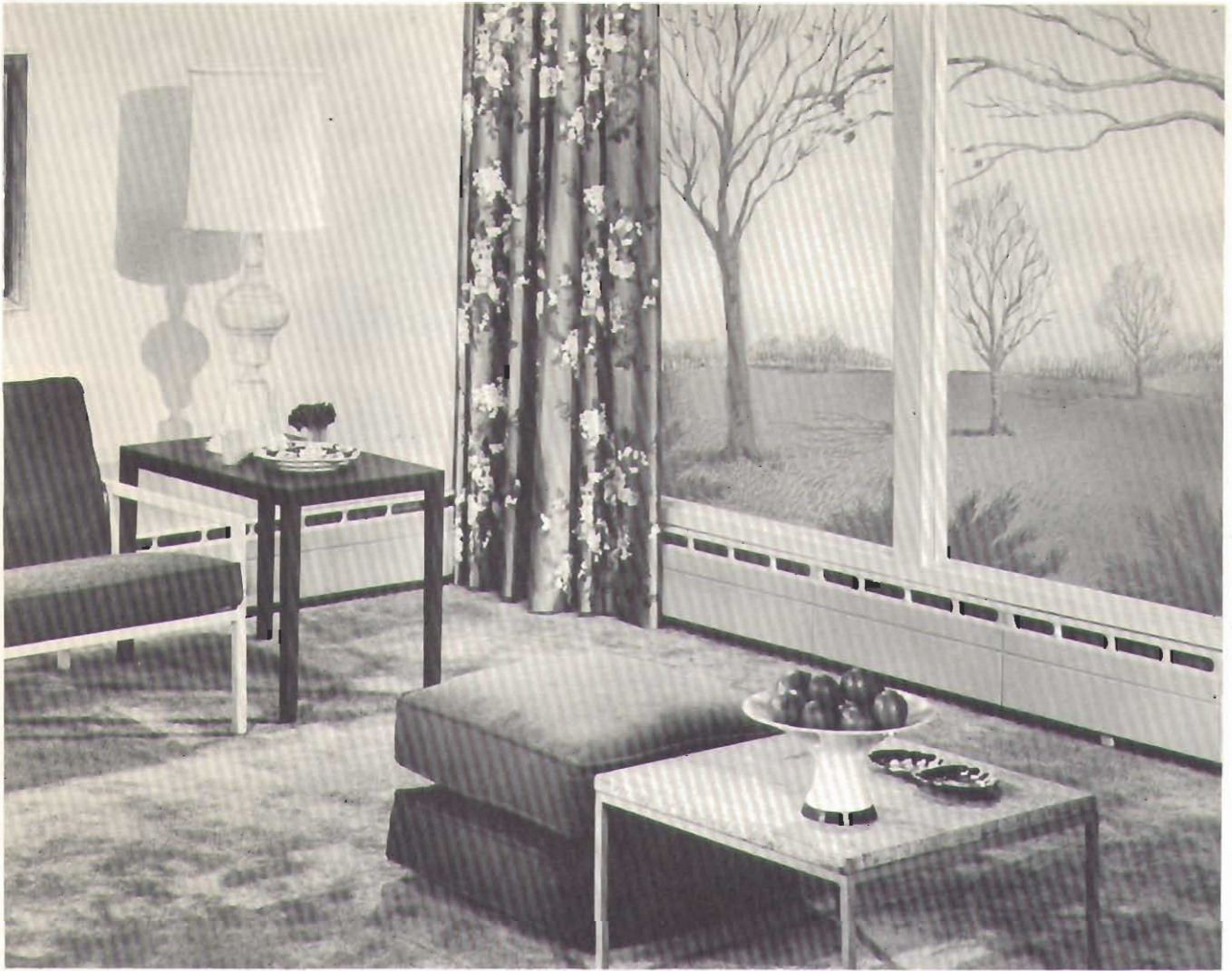
Pipe Enclosure,  
Projecting  
Corner Assembly



Rear View, Right Hand End Panel



Front View, Right Hand End Panel



## Model 10—Radiantrim Cast Iron Baseboard Radiation

Model 10 Radiantrim baseboard panels by American-Standard are modern heating at its best. Constructed of durable cast iron and water-backed for efficient and economical operation, they provide perfectly balanced heating comfort, sunlike radiant and convected heat.

Radiantrim panels are ideally suited for every size home—small, medium or large—and are adaptable to a wide variety of commercial and institutional installations.

Model 10 Radiantrim panels are available in three convenient lengths, 12", 18", and 24", to fit any room. These compact panels can be installed against existing walls or easily recessed to the depth of the plaster. Homeowners like Radiantrim

for its snug fit, draft-free comfort and decorating freedom.

Skillful engineering and design have increased output of Model 10 Radiantrim considerably over average cast iron baseboard. With these high ratings, the need for inside wall installation is eliminated on most jobs. This makes Model 10 Radiantrim ideal for rooms with a high heat loss such as those with large glass areas.

### Radiantrim panels— design and construction

Model 10 Radiantrim panels offer the best advantages of both radiator heating and advanced

baseboard panel design. They provide comfortable radiant heat without the bulk of radiators. They provide smart baseboard styling and rapid heat emission. Radiantrim baseboard panels are as modern as they are space saving — when recessed they are almost invisible and blend gracefully into the decor of living room, office, or show room. Using non-metallic heat-resisting paint, these panels may be painted any color.

Radiantrim panels are the result of exacting engineering, the product of laboratory testing and development.

With these modern baseboard panels by American-Standard, users are assured of convenient, carefree, economical, automatic hot water or steam heating — of the health and comfort factors that only a modern system provides.

Radiantrim panels are constructed of ageless cast iron for efficient transmission of heat. They are joined together easily, in various assemblies, to meet the needs of every installation requirement, large or small, simple or complex. Radiantrim panels are only  $10\frac{3}{8}$ " high and  $2\frac{1}{8}$ " deep. Home owners, heating contractors, builders, engineers and architects alike will find these smart baseboard panels economical to install, easy to maintain and tops in performance.

## Selection for every installation

Heating requirements for systems using Radiantrim panels by American-Standard are calculated in the same manner as other radiator heating systems. In the selection of product and planning for installation, an important factor to remember is that Radiantrim panels produce a much better distribution of heat. The band of baseboard panels encircling the room with the mass of radiating area at ankle height insures comfort in its ideal location, at the floor line. It effectively offsets infiltrating cold at its source and makes useable space along outer walls that would otherwise be wasted. Temperature differential from floor to ceiling in any given room is reduced to a minimum.

Radiantrim panels are designed for installation with forced hot water or two-pipe steam systems. In two-pipe forced hot water installations, reverse return piping arrangements are recommended. They are equally well suited to installation in basementless houses and similar constructions.

Radiantrim panels should be located, insofar as possible, around the exposed walls of each room to heat the cold outside wall area. The heat loss from each room should be calculated separately. In addition to providing a radiant wall of warmth around each room, they produce warm floors and

eliminate the greatest single discomfort factor normally found in homes without basements — the cold, uncomfortable, seemingly damp floor. Panel assembly must be at least one foot shorter than available wall length to allow for valve and fitting space at each end.

If abnormal heat requirements demand the use of more Radiantrim than can be placed along an outside wall, it will be necessary to include on the inside wall whatever additional panels are needed to complete the total heat loss requirement. To arrive at the number of panels needed, simply follow the example under the rating tables on Pages 10 and 11. The same design temperature can be used in all assemblies of any one installation, or, with automatic zone controls, different temperatures can be maintained efficiently and economically.

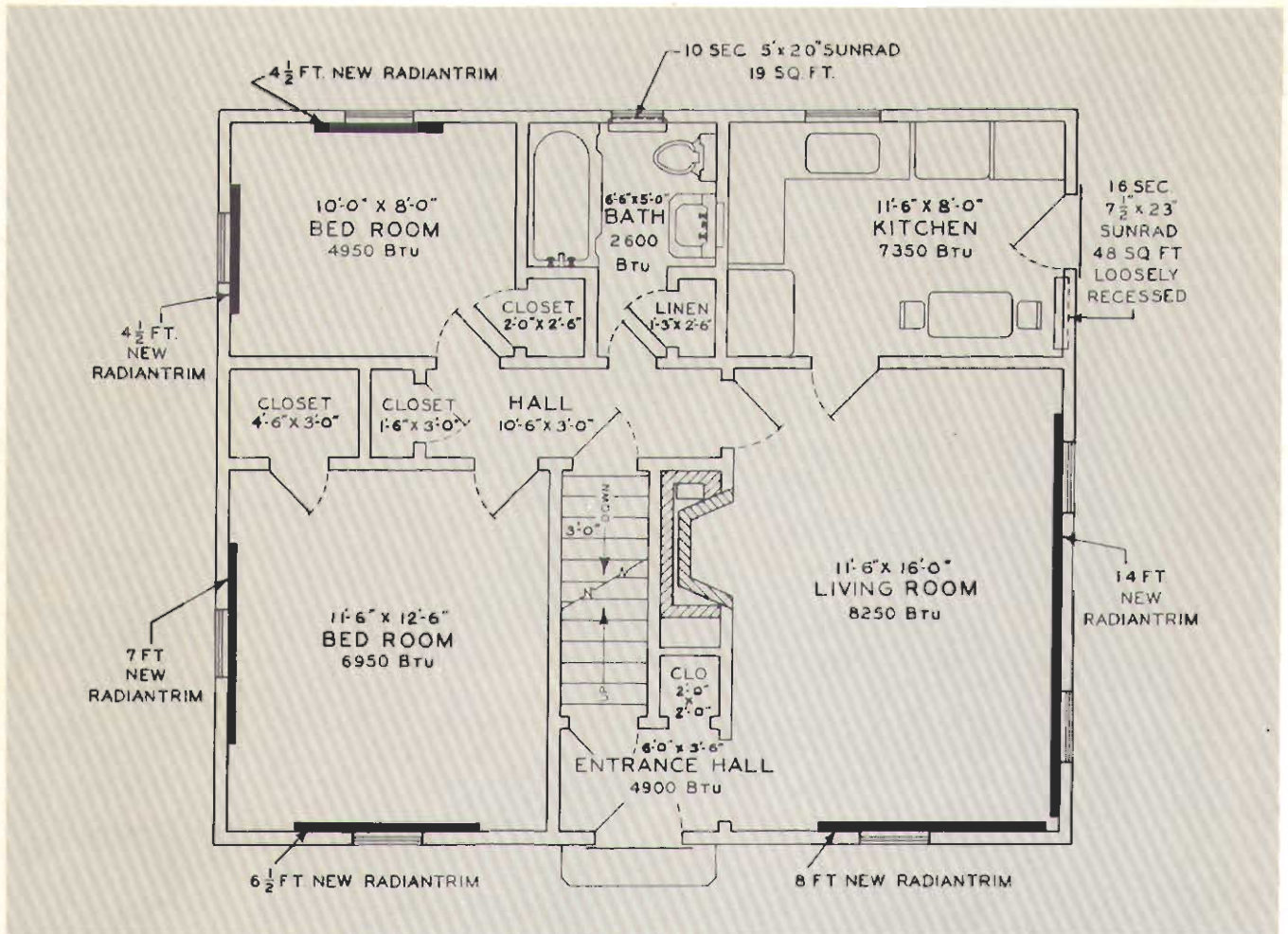
## Typical installation

A typical small home floor plan, shown on the next page and the pages that follow, provides an easy-to-read, easy-to-understand installation guide that will enable the heating contractor and installer to figure jobs using Model 10 Radiantrim panels quickly, easily and profitably.

The heat loss shown for each room has been calculated as for any radiator heating installation. The heat transfer coefficient in British thermal units (Btu) per hour per square foot per degree Fahrenheit for all surfaces of the house, both with minimum insulation and with full insulation, is the same as that shown and explained in Institute of Boiler and Radiator Manufacturers' (I-B-R) installation guides. The outside air temperature, for the purpose of these examples, is arbitrarily chosen as 0°F, while the indoor temperature is set at 70°F. This gives a temperature difference of 70°. Multiplied by the coefficient, it provides the following heat transfer factors in Btu per hour per square foot for this differential:

HOUSE	WALL	CEILING	WINDOW	FLOOR
With Minimum Insulation—				
Coefficient:	0.25	0.13	1.13	0
Factor:	18.	9.	79.	0
With Full Insulation—				
Coefficient:	0.10	0.08	0.50	0
Factor:	7.	6.	35.	0

Details of construction are shown on pages 4 and 5. In these examples, no heat loss through the floor has been considered. As shown on the layout pages, a choice of radiation is available for each room, with each type of installation.



