

HERMAN NELSON
Invisible Radiators

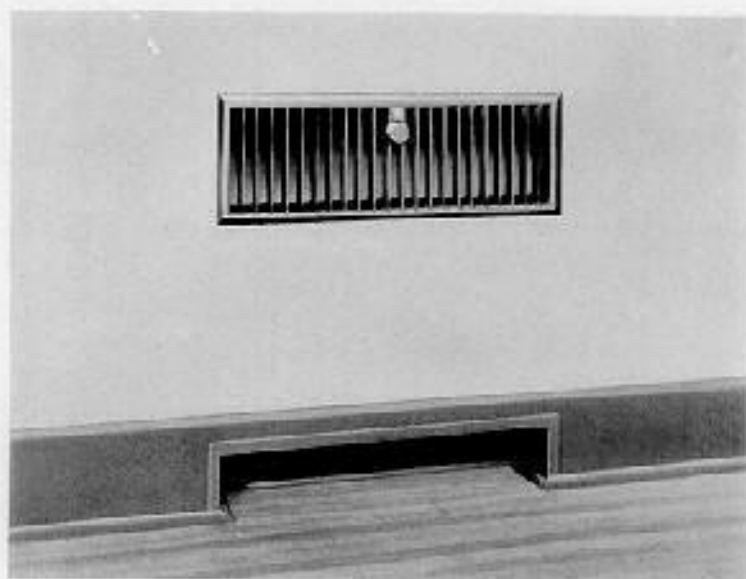
"Immured" Type
and
"Paneled" Type

*For the
Architect & Engineer*

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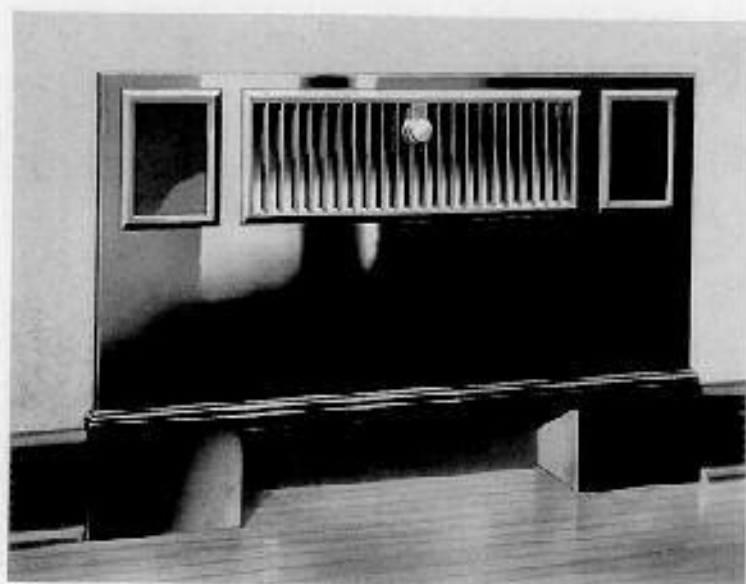
The "Immured" Type

This type is completely sealed within the wall of the room, permitting the plaster, tile or other wall finish to be run continuously across the front of the radiator.

Control of heat delivery is accomplished to the finest degree by operating the damper.

To attempt provisions for valve control at the radiator with this type is considered impractical and not good engineering. Therefore, this type is recommended for residences, or other buildings, where cut off or automatic control valves and traps may be installed on the pipe branches in the basement, or below the room in which the radiator is installed.

For fine residences and similar buildings, where the ultimate in appearance is desired, the "Immured" type Herman Nelson Invisible Radiator has been accepted and approved as the "last word".



The "Paneled" Type

With this type the heat delivery to the room may also be controlled by hand operation of the damper. In addition, the steam or water circulation may be controlled at the radiator by a hand or automatic control valve.

The radiator valve may be operated by reaching through the small panels shown at each end. The entire front is instantly removable, without the use of tools of any kind, giving complete access to valves, traps and connections.

This type is recommended for multi-story buildings such as offices, hotels, apartments, etc., where it is impractical to run separate pipe risers, and, in which event, valves and traps should be installed at each radiator where they will be conveniently accessible.

The quality of materials used and the workmanship are identical with that of the "Im-mured" type shown on opposite page.

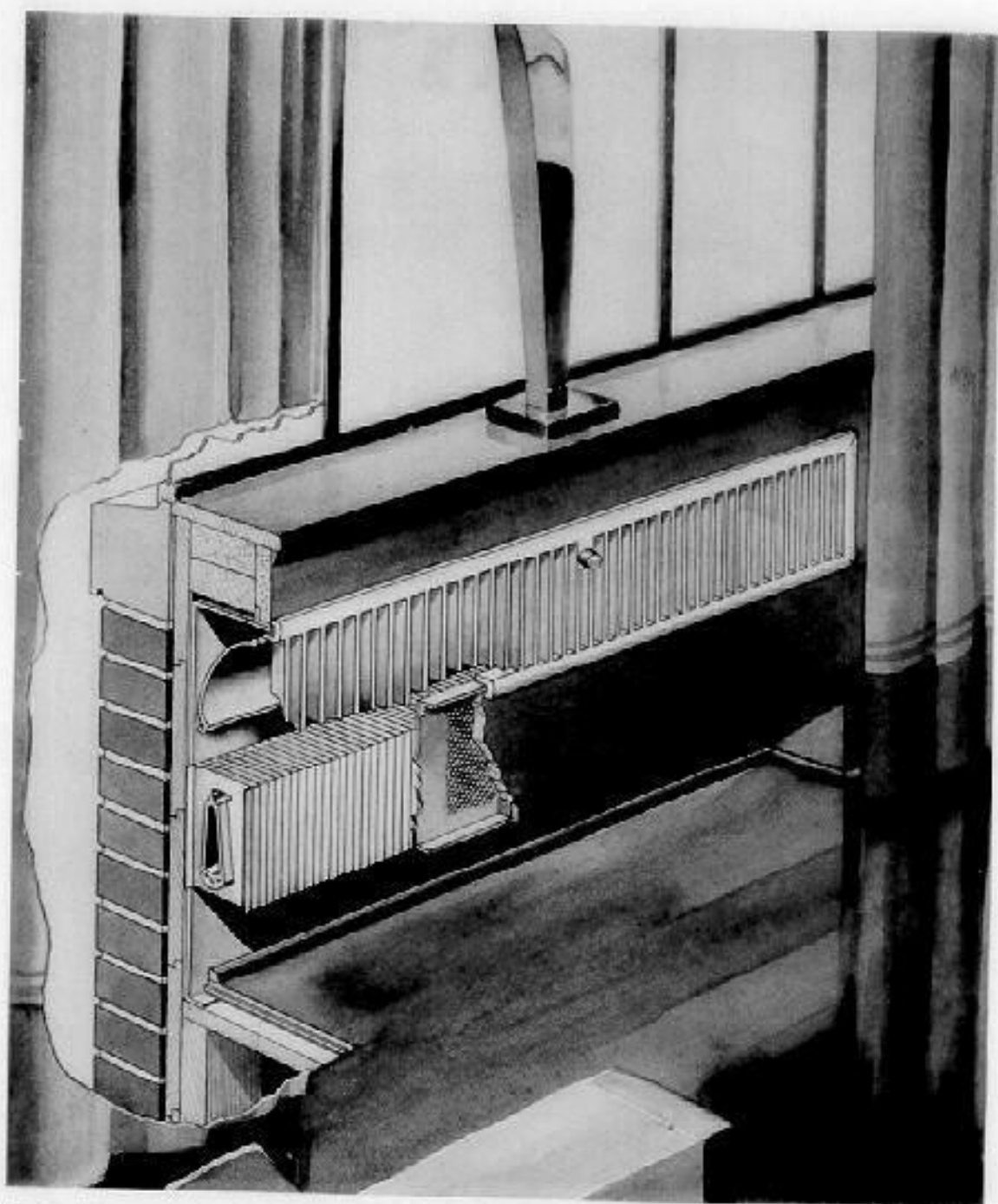
This radiator occupies no space on the floor or in the room.