### TYPICAL LAYOUT TO MEET HEATING REQUIREMENTS

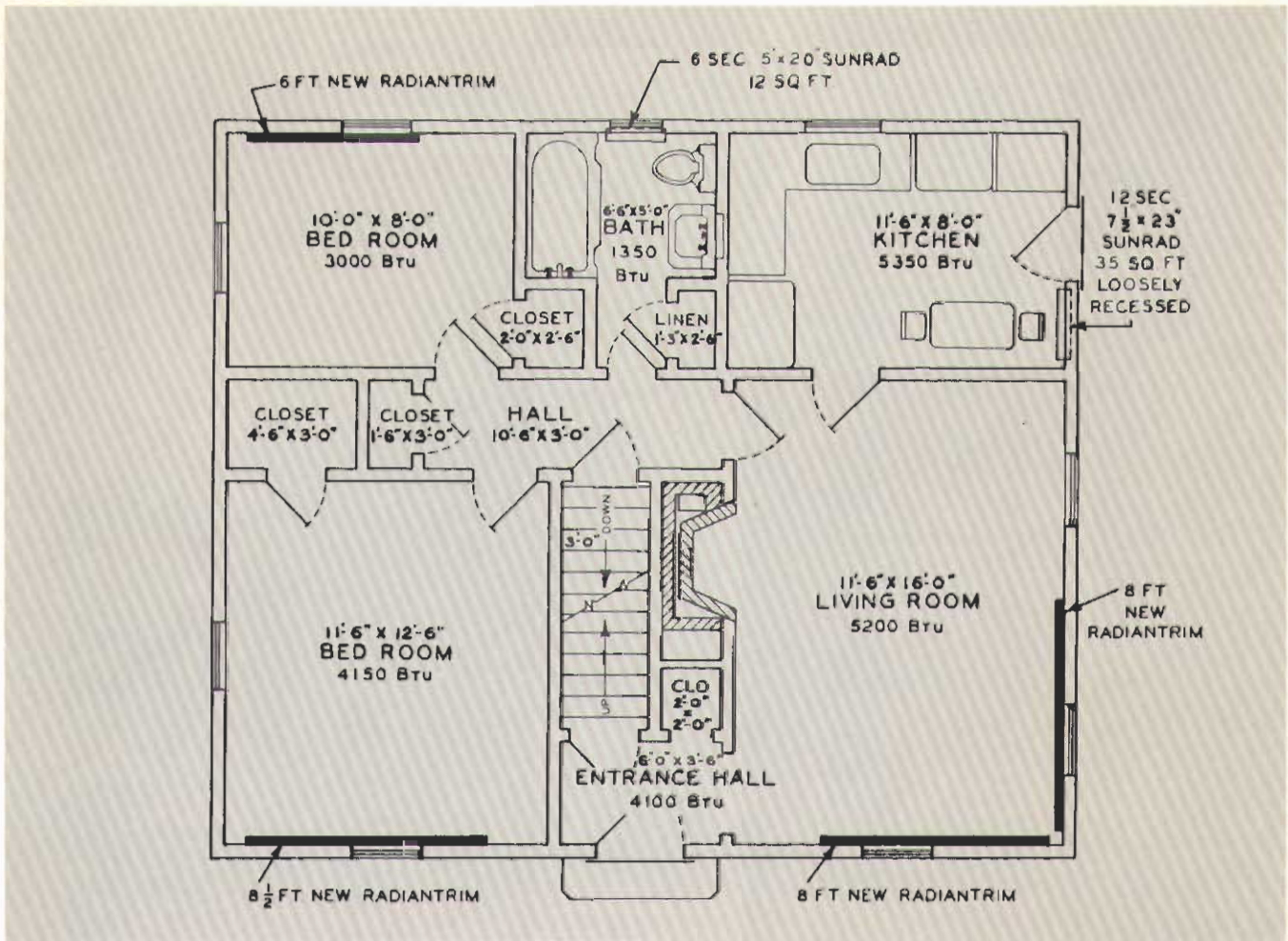
And recommended supplementary radiators to supply heat in locations with insufficient wall length for Radiantrim Panels.

## 1st Floor Plan

The plans and descriptions on these pages provide a basic example for estimating heating requirements and illustrate several methods of installing Radiantrim panels. Use any standard approved formula to calculate heat loss. Then refer to the table on pages 10 and 11 to determine the total number of lineal feet of Radiantrim panels required. For the sake of simplicity, only the first floor plan has been illustrated in these examples.

The illustration above shows the floor plan with the heat loss for each room figured separately and expressed in Btu. On the floor plan, Radiantrim panels occupy the outside wall space in each room uniformly and comfortably.

In the plan above the ceiling height is considered to be 8'6". Construction details include: Windows—wood, double-hung, no storm sash; outside doors—figured as windows; walls—wood siding, building paper, studs, lath, plaster and 25/32" rigid insulation for sheathing, otherwise no insulation; ceiling—lath and plaster, no floor above, 2" mineral wool, fiber, quilt, loose fill, bat or reflective foil insulation between joists; floor—over unheated space, double floor on joists, no ceiling below (if exposed to outside air, ceiling below); infiltration—windows, average fit, no weather stripping; outside doors—average fit, no weather stripping.



## 1st Floor Plan

### TYPICAL LAYOUT TO MEET HEATING REQUIREMENTS

And recommended supplementary radiators to supply heat in locations with insufficient wall length for Radiantrim Panels.

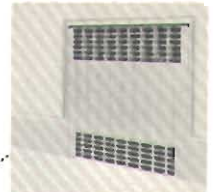
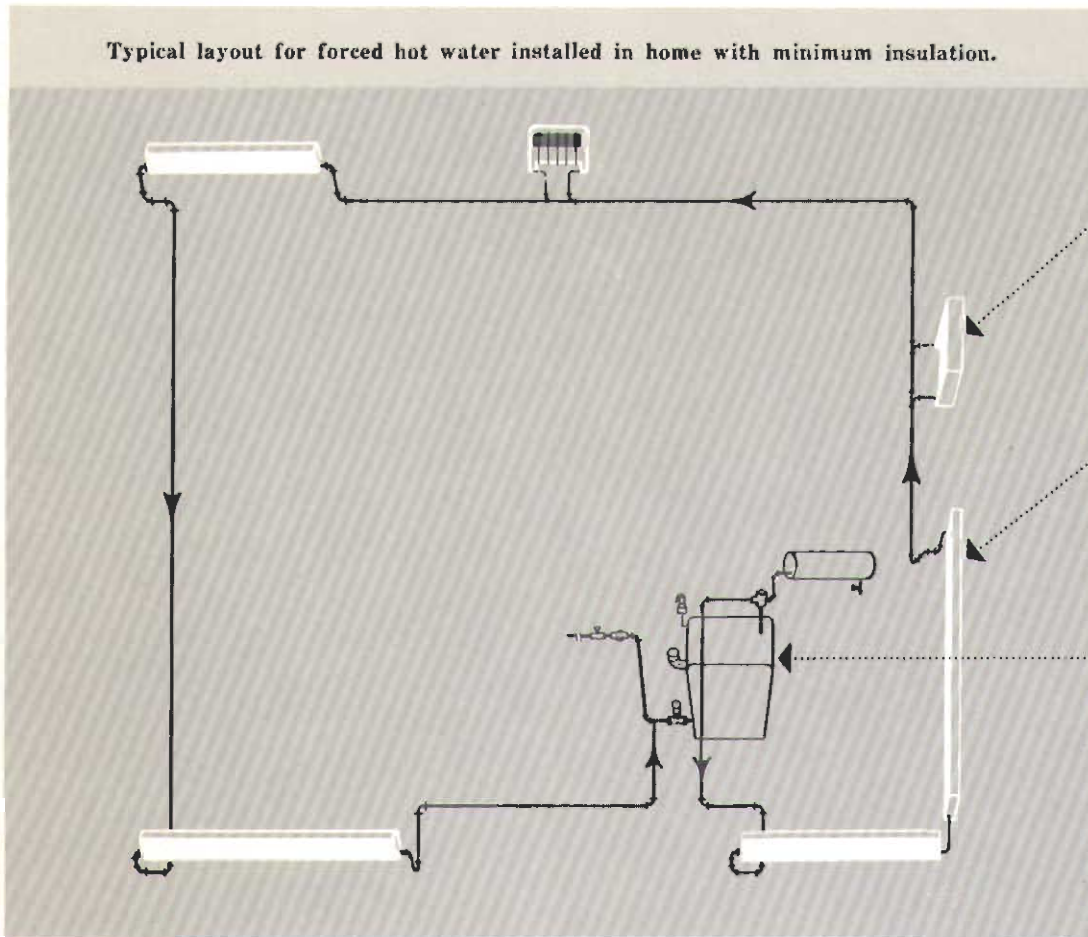
## *with full insulation*

Here, again, the same floor plan shown on page 4 is used for the purpose of illustrating the Radiantrim panel layout and installation. However, due to the insulation used in construction, the heat loss figures are lower. Radiantrim panels are shown in the floor plan.

Rooms designated by floor plan above are considered to have same ceiling height as detailed on opposite page. Construction details include: Windows—wood, double-hung, storm sash of wood; outside doors—figured as windows; walls—wood

siding, building paper, studs, lath, plaster and 25/32" rigid insulation for sheathing; 2" mineral wool, fiber, quilt, loose fill, bat or reflective foil insulation; ceiling—lath and plaster, no floor above; 3 5/8" insulation, material selected, between joists. Floor—over unheated space, double floor on joists, no ceiling below; if exposed to outside air, ceiling below. Infiltration—windows, average fit, with weather stripping; outside doors, average fit, with weather stripping.

Typical layout for forced hot water installed in home with minimum insulation.



Sunrad Radiators—readily adaptable to installation with Radiantrim Panels.



Radiantrim Panels—complete the efficient, trouble-free installation.



The Severn Boiler—for either hard or soft coal stoker.



Arco Radiators—and equally efficient Arco Convectors—may also be used.

## Mainless System

*Radiantrim panels provide a minimum total of 16,450 Btu/hr output; Sunrad provides an additional 6700 Btu/hr or 45 square feet installed radiation*

### Installation notes

Radiantrim panels used in this mainless system installation are designed to provide temperatures, as noted on preceding pages, of 70°F inside with 0°F outside. System design has been calculated to use Radiantrim panels with forced hot water at an average temperature of 180°F.

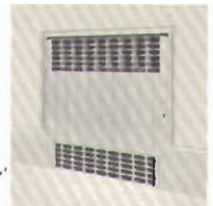
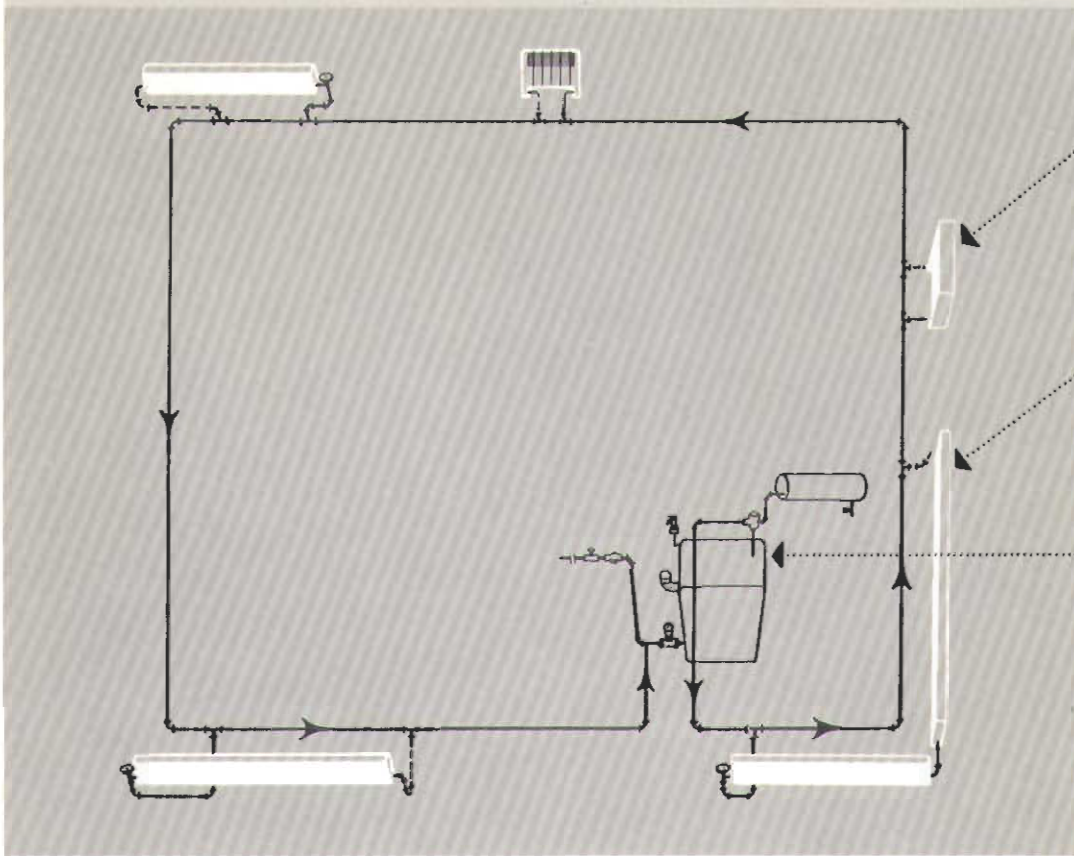
Normally, there will be ample wall area for installation of the required assemblies of Radiantrim panels. However, in some rooms—in the bathroom and kitchen shown above, or in powder rooms and utility rooms—the arrangement of appliances, fixtures and openings around the rooms prohibit the installation of Radiantrim panels. Radiators or convectors can be installed in these particular rooms, with Radiantrim panels through-

out the rest of the home. For recommended installation practice in such cases, see "Installations with Other Radiators" on page 12.

Materials for the installation illustrated above include the Severn Boiler for stoker-fired coal; 30½ lineal feet of Model 10 Radiantrim panels; two Sunrad radiators—one 12-section 7½ x 23" radiator loosely recessed in the kitchen, and one 6-section 5 x 20" radiator tightly recessed in the bathroom; three valve enclosures; three end boxes; one inverted corner; three center panel support legs; necessary pipe enclosure panels and accessory pieces, valves, pipe and other fittings.

For additional mainless system information, see page 22.

Typical layout for forced hot water installed in home with full insulation.



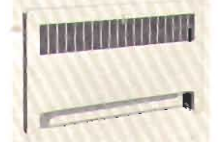
Sunrad Radiators—readily adaptable to installation with Radiantrim Panels.



Radiantrim Panels—complete the efficient, trouble-free installation.



The Arcoliner oil fired heating unit can be installed in first floor locations.



Arco Radiators—and equally efficient Arco Convectors—may also be used.

## One-Pipe System

*Radiantrim panels provide a minimum total of 16,450 Btu/hr output; Sunrad provides an additional 6,700 Btu/hr or 46 square feet installed radiation*

### Installation notes

Radiantrim panels are used in this one-pipe system installation, which also is designed to provide a uniform indoor temperature of 70°F with the temperature at 0°F outside. System design uses Radiantrim panels with forced hot water at an average temperature of 180°F.

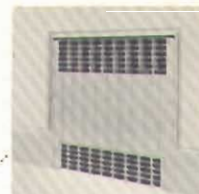
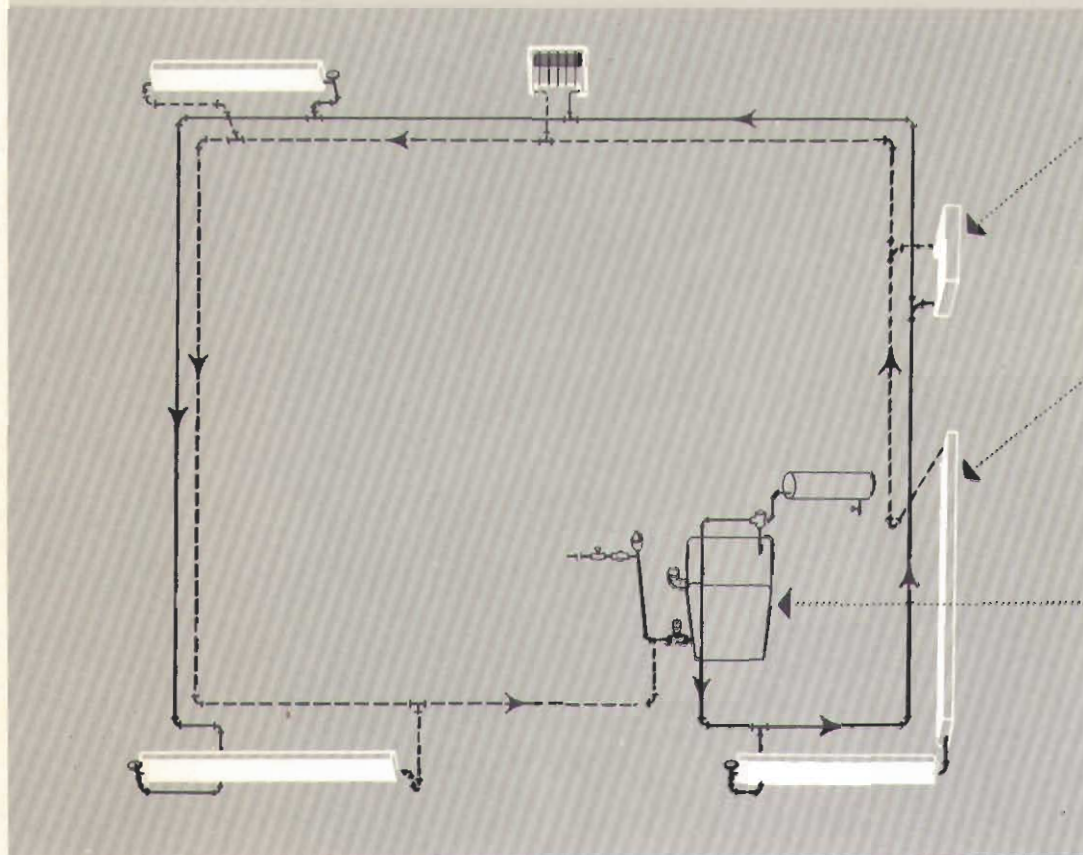
Structural arrangement, such as doorways, French doors, arches, fireplaces, bookcases and special cabinets, may occupy part of the wall area that would normally be used in installing the Radiantrim panels. For installation practice pertaining to these jobs, suggestions for running pip-

ing under partitions and other time-saving ideas, refer to "Special Applications" on page 24.

Materials for the illustration above include the Arcoliner oil-fired heating unit for automatic oil firing, 32 lineal feet of Model 10 Radiantrim panels; two Sunrad radiators—one 12-section 7½ x 23" loosely recessed in the kitchen; and one 6-section 5 x 20" tightly recessed in the bathroom; three valve enclosures; three end boxes; one inverted corner; three center panel support legs; and necessary pipe enclosure panels and accessory pieces, valve, pipe and other fittings.



Typical layout for forced hot water installed in home with minimum insulation.



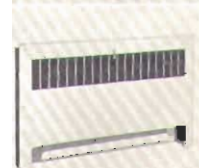
Sunrad Radiators—readily adaptable to installation with Radiantrim Panels.



Radiantrim Panels—complete the efficient, trouble-free installation.



The Empire Boiler offers all the benefits of automatic gas heating.



Arco Radiators—and equally efficient Arco Convectors—may also be used.

## Two-Pipe System

*Radiantrim panels provide a minimum total of 16,450 Btu/hr output; Sunrad radiators provide an additional 6,700 Btu/hr or 39 square feet installed radiation*

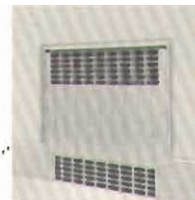
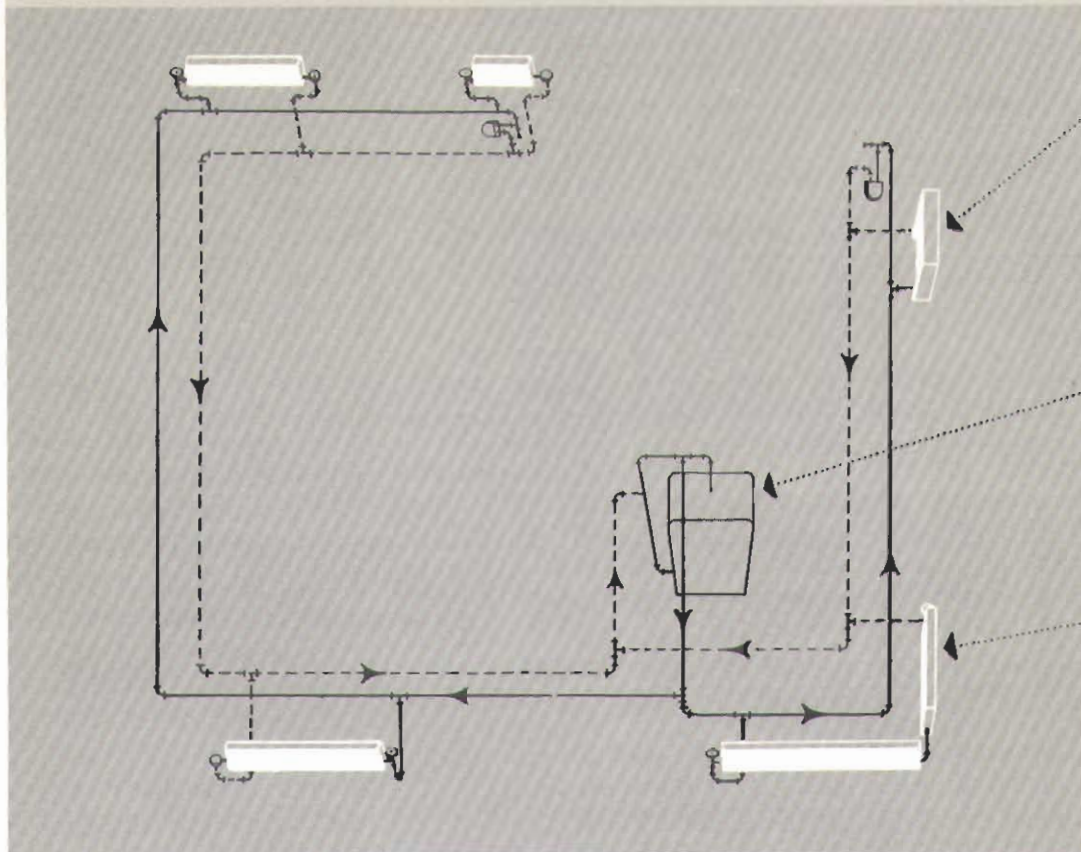
### Installation notes

In this example, Radiantrim panels are used in a two-pipe system installation, with a 70°F indoor temperature and 0°F outdoor temperature. System design has been calculated to use Radiantrim panels with forced hot water at an average of 180°F.

Materials for the installation illustrated above include the Empire gas-fired boiler for automatic firing with gas, 30 lineal feet of Model 10 Radi-

antrim panels, two Sunrad radiators—one 10-section, 7½ x 20" loosely recessed in the kitchen; and one 4-section, 5 x 20" tightly recessed in the bathroom, three valve enclosures, three end boxes, one inverted corner, three center panel support legs, either sweat or compression fittings for connections between assemblies, necessary pipe enclosure cover and accessory pieces, valves, pipe and additional fittings required.

Typical layout for steam installed in home with full insulation.



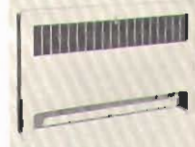
Sunrad Radiators—readily adaptable to installation with Radiantrim Panels.



The Oakmont Boiler is designed exclusively for economical, automatic oil firing.



Radiantrim Panels—complete the efficient, trouble-free installation.



Arco Radiators — and equally efficient Arco Convertors — may also be used.

## Two-Pipe System

*Radiantrim panels provide a minimum total of 17,800 Btu/hr output; Sunrad radiator provides an additional 5,350 Btu/hr or 23-1/2 square feet installed radiation*

### Installation notes

Radiantrim panels are used in this two-pipe system installation. Design conditions are 70°F indoor warmth with 0°F outdoor temperature. System has been calculated to use Radiantrim panels with steam at 215°F.

In the typical layout illustrated above, as in the examples on other pages, Radiantrim panels are indicated for installation along the outside, or exposed walls. It is recommended, and especially applicable to steam installations, that Radiantrim panels be installed level, without any pitch in either direction. Corner, inlet and outlet connections all at the same level means that drainage of condensate in steam installations must be allowed

for by installation of a steam trap of suitable quality and size to fit behind the valve enclosure cover. A trap of maximum body diameter or width of 2" is recommended.

Materials for the installation illustrated above include the Oakmont oil-fired heating unit for automatic oil firing, 23 lineal feet of Radiantrim panels, one Sunrad radiator, 8-section 7½ x 23", loosely recessed in the kitchen, six valve enclosures, one inverted corner, one center panel support leg, either sweat or compression fittings for connections between assemblies, and the necessary pipe enclosure cover and accessory pieces, valve, pipe and additional fittings required.