BEHIND that grille in the wall, under the window, the Herman Nelson "Immured" type Invisible Radiator says this living room is modern.

The lady of the house and her interior decorator have enjoyed full scope in the furniture and furnishing arrangements.

Not an inch of floor or room space is wasted and it was not necessary for the architect to thicken the wall, or provide special building construction.



THIS picture shows how the "Immured" type Herman Nelson Invisible Radiator was installed in the living room shown on opposite page.

The heating element, enclosed in a scientifically designed cabinet with heat outlet grille, was furnished complete by the manufacturer and installed by the heating contractor as easily as he could have installed an ordinary radiator, set exposed in the room.

Then the metal lath and plaster were applied over the entire front of the cabinet, leaving only the grille exposed to view.

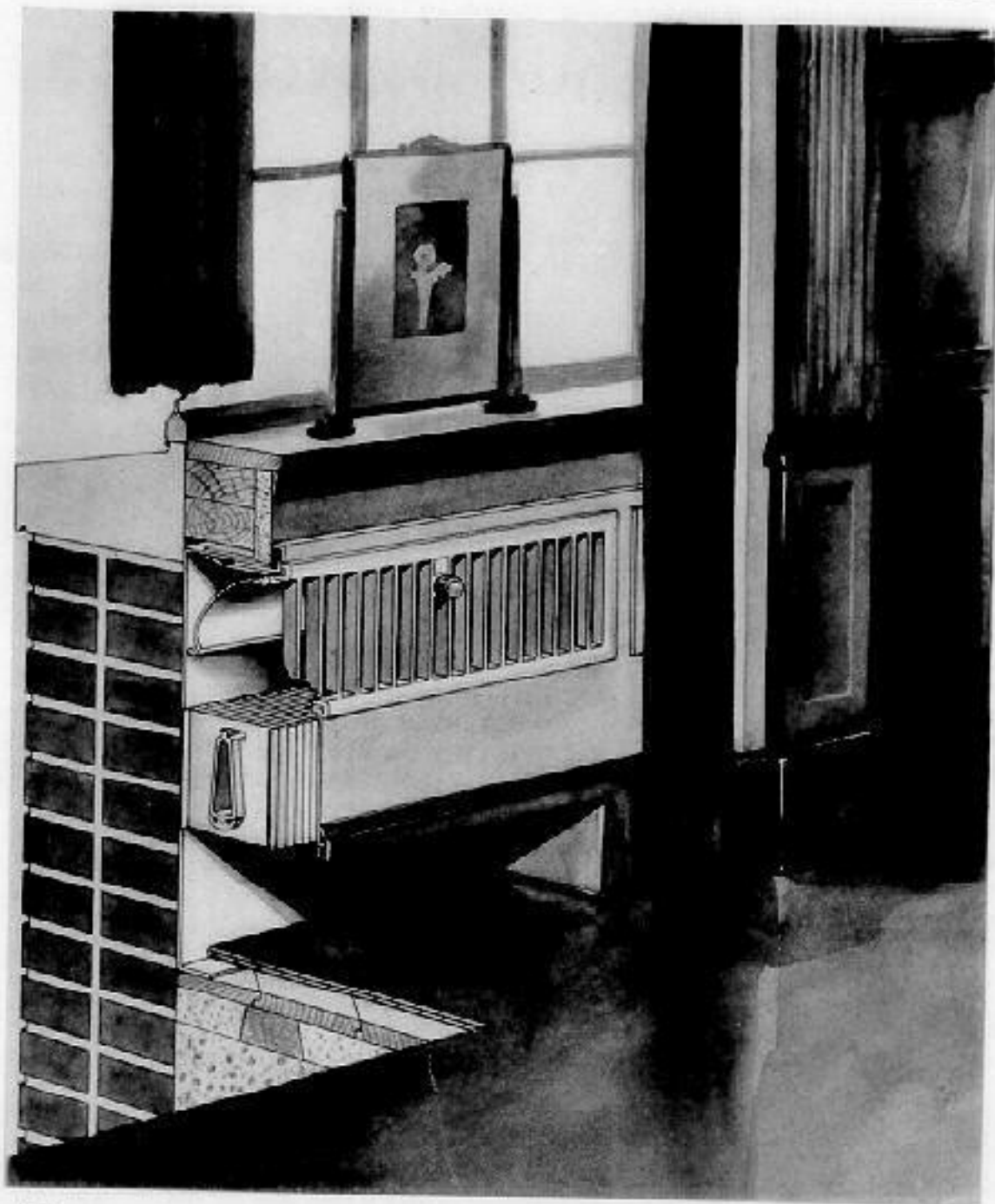


BEHIND those grilles, in the wall, under the windows, there are two Herman Nelson Invisible Radiators of the "Paneled" type, that say, without question—"this is a modern office". Note the atmosphere of efficiency and cleanliness.

The heat delivery may be regulated to the finest degree by operating the dampers. The steam or hot water supply to the heating element may be controlled by reaching into the cabinet to operate the radiator valve.

The front of the radiator is instantly removable, without the use of tools of any kind, for access to the controlling valves, traps and connections.

Not an inch of floor or room space is wasted. A radiator arrangement that is a true solution to many of the architects' and engineers' problems.



THE above picture shows how the "Paneled" type Herman Nelson Invisible Radiators were installed in the office illustrated on opposite page.

A recess was left in the wall by the masonry contractor, in which the heating contractor set the radiator, as furnished complete by the manufacturer.