# Steam and hot water (500 lb/hr)



panel length▲ no. of lineal feet	steam 215° F		hot water—Mbh per lineal foot average water temp—°F							
	Mbh	sq ft	150	160	170	180	190	200	210	220
1	0.81	3.4	0.37	0.43	0.49	0.55	0.62	0.68	0.74	0.80
2	1.62	6.8	0.74	0.86	0.98	1.10	1.24	1.36	1.48	1.60
3	2.43	10.2	1.11	1.29	1.47	1.65	1.86	2.04	2.22	2.40
4	3.24	13.6	1.48	2.15	1.96	2.20	2.48	2.72	2.96	3.20
5	4.05	17.0	1.85	2.15	2.45	2.75	3.10	3.40	3.70	4.00
6	4.86	20.4	2.22	2.58	2.94	3.30	3.72	4.08	4.44	4.80
7	5.67	23.8	2.59	3.01	3.43	3.85	4.34	4.76	5.18	5.60
8	6.48	27.2	2.96	3.44	3.92	4.40	4.96	5.44	5.92	6.40
9	7.29	30.6	3.33	3.87	4.41	4.95	5.58	6.12	6.66	7.20
10	8.10	34.0	3.70	4.30	4.90	5.50	6.20	6.80	7.40	8.00
11	8.91	37.4	4.07	4.73	5.39	6.05	6.82	7.48	8.14	8.80
12	9.72	40.8	4.44	5.16	5.88	6.60	7.44	8.16	8.88	9.60
13	10.53	44.2	4.81	5.59	6.37	7.15	8.06	8.84	9.62	10.40
14	11.34	47.6	5.18	6.02	6.86	7.70	8.68	9.52	10.36	11.20
15	12.15	51.0	5.55	6.45	7.35	8.25	9.30	10.20	11.10	12.00
16	12.96	54.4	5.92	6.88	7.84	8.80	9.92	10.88	11.84	12.80
17	13.77	57.8	6.29	7.31	8.33	9.35	10.54	11.56	12.58	13.60
18	14.58	61.2	6.66	7.74	8.82	9.90	11.16	12.24	13.32	14.40
19	15.39	64.6	7.03	8.17	9.31	10.45	11.78	12.92	14.06	15.20
20	16.20	68.0	7.40	8.60	9.80	11.00	12.40	13.60	14.80	16.00
21	17.01	71.4	7.77	9.03	10.29	11.55	13.02	14.28	15.54	16.80
22	17.82	74.8	8.14	9.46	10.78	12.10	13.64	14.96	16.28	17.60
23	18.63	78.2	8.51	9.89	11.27	12.65	14.26	15.64	17.02	18.40
24	19.44	81.6	8.88	10.32	11.76	13.20	14.88	16.32	17.76	19.20
25	20.25	85.0	9.25	10.75	12.25	13.75	15.50	17.00	18.50	20.00
26	21.06	88.4	9.62	11.18	12.74	14.30	16.12	17.68	19.24	20.80
27	21.87	91.8	9.99	11.61	13.23	14.85	16.74	18.36	19.98	21.60
28	22.68	95.2	10.36	12.04	13.72	15.40	17.36	19.04	20.72	22.40
29	23.49	98.6	10.73	12.47	14.21	15.95	17.98	19.72	21.46	23.20
30	24.30	102.0	11.10	12.90	14.70	16.50	18.60	20.40	22.20	24.00

## I=B=R Ratings

I-B-R approved water ratings shown for American-Standard Model 10 Radiantrim panels are based on a water flow of 500 lb/hr and 1500 lb/hr. Pressure drop for these and other flow rates is shown in "Resistance to Water Flow Table" on page 13. As determined by the Institute of Boiler and Radiator Manufacturers' Testing and Rating Code for Baseboard Type of Radiation, 15% is added to water heat capacity and condensation capacity. These ratings are based on active length of Radiantrim. The active length and total length are the same. The use of I-B-R ratings at water flow rate of 1500 lb/hr is limited to installations where the water flow rate through the baseboard unit is equal to or greater than 1500 lb/hr. Where the water flow rate through the baseboard unit is not known, the I-B-R rating at the standard flow

rate of 500 lb/hr must be used.

Ratings show heat emission expressed in Btu per hour per lineal foot. In the table they are listed for various average water temperatures and for steam at 215°F. Since heat loss calculations are first expressed in Btu per hour, selection of Radiantrim panels can be made directly from the table without converting, unless desired, to the equivalent square feet of radiation.

Knowing the heat loss, it is an easy matter to select the right number of lineal feet of Radiantrim panels by following the simple formula underneath the table. However, ratings in square feet of radiation, based on the standard equivalent of 240 Btu per hour heat emission per square foot at average water or steam temperature of 215°F, are also included. They can be used for added convenience

**Steam and hot water (1500 lb/hr)**



panel length▲ no. of lineal feet	steam 215° F		hot water—Mbh per lineal foot average water temp—°F							
	Mbh	sq ft	150	160	170	180	190	200	210	220
1	0.81	3.4	0.39	0.45	0.51	0.58	0.65	0.71	0.77	0.84
2	1.62	6.8	0.78	0.90	1.02	1.16	1.30	1.42	1.54	1.68
3	2.43	10.2	1.17	1.35	1.53	1.74	1.95	2.13	2.31	2.52
4	3.24	13.6	1.56	1.80	2.04	2.32	2.60	2.84	3.08	3.36
5	4.05	17.0	1.95	2.25	2.55	2.90	3.25	3.55	3.85	4.20
6	4.86	20.4	2.34	2.70	3.06	3.48	3.90	4.26	4.62	5.04
7	5.67	23.8	2.73	3.15	3.57	4.06	4.55	4.97	5.39	5.88
8	6.48	27.2	3.12	3.60	4.08	4.64	5.20	5.68	6.16	6.72
9	7.29	30.6	3.51	4.05	4.59	5.22	5.85	6.39	6.93	7.56
10	8.10	34.0	3.90	4.50	5.10	5.80	6.50	7.10	7.70	8.40
11	8.91	37.4	4.29	4.95	5.61	6.38	7.15	7.81	8.47	9.24
12	9.72	40.8	4.68	5.40	6.12	6.96	7.80	8.52	9.24	10.08
13	10.53	44.2	5.07	5.85	6.63	7.54	8.45	9.23	10.01	10.92
14	11.34	47.6	5.46	6.30	7.14	8.12	9.10	9.94	10.78	11.76
15	12.15	51.0	5.85	6.75	7.65	8.70	9.75	10.65	11.55	12.60
16	12.96	54.4	6.24	7.20	8.16	9.28	10.40	11.36	12.32	13.44
17	13.77	57.8	6.63	7.65	8.67	9.86	11.05	12.07	13.09	14.28
18	14.58	61.2	7.02	8.10	9.18	10.44	11.70	12.78	13.86	15.12
19	15.39	64.6	7.41	8.55	9.69	11.02	12.35	13.49	14.63	15.96
20	16.20	68.0	7.80	9.00	10.20	11.60	13.00	14.20	15.40	16.80
21	17.01	71.4	8.19	9.45	10.71	12.18	13.65	14.91	16.17	17.64
22	17.82	74.8	8.58	9.90	11.22	12.76	14.30	15.62	16.94	18.48
23	18.63	78.2	8.97	10.35	11.73	13.34	14.95	16.33	17.71	19.32
24	19.44	81.6	9.36	10.80	12.24	13.94	15.60	17.04	18.48	20.16
25	20.25	85.0	9.75	11.25	12.75	14.50	16.25	17.75	19.25	21.00
26	21.06	88.4	10.14	11.70	13.26	15.08	16.90	18.46	20.02	21.84
27	21.87	91.8	10.53	12.15	13.77	15.66	17.55	19.17	20.79	22.68
28	22.68	95.2	10.92	12.60	14.28	16.24	18.20	19.88	21.56	23.52
29	23.49	98.6	11.31	13.05	14.79	16.82	18.85	20.59	22.33	24.36
30	24.30	102.0	11.70	13.50	15.30	17.40	19.50	21.30	23.10	25.20

in estimating, pricing and ordering.

▲ Add 1/2" to length for each bushing. Also add 4 3/8" for each standard inverted corner or 10 3/8" for each extended inverted corner, 1 5/8" for each projecting corner and 5 1/2" for each end box and valve enclosure. (Panel length is an integral part of order number — see page 23.)

Ratings are 3.40 square foot per lineal foot, based on 240 Btu emission per hour per square foot for steam. For hot water installations, panels should be sized for an average water temperature not exceeding 220°F. For steam installations, greatest efficiency is obtained at minimum steam temperatures of 215°F.

Ratings are shown in Btu to permit easy selection of Radiatrim panels. The following simple formula applies: First calculate the heat loss of

the room in Btu's, using any recognized and approved method. Then locate the heat loss in vertical column under desired "Average Water Temperature" or "Steam" in rating table above. Following a line horizontally to left, find the number of lineal feet in first column.

For example, determine the number of panels for a job, assuming the heat loss of room to be 6800 Btu, with an average water temperature of 200°, circulated at 500 lb/hr, to be maintained. In the 500 lb/hr rating table locate 6.8 (6800 Btu expressed in MBH (thousand Btu per hour) in the column under 200°. On the same line, note the figure in first column (panel length) at left. It is 10, indicating that 10 lineal feet of panels are required.

At 200° with a 1500 lb flow rate, only 9 1/2' would be needed as the interpolated figure would be 6.75.

## Assemblies

Radiantrim panels are made in 12", 18" and 24" lengths, as shown below. These various lengths make it possible to size a job in lengths of 1½' up to a maximum of 30' in 6" increments. Lengths greater than 30' are not recommended. Assemblies can be made from the following sections:

- 24" center section
- 24" left-hand end section
- 24" right-hand end section
- 24" double leg end section
- 18" left-hand end section
- 18" right-hand end section
- 18" double leg end section
- 12" right-hand end section

Radiantrim panels will be shipped assembled in lengths up to and including 6 lineal feet. Panels of greater lengths will be shipped in two or more sub-assemblies for assembling on the job by the installer.

In selecting or planning Radiantrim panel assemblies, it is very important to allow for the

## Installations with other radiators

Since the Radiantrim panel installation is made in much the same manner as any other radiator heating installation, these panels may be connected to a conventional radiator system. Installation may be a direct loop, with the water or steam passing from the boiler to Radiantrim panels, through the conventional radiator and on through the panels, or panels may be connected in one loop

## System design

Radiantrim panels are made with ¾" IPS tapings and push nipple ports at ends. Radiator valves, for steam, or radiator valves and union elbows for hot water, as shown in the Ratings, Data and Dimensions Catalog (Form No. 205-2) are also made in ¾" IPS sizes.

## Temperature drop in loop

With Radiantrim panels in a mainless installation, the temperature distribution through the panels will be different from that in an installation where a distributing main is used. As water passes through every panel in turn, it will be cooler at the end of the series than it was when it first entered. The temperature drop for each individual Radiantrim panel assembly can be calculated easily by dividing its total heat emission by the total quantity of water flowing through the panel ex-

valve enclosures, end boxes and corner connections. In single assemblies with valve enclosure at one end and an end box at the other end, add 11" to assembly length, 5½" for valve enclosure and 5½" for end box. For example, a 12' long assembly requires a total length of 12' and 11".

In the case of inverted corner connections, a nominal space of 4¾" should be allowed at the corner, plus the 5½" end box or valve space at the other end, so that each leg of the angle will equal the assembly length *plus* 9⅞". For projecting corner connections, a nominal space of 1⅝" should be allowed at corner, plus the 5½" end box or valve space at the end, so that each leg of the angle will equal the assembly length *plus* 7⅛".

When an assembly extends to within 10¾", or less, of a corner an extended corner cover may be used to overlap on the front of the panel.

Where assemblies are connected on three walls, the center one should be the panel assembly *plus* 4¾" for each inverted corner and 1⅝" for each projecting corner to allow for the corner connections at each end.

directly to the boiler, with conventional radiators in a separate loop. The latter method often proves best where only one conventional radiator is needed for a separate room such as a kitchen. As a general rule, greater efficiency will be obtained from Radiantrim panels if the assemblies and loops are held to a minimum practical length.

Resistance to water flow, as it applies to the Model 10 Radiantrim panel installation, is expressed in terms of pressure drop in inches of water. The table on page 13 shows the resistance to water flow for Radiantrim panels with ¾" pipe connections.

pressed in pounds per hour, i.e., gallons per minute multiplied by 500. In this manner, the entrance and exit temperature and average temperature can be calculated. If heat production is not sufficient, longer assemblies must be selected, using the rating tables on pages 10 and 11. Adequate heat output for the room at the end of the series can usually be obtained by using a longer assembly of panels to compensate for this temperature drop.

# Resistance to water flow with 3/4" Pipe Connections

EXPRESSED IN INCHES OF WATER  
WATER FLOW—POUNDS PER HOUR\*

assembly length in feet	400	500	600	800	1000	1200	1500	2000	Equivalent length in feet of pipe for any flow
	APPROXIMATE WATER FLOW—GALLONS PER MINUTE								
	.8	1.0	1.2	1.6	2.0	2.4	3.0	4.0	
3 or 4	0.13	0.20	0.28	0.47	0.72	1.02	1.54	2.66	5.1
5 or 6	0.14	0.22	0.31	0.53	0.81	1.14	1.74	3.01	5.8
7 or 8	0.16	0.24	0.34	0.59	0.89	1.26	1.94	3.34	6.4
9 or 10	0.17	0.26	0.37	0.64	0.98	1.38	2.13	3.68	7.1
11 or 12	0.19	0.29	0.40	0.70	1.06	1.50	2.33	4.02	7.7
13 or 14	0.21	0.31	0.43	0.76	1.15	1.62	2.53	4.36	8.4
15 or 16	0.23	0.33	0.46	0.82	1.23	1.74	2.73	4.70	9.0
17 or 18	0.25	0.35	0.49	0.88	1.32	1.86	2.93	5.04	9.7
19 or 20	0.27	0.37	0.52	0.94	1.40	1.98	3.13	5.38	10.3
21 or 22	0.29	0.39	0.55	1.00	1.49	2.10	3.33	5.72	11.0
23 or 24	0.31	0.42	0.58	1.06	1.57	2.22	3.53	6.06	11.7
25 or 26	0.33	0.44	0.61	1.12	1.66	2.34	3.73	6.40	12.3
27 or 28	0.35	0.46	0.64	1.18	1.74	2.46	3.93	6.74	13.0
29 or 30	0.37	0.48	0.67	1.24	1.83	2.58	4.13	7.08	13.6

\* Flow in pounds per hour can be converted to gpm by dividing by 500.

## Dimensions, specifications and venting

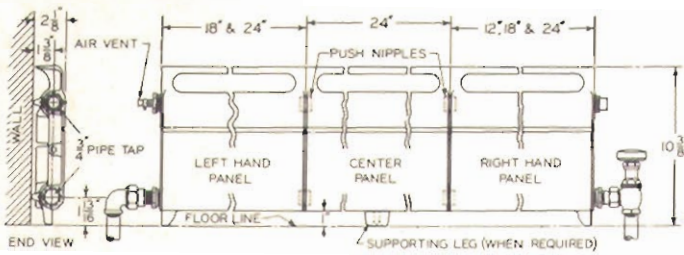
Radiantrim panels with legs are made in 24" right and left end, 18" right and left end, 12" right end, 24" and 18" double end panels. Center panels, without legs, are 24" in length. Right and left end panels are provided with tappings on the leg ends and push nipple ports in the opposite ends. Double end panels are provided with tappings on both ends. Push nipples are used on both ends of center panels. This wide size range makes it easy to match wall lengths. They are easily assembled in any required length by means of push nipples and tie bolts provided on the ends and back of each panel. Right-hand end sections are furnished with 3/4" top and bottom tappings with top tapping plugged with 3/4" pipe plug. Left-hand end sections are furnished with 3/4" top and bottom tappings, top tapping plugged with 3/4" x 1/8" bushing and 1/8" pipe plug. The 1/8" IPS tapping

end bushing can be used for attaching manual or automatic vent.

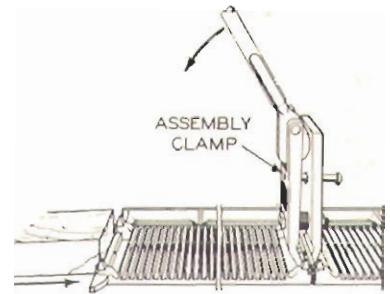
It is recommended that air vents, inside valve enclosures for easy accessibility, be installed at the return end of a complete panel assembly run. If necessary, venting can be completed by removing access door from valve enclosure and discharging air and water into a sponge or small receptacle.

Snap-lock valve enclosures (right or left), end boxes (right or left) and corner covers designed specifically for Radiantrim panels complete the finished job. See pages 14 and 15 for measurements and roughing-in dimensions of panels and all accessories comprising a finished assembly. These snap-lock accessories attach to retaining brackets without the aid of screws. This special feature speeds up installation and gives a more attractive appearance to the finished job.

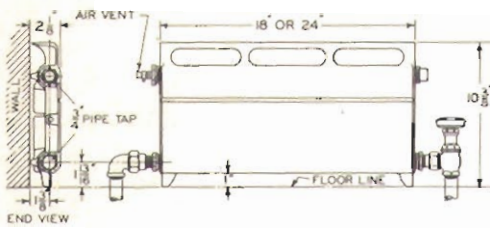
# Dimensions



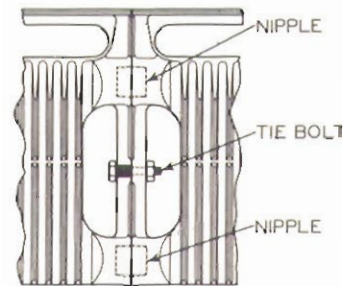
FRONT AND END ELEVATION OF RADIATRIM PANELS



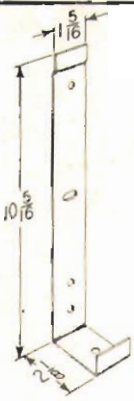
METHOD OF ASSEMBLING PANELS SHOWING USE OF ASSEMBLY CLAMP



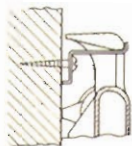
FRONT AND END ELEVATION OF 18" & 24" RADIATRIM PANELS (Double log end sections)



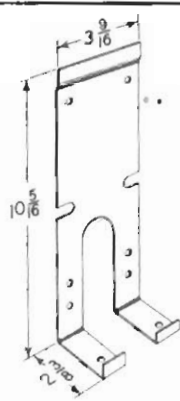
METHOD OF HOLDING PANELS SHOWING USE OF TIE BOLT



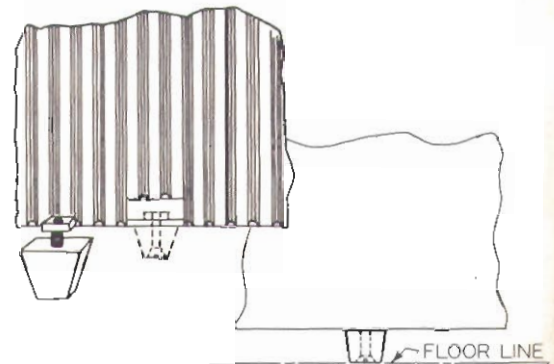
RETAINING BRACKET FOR CORNER PIECES



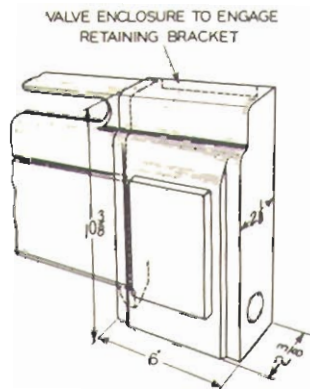
RETAINING BRACKET FOR CENTER PANEL



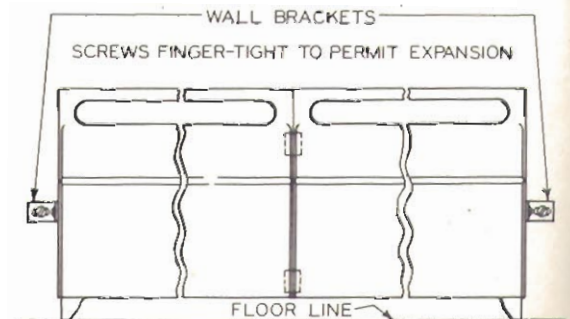
RETAINING BRACKET FOR END BOX AND VALVE ENCLOSURE



CENTER PANEL SUPPORTING LEG

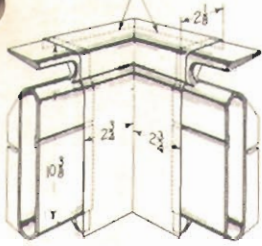


VALVE ENCLOSURE INSTALLATION



METHOD OF FASTENING RADIATRIM PANELS TO WALL

**INVERTED CORNER TO ENGAGE RETAINING BRACKETS**

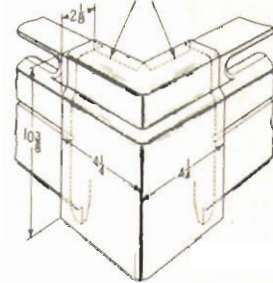


**EXTENDED INVERTED CORNER TO ENGAGE RETAINING BRACKETS**



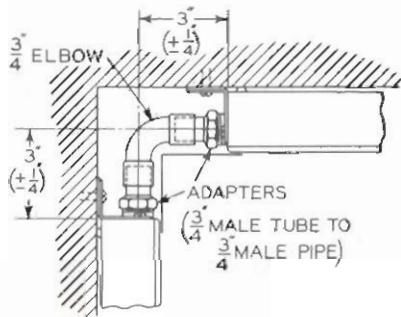
**EXTENDED INVERTED CORNER INSTALLATION**

**PROJECTING CORNER TO ENGAGE RETAINING BRACKETS**

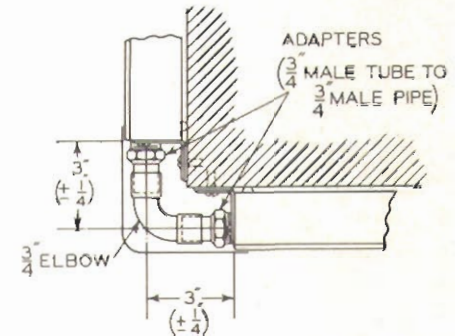


**PROJECTING CORNER INSTALLATION**

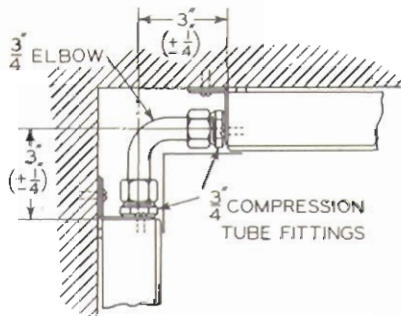
**INVERTED CORNER INSTALLATION**



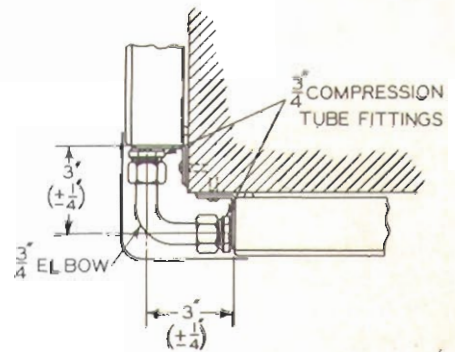
**INVERTED CORNER CONNECTION USING SWEAT FITTINGS**



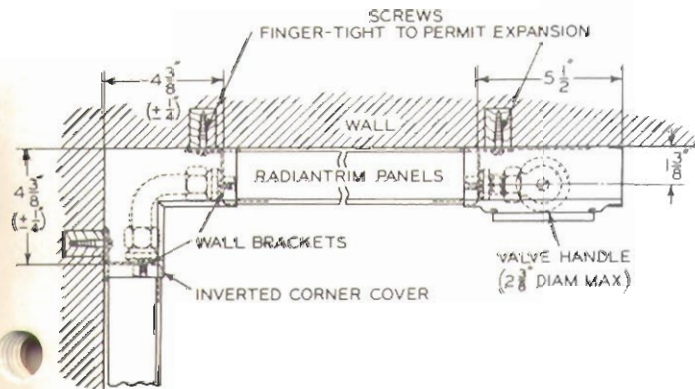
**PROJECTING CORNER CONNECTION USING SWEAT FITTINGS**



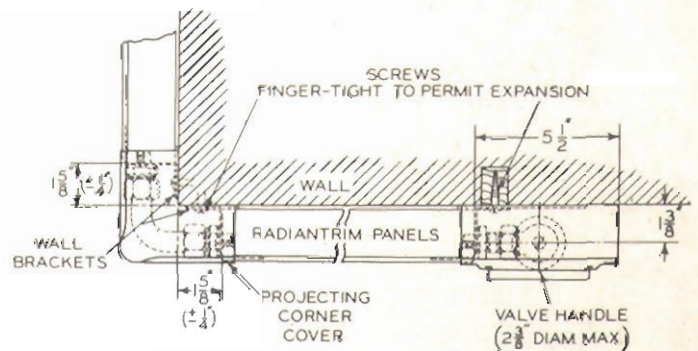
**INVERTED CORNER CONNECTION WITH STANDARD COMPRESSION FITTINGS**



**PROJECTING CORNER CONNECTION WITH STANDARD COMPRESSION FITTINGS**



**ASSEMBLED INVERTED CORNER INSTALLATION SHOWING WALL BRACKETS AND VALVE**



**ASSEMBLED PROJECTING CORNER INSTALLATION SHOWING WALL BRACKETS AND VALVE**

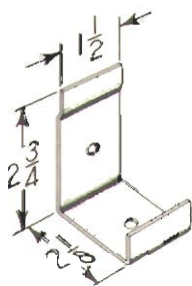
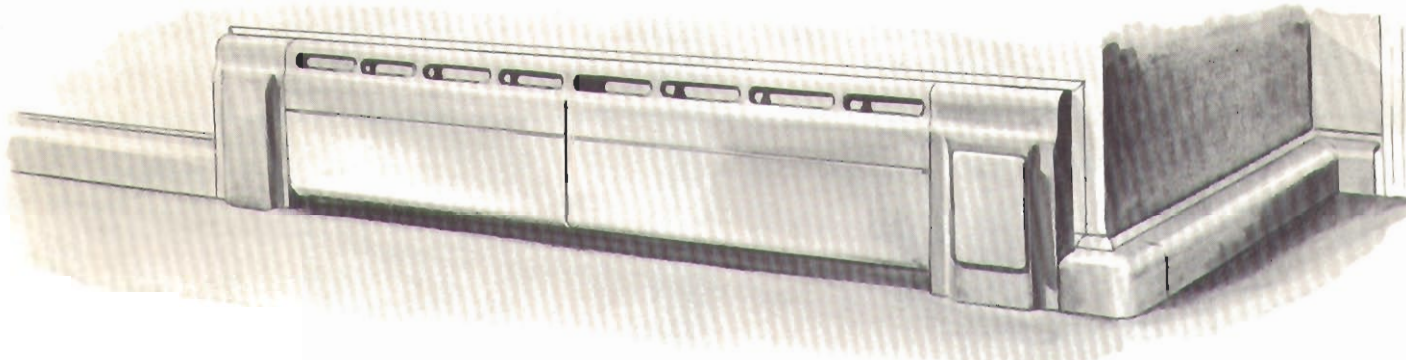


## Pipe Enclosure Panels and Accessories

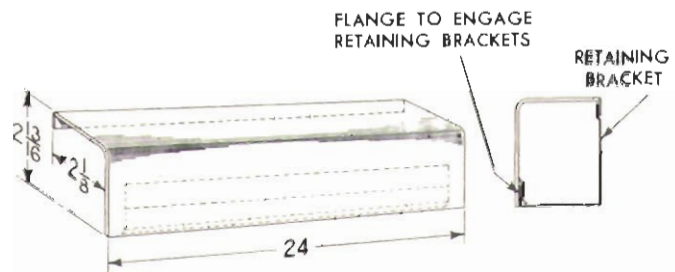
Designed to complete the Model 10 Radiantrim panel installation, these smartly fashioned pipe enclosure panels provide a smoothly finished baseboard line from wall to wall. They lock into place quickly and easily, fit snugly without overlap or bulky projections and provide the installer with a modern, economical means of covering pipes, filling in short gaps between Radiantrim panels and corners. Pipe enclosure panels are readily adapt-

able to any architectural arrangement and may be installed in free-standing or recessed jobs the same as Radiantrim panels themselves.