Piping and valve connections were then made and, when plastering was finished around the cabinet, the front panel was slipped into place. Then the decorators finished the panel to harmonize with the room.

No furring of walls—no special construction—the steamfitters' task made easy.

Operation and Control of the—



Damper control

Both Types Operate Alike

As previously shown, Herman Nelson Invisible Radiators are built in "Immured" and "Paneled" types. Both types operate in exactly the same way.

Simplicity of Operation

When a fire is started in a fire-place, the warm air rushes up the chimney, due to the draught created by the fire or heat. Invisible radiators operate on the same principal except that the warm air enters the room where it is needed.

The steel case or cabinet acts like a chimney while the heating element furnishes the heat required to produce the flow of air. As the air in the cabinet is warmed by the heating element, it flows upward and out into the room through the outlet grille. At the same time air from the room flows around the heating element to replace the air that has previously been warmed. In this way air from the floor is continuously drawn into the cabinet, warmed and discharged back into the room. The accompanying sketch will serve to illustrate the operation of Herman Nelson Invisible Radia-

tors. There are no moving parts and there is nothing to get out of order.

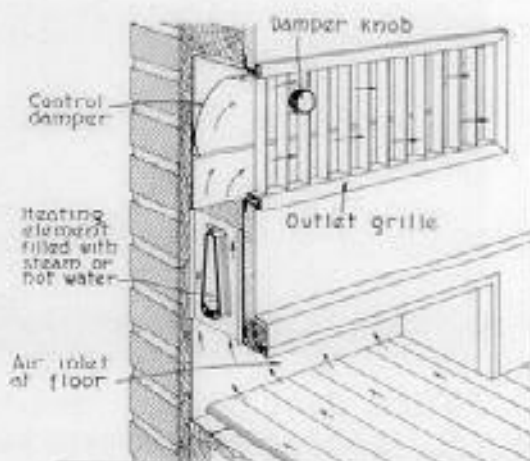
Heat Supplied by Steam or Hot Water

Herman Nelson Invisible Radiators may be used with any type of steam, hot water, vapor or vacuum system of heating (see page 33).

The steam or hot water is circulated through the single large opening in the cast aluminum core of the heating element, as shown below. The heat from the steam or hot water flows through the walls of the core and out through the fins, which in turn warm the air passing around them.