Made of sheet steel, these prime-painted panels are shipped in 24" lengths which can be cut easily on the job when necessary to fit all requirements. Special retaining brackets (shown below) are provided to hold panels and corner pieces rigidly to the wall.



PIPE ENCLOSURE  
RETAINING  
BRACKET



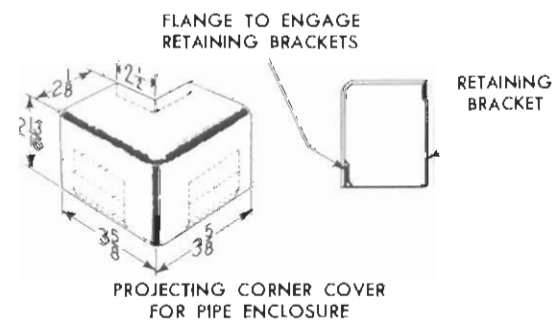
PIPE ENCLOSURE COVER

Pipe enclosure retaining brackets hold pipe enclosure panels and corner covers firmly in position. Made of heavy sheet metal, secured to wall and floor by two wood screws, they make installation of pipe enclosure panels a simple, speedy job.

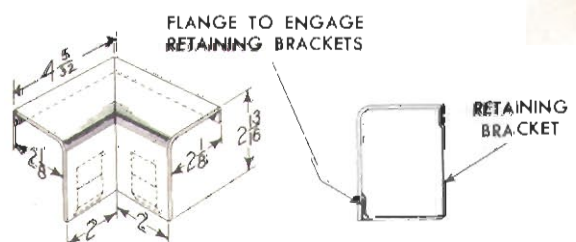
Panel accessories, shown at right, complete installation at corners and end of assemblies. They consist of inverted and projecting corner covers, and pipe enclosure retaining brackets.

The inverted corner covers and projecting corner covers provide a neat one-piece corner assembly. When serving to conceal corner piping, they offer quick and easy access to pipes. All covers are fabricated from 20-gauge sheet steel for durability and easy handling. Welded steel flanges, as indicated on drawings, provide quick lock to retaining brackets.

Pipe enclosure panels shipped in 24" sections are an integral part of the finished Radiantrim installation. Panels are fabricated of durable 20-gauge steel and are finished in a prime gray coat.



PROJECTING CORNER COVER  
FOR PIPE ENCLOSURE



INVERTED CORNER COVER  
FOR PIPE ENCLOSURE

## Sizing

Heat loss calculations for Radiantrim panel installations are the same as for conventional radiator installations. Use any standard approved practice in selecting pipe sizes for mains, risers, branches and special fitting adaptations. Using the tables on pages 10 and 11 you can select the right number of panels for the job.

## Roughing-in piping

Radiantrim panel installations can be roughed in easily and quickly using the dimensions provided on pages 14 and 15. Rough in supply and return risers as accurately as possible. Diameter of drilled holes should be at least  $\frac{1}{4}$ " larger than the diameter of the pipe to permit movement brought about by alternate expansion and contraction of panels and piping. This movement varies with the temperature for which the installation is designed; it is carried through in the same direction as the horizontal line of the panels themselves. This movement is slight, approximately  $\frac{1}{8}$ " for each 10 lineal feet, but its importance cannot be overlooked or underestimated. Swing connections should be used between main and risers.

## Method of installation

Radiantrim panels may be either partially recessed or installed against plaster or other wall surface. When recessed, the panel assembly should fit loosely against studs or furring strips and under the plaster edge or plaster stop to allow for expansion.

Panel assembly should be set directly on the finished floor. If flooring does not extend far enough under the panel, additional flooring must be installed so that panel assembly rests level on floor surface. This usually applies to modernization jobs where recessed panels are desired. Refer to pages 18 through 21 for progressive steps in the installation of Radiantrim panel assemblies.

## Insulation and sealing

Before Model 10 Radiantrim panels are installed, two wall preparation steps are necessary: insulation and sealing.

To insure maximum economy and comfort, insulation should be applied behind the installation. In new buildings, or where plaster line does not extend to the floor, the stud space should be insulated with rock wool or some other approved insulating material to a height of at least one foot above the floor line to prevent excessive heat loss through walls. With masonry walls, the space between furring strips should be insulated with asbestos or wood fibre board insulation.

To guard against walls becoming dirt streaked, it is necessary to provide some kind of paper seal in back of each assembly. The material used must be strong, durable and withstand the effect of heat. A sturdy paper of tough fibrous content, or aluminum foil coating, will serve this purpose. Sheet asbestos, or paper with an asphalt base, are unsuitable because they tend to crack or deteriorate.

Sealing material is held in place at floor line by a moulding strip installed against the wall, and remains in place after Radiantrim panels are permanently set. Seal must extend high enough so it can be bent over top of panels and securely held by another moulding strip, which is later attached along top of completed assembly. If seal can be attached to the rough floor and held in place by the finished floor, moulding strip at bottom will not be required.

## Assembling and installing

Radiantrim panels will be shipped assembled in lengths up to and including 6 lineal feet. Panels of greater lengths will be shipped in two or more sub-assemblies for assembling on the job by the installer.

When assemblies of Radiantrim panels longer than 6 lineal feet are used in any given installation, some assembling must be done on the job. These assemblies, as well as assemblies employing less than 6 lineal feet, should be checked carefully before installation. It is extremely important that the same installation practice be followed for each Radiantrim panel installation.

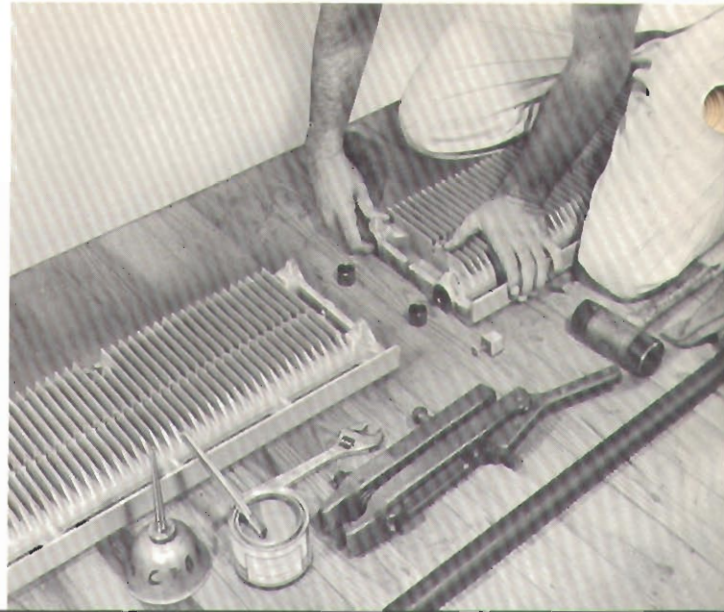
The following installation practice provides the necessary guide for installing Radiantrim panels. After the simplicity of this progressive installation routine becomes habit, jobs will require less time, resulting in real time and money savings for the installer.

Two or more panels can be assembled quickly and easily by one man when approved methods are followed. Variations are, of course, possible and may produce equally satisfactory results.

## Assembling and installing

In assembling Model 10 Radiantrim panels, the panels should be placed face down, flat on the floor or on a smooth, clean surface close to the wall against which they are to be installed. They should be raised to an upright position *after* being assembled. Nipple ports must be carefully cleaned as shown in Fig. 1.

Fig. 1



Before inserting nipples, clean with a good grade kerosene or light lubricating oil. Dry and "dope" with pipe joining cement and insert squarely in the end of the panel. In Fig. 2, the installer is performing this operation and aligning the two panels so that nipple ports in one panel and the inserted projecting nipples of the other panel can be engaged and the two panels brought together and tightened as much as possible by hand.

Fig. 2



The special assembly clamp is then placed in position, as shown in Fig. 3. This clamp fits over the cast iron flanges between the nipple hubs provided on back of each Radiantrim panel. Care should be exercised in using the clamp to prevent possible cracking of flanges or castings due to over-tightening or poor positioning. To prevent the possibility of panels bowing, the installer should place one foot on the top of panels during final tightening of the assembly. If nipples do not draw up evenly as clamp is tightened, a wooden mallet should be used to strike the end of the panels. This will aid in bringing the two assemblies together and keep the panels in line.

Fig. 3



## Assembling and installing

After the two panels are drawn together, the clamp is removed and the tie bolt is put in place in the flanges provided, as shown in Fig. 4. The panel assembly should be checked to ascertain that all the fittings are in place at each end to eliminate working on panels while in upright position. Although the specially designed center support leg, shown on page 14, may be added after panels are installed, it is recommended that legs, as well as air vent fittings, be inserted *before* panels are placed against the wall. After the tie bolt is tightened between all panels in the assembly, the completed assembly is ready for positioning against the wall.

Fig. 4



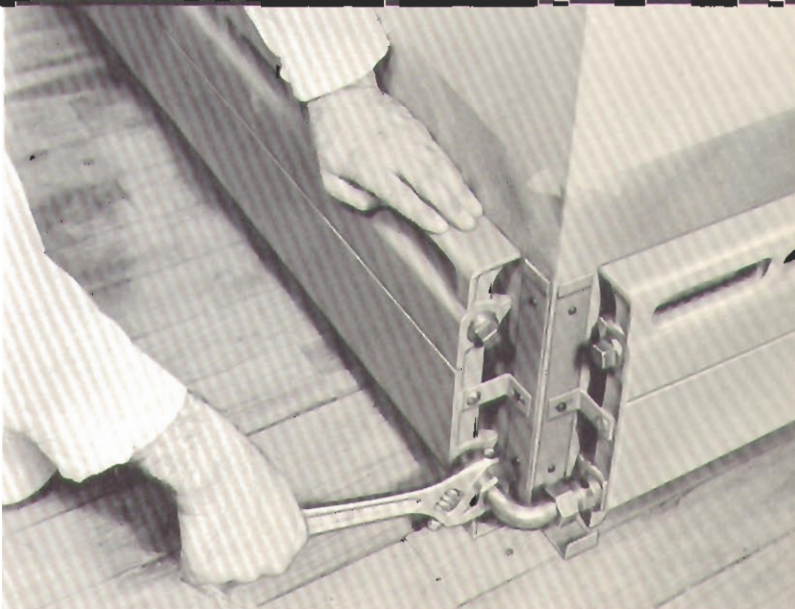
Before raising panel assembly, the paper seal must be applied. The paper selected for the seal should be cut roughly to cover the wall area behind the installation, allowing enough height to double paper over top of panels and back up corner covers, valve space and piping. (For type of paper and recessed applications, see page 17.) Top edge of seal can be temporarily fastened with masking tape. A piece of quarter round or moulding strip is then placed in position permanently along the bottom of the seal. Moulding holds bottom of seal tightly in place at floor line and holds down paper seal behind panels. Fig. 5 shows assembly being raised into position.

Fig. 5



Fig. 6 shows installer tightening connection on a projecting corner installation with end brackets and clip-type retaining brackets in place. Note that end brackets are installed *after* enclosure retaining brackets. Screws holding brackets to wall should be drawn up snug, then backed off a fraction of a turn to permit movement caused by expansion and contraction. An additional elbow can be installed in top of installations with sluggish circulation.

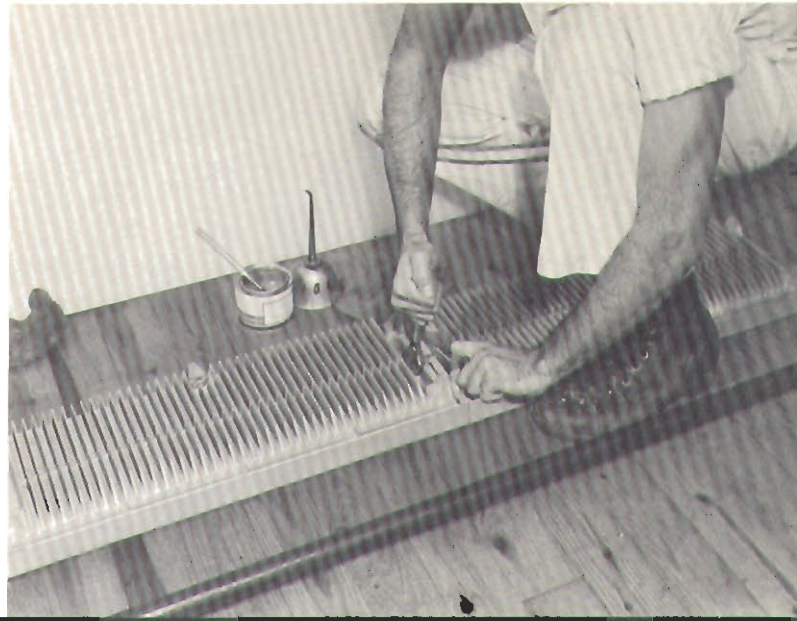
Fig. 6



## Assembling and installing

After the two panels are drawn together, the clamp is removed and the tie bolt is put in place in the flanges provided, as shown in Fig. 4. The panel assembly should be checked to ascertain that all the fittings are in place at each end to eliminate working on panels while in upright position. Although the specially designed center support leg, shown on page 14, may be added after panels are installed, it is recommended that legs, as well as air vent fittings, be inserted *before* panels are placed against the wall. After the tie bolt is tightened between all panels in the assembly, the completed assembly is ready for positioning against the wall.

Fig. 4



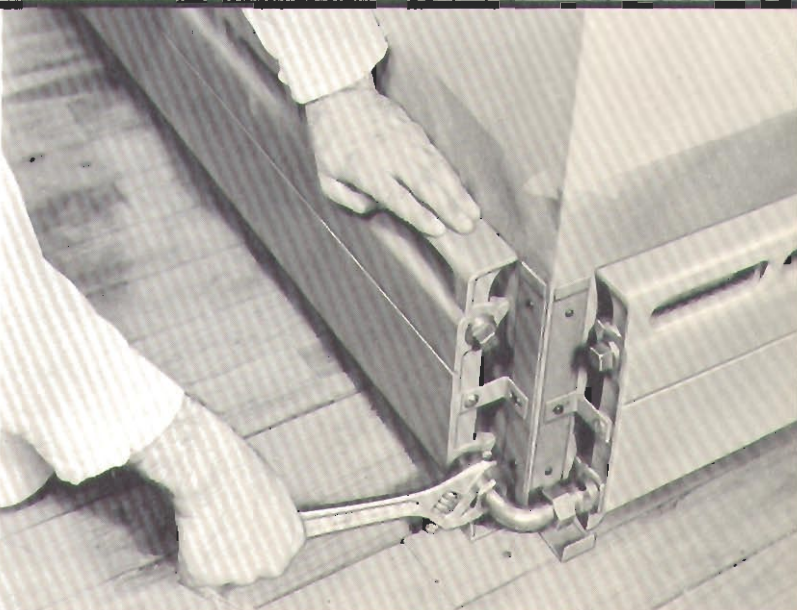
Before raising panel assembly, the paper seal must be applied. The paper selected for the seal should be cut roughly to cover the wall area behind the installation, allowing enough height to double paper over top of panels and back up corner covers, valve space and piping. (For type of paper and recessed applications, see page 17.) Top edge of seal can be temporarily fastened with masking tape. A piece of quarter round or moulding strip is then placed in position permanently along the bottom of the seal. Moulding holds bottom of seal tightly in place at floor line and holds down paper seal behind panels. Fig. 5 shows assembly being raised into position.

Fig. 5



Fig. 6 shows installer tightening connection on a projecting corner installation with end brackets and clip-type retaining brackets in place. Note that end brackets are installed *after* enclosure retaining brackets. Screws holding brackets to wall should be drawn up snug, then backed off a fraction of a turn to permit movement caused by expansion and contraction. An additional elbow can be installed in top of installations with sluggish circulation.

Fig. 6



## Assembling and installing

Fig. 7 shows corner cover being slid into place over the clip-type retaining brackets. No screws are required for either projecting or inverted corner covers. Note that paper seal is not brought down over panels until end boxes, valve enclosures and corner covers are in place.

Fig. 7

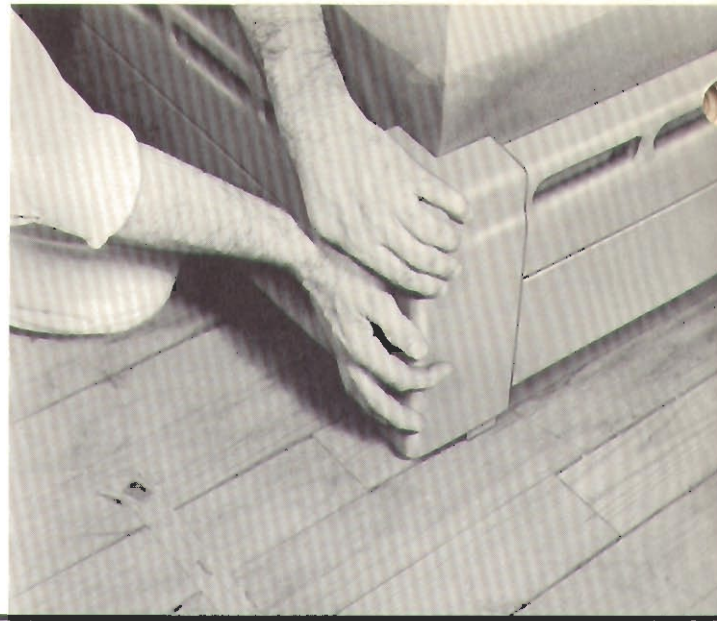
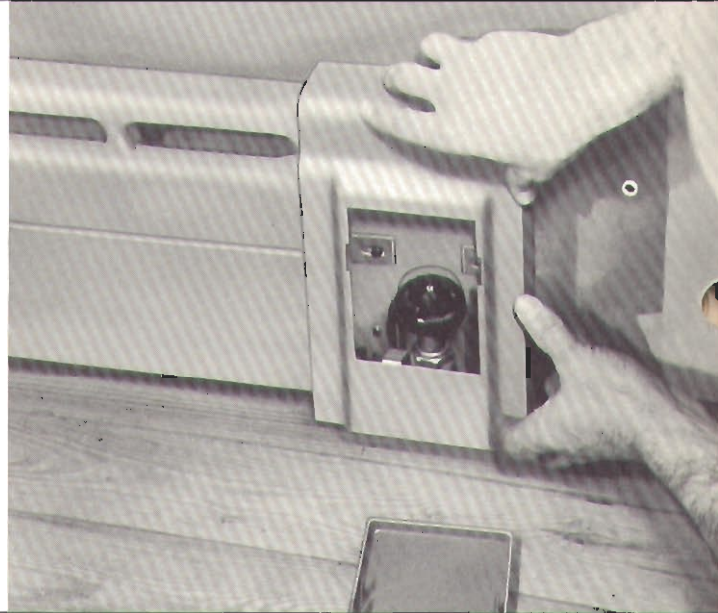


Fig. 8 shows the installer sliding the valve enclosure onto the retaining bracket at the right-hand end of the assembly. The valve access door, for instant access to the valve, is quickly fitted into place and removed without tools. End boxes are installed in the same way. Note the use of the end bracket on the end of the panel inside the valve enclosure. Right and left hand end boxes and valve enclosures are available and should be so specified when ordering.

Fig. 8



After all corner covers, end boxes, etc., have been added, the paper seal is folded smoothly over the top of the panels as shown in Fig. 9. Another moulding strip is cut to fit top lengths of the assemblies and placed on top of panel over the folded down paper seal. Excess paper is removed with a knife.

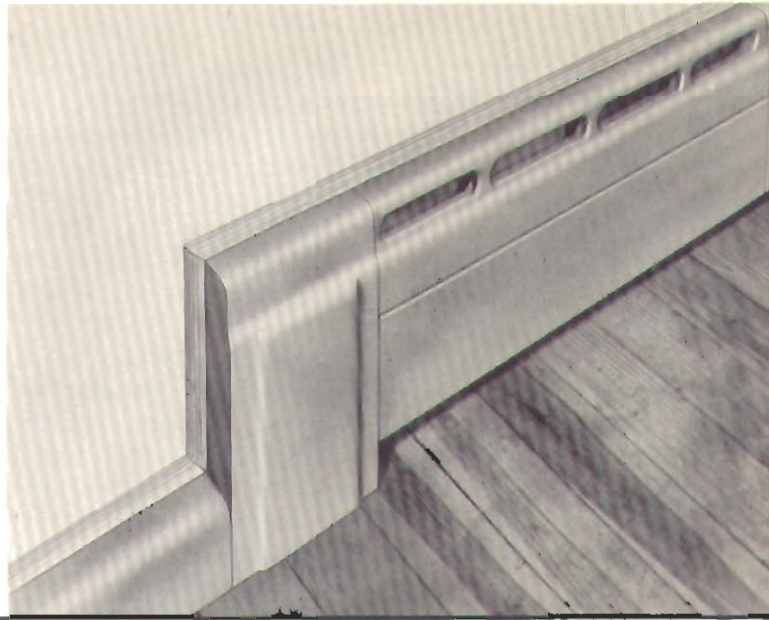
Fig. 9



## Assembling and installing

A close-up view of a left-hand end with end box and a length of pipe enclosure panel is shown in Fig. 10. The paper seal installation has been completed, and the moulding strip is permanently in place. Lengths of pipe enclosure panels carry on the trim, finished look to the end of the wall. The pipe enclosure panels and corner covers butt together and are held in place by clip-type retaining brackets. Note how moulding is extended down side of end box.

Fig. 10



A short completed installation is shown in Fig. 11. In long assemblies, center panel support legs and retaining clips may be used to support the weight of the panels. Pipe enclosure panels, if required, are added between Radiantrim assemblies or at ends of assemblies to give a finished appearance or to cover exposed piping. An extended inverted corner cover, like the one shown, is available when assembly extends to within  $10\frac{3}{8}$ " or less of corner. Both the regular and extended inverted corner covers overlap on the front of the panel.

Fig. 11

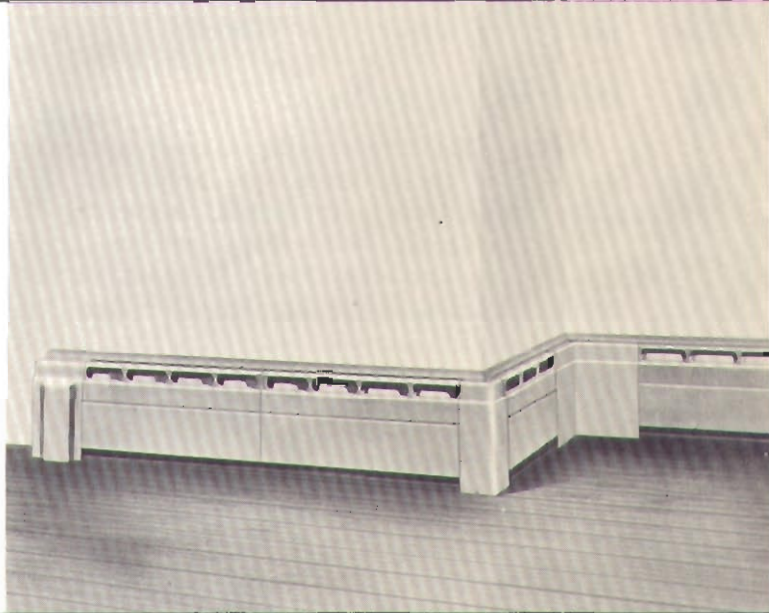


Fig. 12 shows the retaining clip used to give added support to center panels. The clip is so designed that it permits movement of panel caused by expansion and contraction and eliminates buckling.

Fig. 12



## Piping and connections

For best performance, piping connections to Radiantrim panel assemblies should be run individually to each loop from the distributing mains. If this is not possible, it is recommended that runs be held to as short a length of panel assemblies as is practical, with as many individual loops as it is practical to run. In general, a separate loop for each room to be heated in the home is the best hook-up.

Between separated assemblies, Radiantrim panels in every installation should be connected with  $\frac{3}{4}$ " IPS pipe where standard compression fittings are used. If standard sweat fittings and tubing are used, the tubing between assemblies should not be less than  $\frac{5}{8}$ " in outside diameter. Piping around corners, or connecting assemblies to risers and returns, is neatly and effectively concealed by the valve enclosures and corner covers specially designed for use with these panels.