Damper Control

As explained above, all the heat from the Invisible Radiator is delivered into the room by the air that flows through the radiator. Obviously the simplest way to control the amount



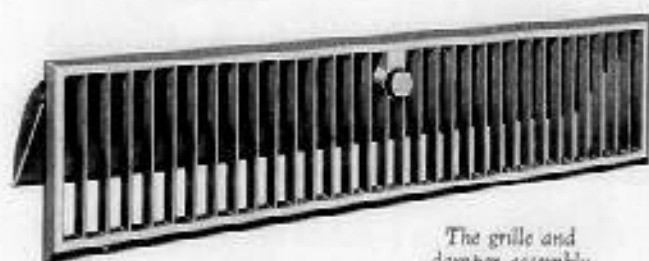
How they operate

of heat delivered into the room is by regulating the flow of air. This is easily accomplished by means of a light weight heat control damper.

By varying the position of this damper the amount of heat supplied to the room may be

Herman Nelson Invisible Radiators

varied from the maximum output with the damper wide open to a very small amount when the damper is tightly closed. When the damper is closed the heating element remains hot but virtually no heat is given off because the flow of air has been stopped.



The grille and damper assembly

The light weight damper is operated by means of the control knob shown in the middle of the grille, illustrated above. The damper may be adjusted to any position by the turn of the knob. The operating mechanism is so designed that the damper will be securely held in any position in which it is left. No amount of jarring can cause the damper to move.

The damper is light but sturdy and the control knob arrangement is so efficient that the damper may be easily adjusted by a turn of the knob.

Advantages of Damper Control

The advantages of damper control are many. It is simple, sturdy, easily understood, the setting can be seen at a glance and the response to any change in the damper setting is almost instantaneous. For example, if the damper is closed and heating is desired, the warm air starts flowing into the room as soon as the damper is opened, because the heating element is always warm when steam or hot water is circulating. In a like manner the amount of heat may be reduced very quickly by partially or fully closing the damper.

Valve Control

In the case of the "Paneled" type Invisible Radiator, a hand-operated valve may be used to control the amount of heat when desired. The valve is easily accessible through the hand access doors provided at each end of the grille as shown in the illustration below. These doors open at the bottom by a slight touch of the hand and are self-closing when the hand is withdrawn.

When automatic temperature control is used with the "Paneled" type the diaphragm valve should be installed directly on the heating element inside the cabinet (see pages 37 and 38). Under these conditions the control damper may be omitted if desired.

Panel Easily Removed Without Tools

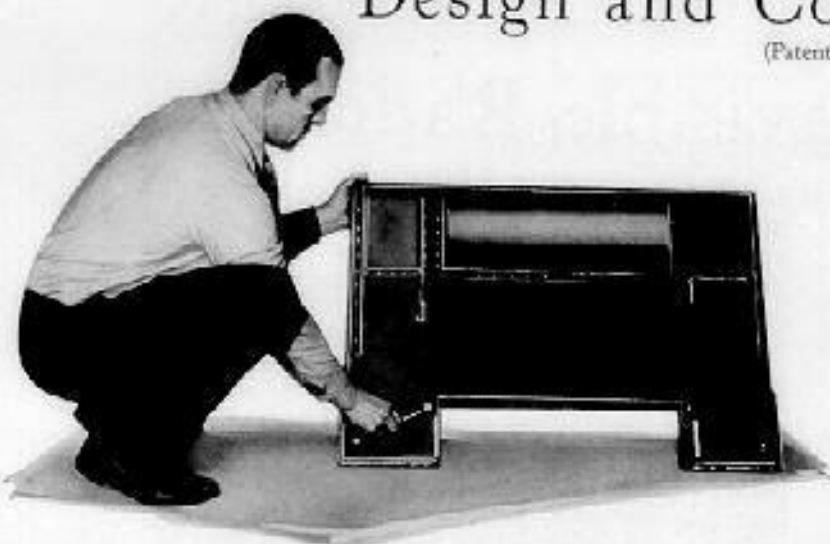
The access doors are also used to unfasten the spring hooks that hold the panels securely in place (see pages 12 and 13). When the hooks have been released the whole front panel can be easily removed by grasping the panel by the hand hole frames. In this way the entire cabinet is open for access to all parts. No tools are required.



Valve control

Design and Construction of the—

(Patents Pending)



Method of tightening adjustable base of the "Paneled" type. (Rear view of panel)

"Immured" type for the purpose of protecting the heating element from plaster and debris during installation in the building. See pages 10 and 35. This protecting shield should not be removed until the plastering has been finished and the grille is being installed.

A light weight steel protector is placed on top of the heating element of the "Paneled" type before shipment as shown on pages 10 and 37. This is placed there for the purpose of protecting the heating element from dirt, plaster, etc., during building construction, and should not be removed until the plastering and decorating is completed and the front panel is about to be installed.

Hand Access Doors: On the "Paneled" type Invisible Radiator, access doors are provided at both the right and left hand sides of the grille for hand access to the radiator valves and to the spring hooks for fastening the front panel to the cabinet. Both of these access doors are provided with frames to match the grille frames. They are hinged at the top so that they will swing out of the way easily when the hand is inserted. They are self-closing when the hand is withdrawn.

Adjustable Base: With the "Paneled" type an adjustable base is provided. The adjustment provides for flexibility and ease in installation. The base may be adjusted up or down to meet varying distances from the bottom of the cabinet to the top of the finished floor of from 1/4" to 1-1/2". See page 32. This adjustment is accomplished by fastening the base to the panel with bolts which fit into slotted holes. When the proper position of the base section is determined for each individual radiator, the base is securely locked in place by merely tightening the nuts, as shown in the illustration above.

With the "Paneled" type the air inlet open-

ing to the radiator is provided in the base section. The sides of the adjustable base extend back to the rear of the cabinet to form the opening for the inlet of air to the heating element as shown on page 31.

Grille Frames and Plaster Grounds: With the "Immured" type, the grille frame into which the heat outlet grille fits, is made of angle iron with the corners welded, making a one-piece frame. See illustration on page 10 and drawing on page 30. These frames are fastened to the cabinet at the factory. Unless otherwise ordered, all radiators are shipped with a 3/4" angle frame. That is, the outside edge of the frame is 3/4" from the front of the cabinet. The outer edge of the frame is arranged to be used as a plaster ground.

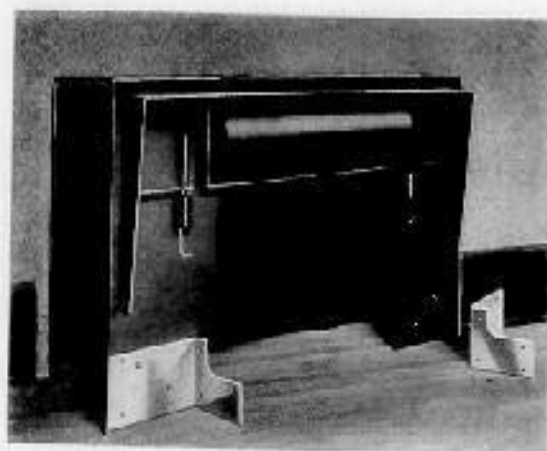
Upon special order, grille frames extending any specified distance from the front of the cabinet will be furnished. In addition to the standard 3/4" frame, 1-1/2" frames for use with tile wall construction are carried in stock. Frames with any other dimension are made to order.

This arrangement is not necessary with the "Paneled" type as the grille and frame are a part of the panel construction.