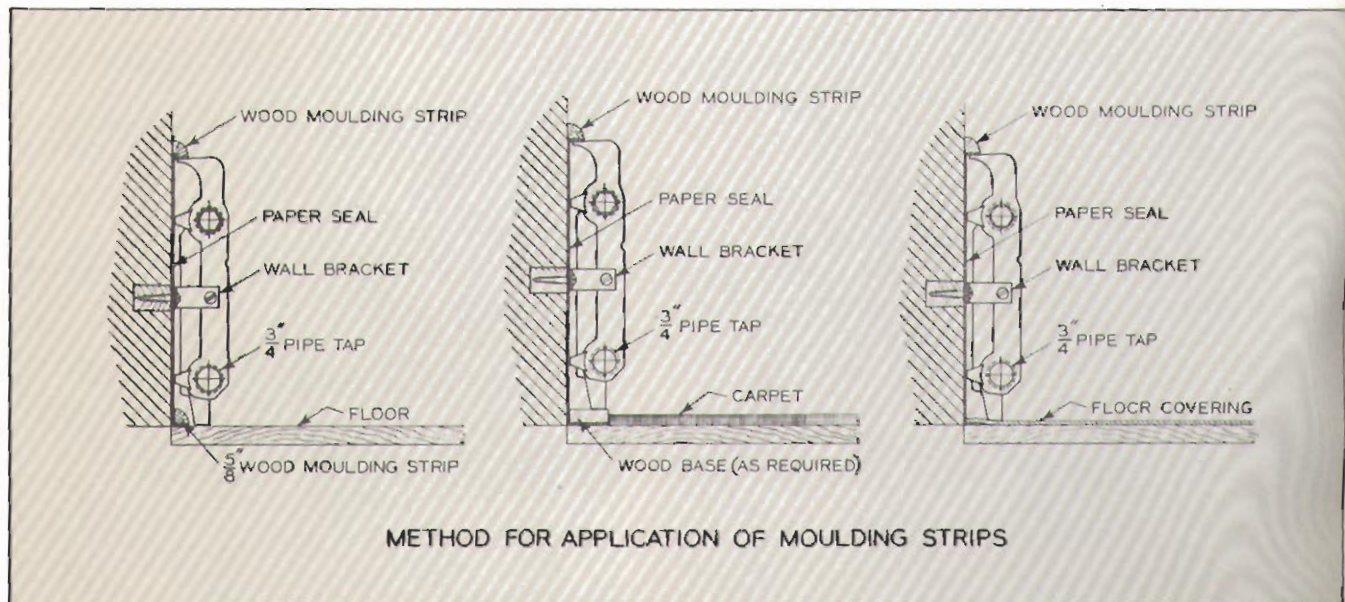
## Mainless installation

In jobs without basements or where convenience is the major factor, Radiantrim panels can be installed without the use of distributing mains. Connected in series in a single loop, Radiantrim panels will provide top performance. It is recommended that the total pressure drop be considered before the installation is made, and if the total loss will be too great, the loop should be split up into two or more legs, or separate loops, to reduce the total pressure drop as far as possible. Here,  $\frac{3}{4}$ " IPS connections should be used everywhere in the loop.

Total pressure drop should be figured out accurately, and, with the help of the table on page 13, a suitable circulating pump to offset total pressure can be selected. This will assure desired heat output in every part of the series loop. The quantity of water that will be circulated, in gallons per minute, can easily be computed by dividing the "pounds per hour" figure shown in the table on page 13 by 500. This constant is exactly correct for a temperature of 70°, and for practical purposes, can be used with reasonable accuracy for all water temperatures found in Radiantrim panel design. The total pressure drop can be obtained easily from standard tables for the pipe size used, and the rating tables published by the circulating pump manufacturer will indicate whether or not the pressure drop is too large. To determine the flow rate in pounds per hour with various temperature drops, it is necessary only to divide the heat loss in Btu per hour by the proposed temperature drop in degrees Fahrenheit.

## Finishing variations

In cases where a home owner intends to use wall-to-wall carpeting in the same room with Model 10 Radiantrim panels, it is advisable to set each panel assembly up on a strip of wood, or base,  $1\frac{1}{2}$ " wide and  $\frac{1}{2}$ " thick. This method is shown in the diagram below; it assures full efficiency from the panels as well as a neater, more attractive job. The diagram at right below illustrates how cove or ornamental mouldings may be used if the installation dictates.





# How to order...

The required number of Radiantrim accessories—corner covers, end boxes, valve enclosures, tie bolts, assembly clamp, wall brackets, corner accessory retaining brackets and all necessary screws and bolts must be specified in the order, and will be shipped with the Radiantrim Panels. All other heating equipment, such as the boiler, supplemental radiators, radiator valves, air vents and control and center support legs must be ordered separately. Tubing, piping, unions, elbows, miscellaneous fittings and other materials necessary to complete the job, as in all radiator installations, will be furnished at the job site, normally by the installer.

In ordering Radiantrim panels, it is necessary to indicate both the number and lengths of runs as shown in the sample order at right. This will assure delivery of the correct number and size of right and left end and center panels. Also indicate the number of valve enclosures, end boxes, inverted or projecting corner covers, compression corner connections, center support legs, lengths of pipe enclosure, and pipe enclosure corner covers and assembly clamp if required.

Two retaining brackets should be used for each 2 ft. length of pipe enclosure. Only one bracket is needed for a length less than 8" cut from pipe enclosure. For each Radiantrim corner cover and each pipe enclosure corner cover, two retaining brackets are required. Each valve enclosure (LH or RH) and end box (LH or RH) is furnished with and requires the use of only one retaining bracket.

A sample order specification should be as follows:

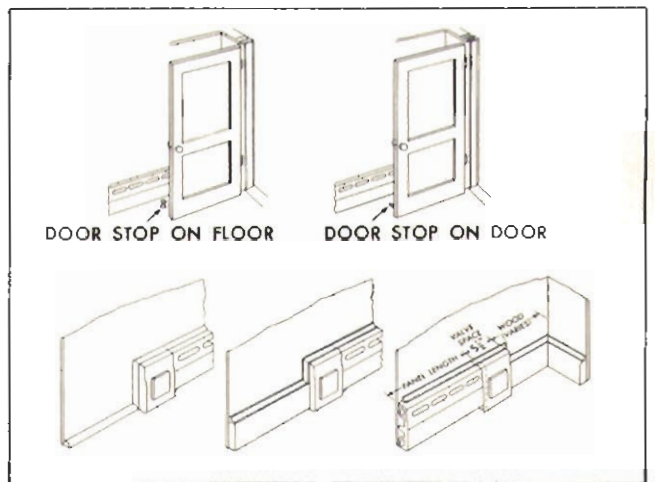
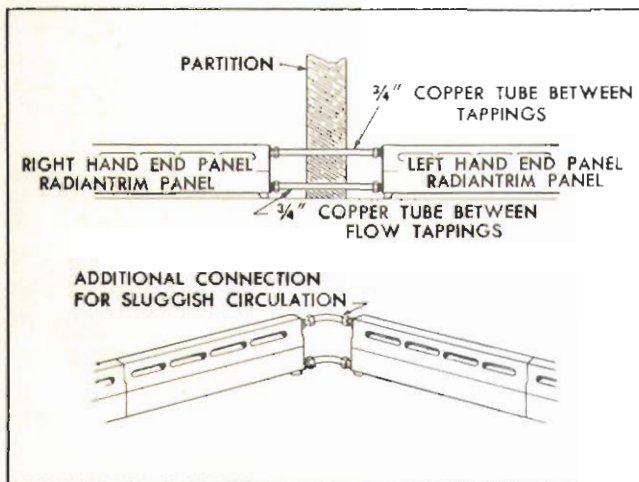
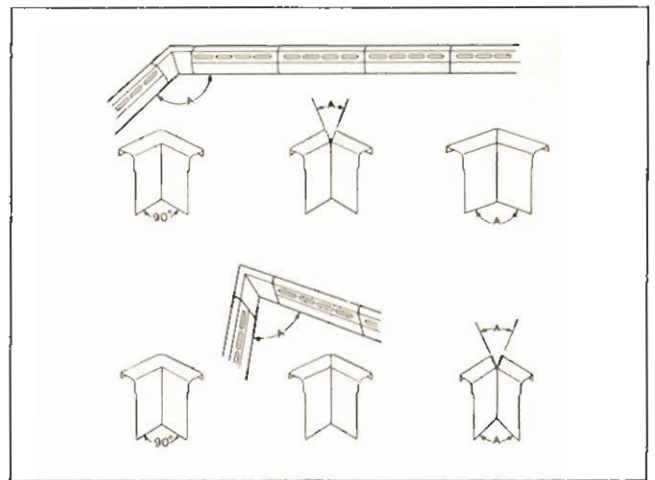
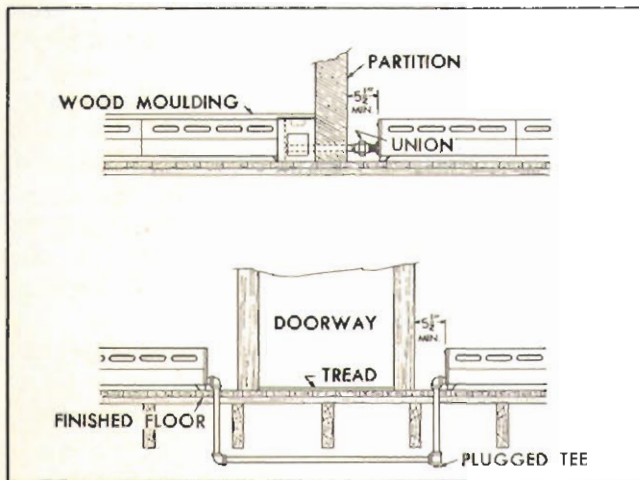
- Two (2)—8 ft. Model 10 Radiantrim panel assemblies
- One (1)—6 ft. Model 10 Radiantrim panel assemblies
- One (1)—8½ ft. Model 10 Radiantrim panel assemblies
- Four (4)—Retaining Clip for center section
- One (1)—Compression Corner Connection
- Three (3)—Valve Enclosures (RH or LH) with retaining bracket
- Three (3)—End Boxes (RH or LH) with retaining bracket
- One (1)—Inverted Corner—specify if extended
- Three (3)—Center support legs with screw and nut
- Two (2)—Corner accessory retaining brackets for corner pieces
- Eleven (11)—Pipe Enclosure Panels
- Two (2)—Inverted Corners for pipe enclosure cover
- Twenty Six (26)—Pipe Enclosure Retaining Brackets
- One (1)—Assembly Clamp

**Note:** Approximate shipping weights may be determined by referring to the square foot rating column in the tables shown on pages 10 & 11. Multiply square foot rating by five pounds.

Chart below indicates number and type of panels that make up assemblies in lengths of six feet and smaller. Assemblies more than six feet in length are made up in sub assemblies.

ASSEMBLIES	18" LH END SECTION	24" LH END SECTION	24" CENTER SECTION	12" RH END SECTION	18" RH END SECTION	24" RH END SECTION	18" DOUBLE END SECTION	24" DOUBLE END SECTION
1½'	—	—	—	—	—	—	1	—
2'	—	—	—	—	—	—	—	1
2½'	1	—	—	1	—	—	—	—
3'	1	—	—	—	1	—	—	—
3½'	—	1	—	—	1	—	—	—
4'	—	1	—	—	—	1	—	—
4½'	1	—	1	1	—	—	—	—
5'	1	—	1	—	1	—	—	—
5½'	—	1	1	—	1	—	—	—
6'	—	1	1	—	—	1	—	—
LH SUB ASSEMBLIES								
5½'	1	—	2	—	—	—	—	—
6'	—	1	2	—	—	—	—	—
CENTER SUB ASSEMBLY	—	—	3	—	—	—	—	—
RH SUB ASSEMBLIES	—	—	NUMBER REQUIRED	1 or	1 or	1	—	—

# Special Applications



A number of applications not encountered in ordinary radiator jobs have been worked out especially for Radiantrim panels. A few of these are shown here. At the top of page, diagrams show, first, a method of completing adjoining room pipe connections between Radiantrim panel assemblies where it is possible to go straight through the wall, and, second, a similar connection where there might be an obstruction to a straight piping layout, such as in construction like doorways, fireplaces, closets, and the like. The latter would, of course, be applicable only to first floor installations. The diagrams, top right, show how corner covers may be altered to permit installations around corner angles greater than, and less than, 90 degrees. Although the inverted corner cover is used for

the illustration, projecting corner covers may be handled in the same manner if necessary. Bottom left drawing shows a method for improving possible sluggish circulation in connections straight through the wall and around a typical corner. This "bleeder" line not only improves circulation, but also permits gravity flow on many installations when flow valves are open and panel assemblies are connected in a single loop. The diagrams at the lower right of the page show simple methods of handling finishing variations like door stops and wood baseboard extensions and pipe enclosure panels. Although seemingly minor, close attention to these details results in real satisfaction with every Radiantrim panel installation. And this means increased business and greater profits.