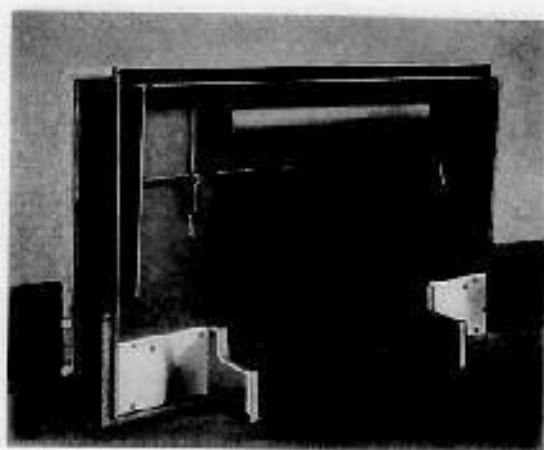
Cast Grilles: All grilles, for both types of Invisible Radiators, are cast of a non-ferrous alloy. They are light, strong and present a very pleasing appearance. They are made in six (6) designs as shown on pages 16 and 17. In all cases they are securely held in place by set screws in the bottom frame and hardened steel pins in the upper frame, making them very easy to remove when required for cleaning or other purposes. The selection of grilles, is optional with the purchaser but unless another selection has been specified or ordered, all Invisible Radiators will be furnished with "Standard" grilles, as shown at top of page 16. This Company does not make grilles to order and if the purchaser wishes a design not shown on pages 16 and 17 it will have to be procured from other manufacturers. In this event, page 30 may be referred to for dimensions to which such grilles will have to be made. It is advisable for this Company to furnish the grille manufacturer with dampers and knobs to be made part of the special grilles, provided damper control is required. The dampers furnished with Herman Nelson Invisible Radiators cannot be attached to the cabinet or panel but must be a part of the grille.

Dampers: The dampers are light in weight, made in one piece, and hinged to the back of the grille. See page 10. Where the grilles are required without dampers as might be the case where automatic temperature regulation is employed, they will be so furnished. All

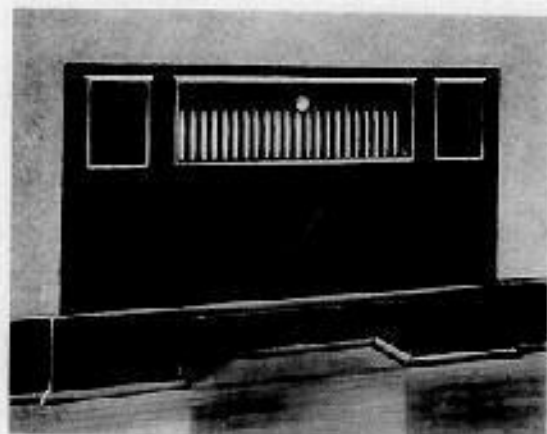
Herman Nelson Invisible Radiators (Cont'd)



Supporting angles are provided for fastening wood base to the removable front of the "Paneled" type (Panel has been turned around to show construction)



Method of attaching wood base (Panel has been turned around to show construction)



The finished installation with wood base across the removable front

dampers are so designed that they form a smooth air deflector behind the grille, when in full open position.

Control Knobs: All grilles are arranged to be controlled by operating a neat knob mounted on the face of the grille. See page 8. This knob operates the damper from a fully closed to a fully open position. The damper may be held in any position desired without danger of being jarred out of position.

Wood Base: As previously stated, the "Paneled" type Invisible Radiator is furnished with an adjustable steel base. On some occasions, it may be desirable to match the base on the front panel of the radiator with the design of the baseboard used in the room, in which event, the steel base regularly furnished can be omitted and attachments furnished to permit a wood base to be securely fastened to the panel, all as illustrated on this page and page 32. In such event, steel angle plates are furnished, as shown. These will be shipped separately and provided with machine bolts to permit them to be quickly fastened to the panel by the carpenter contractor. The wood baseboard can then be built to fit the cabinet, as shown. Screw holes are provided in the front panel and angles to permit the finished baseboard to be securely screwed in place. The quarter-round should be nailed or screwed to the wood base, as shown, in order that the complete front panel including its wood base may be readily removed or slipped in place. If it is found that the finished floor should settle slightly the quarter round may be moved down to fit snugly to the floor line.

Painting: All cabinets of the "Immured" and "Paneled" types are sprayed with a metallic aluminum paint after fabrication and before shipping. All grilles and damper assemblies for both types and the front panel of the "Paneled" type are painted with one coat of priming paint after fabrication and before shipping. These are intended to be decorated on the job by the decorating contractors to harmonize with the room finish.

How Radiators Are Shipped: In the case of both types the cabinets and heating elements are shipped together in one crate. The grilles and dampers for the "Immured" type are crated separately. With the "Paneled" type, the front panels, with grilles and adjustable bases, are shipped in separate crates.

It is advisable not to install the grilles on the "Immured" type until plastering has been finished and the heating job completed. The front panels for the "Paneled" type should not be permanently installed until the heating plant is completed and the decorators are ready to finish them.

The Herman Nelson—

(PATENTED)

Its Development

The Wedge Core Heating Element is the heart of the Herman Nelson Invisible Radiator and an outstanding achievement in the art of heating and ventilating. It is used in all Herman Nelson heating and ventilating products.

When The Herman Nelson Corporation engineers set out to build smaller, lighter and better heating equipment, the radiator constituted the greater problem. Cast iron was almost universally used for this purpose but its bulk demanded too much space, its rough surfaces fouled easily and despite its apparent ruggedness, it is brittle and easily damaged by frost—a serious weakness in many applications. Sheet steel radiators had proved to be unsuitable for the purpose.

The automotive industry suggested the use of non-ferrous metals but the design and construction employed was not practical for use in the heating of buildings where the life of the heating equipment must be as long as that of the building. Investigation led to the conclusion that soldered, brazed or welded joints would not withstand the heat of steam and continuous expansion and contraction strains—to say nothing of freezing. The congested waterways and multiplicity of passages characteristic of automotive radiators were liable to stoppage and would not permit proper venting which eventually caused leaks.

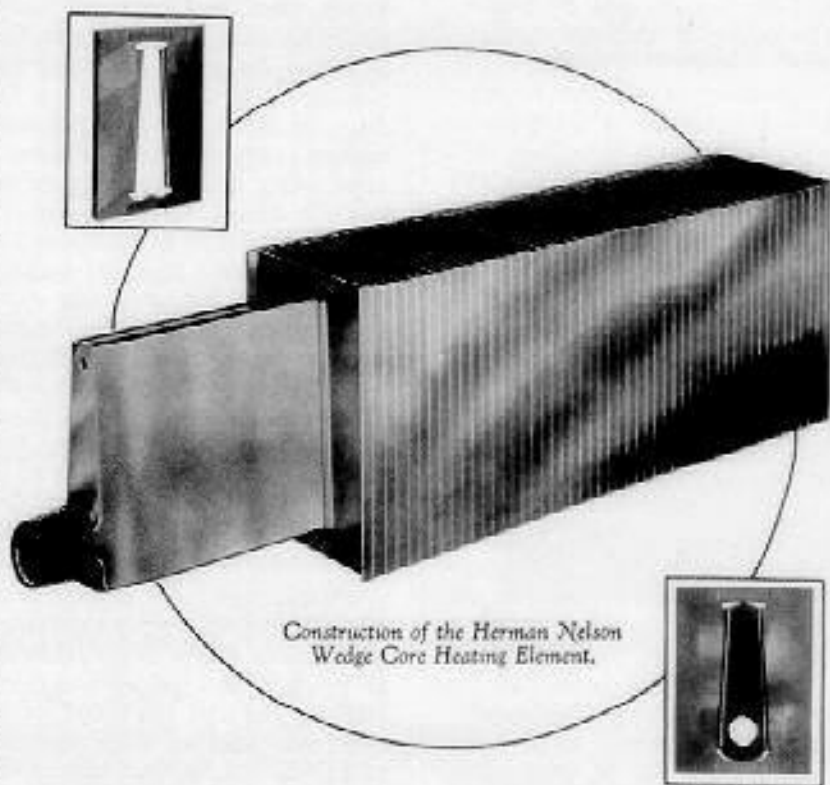
Careful study, with a background of many years' experience in the art of heating buildings, indicated that the proper solution lay in a non-ferrous radiator *especially designed for this service—not an adaptation from some other art.* This resulted in the Herman Nelson Wedge Core Heating Element involving a unique design and method of construction. It has many distinctive features and renders practical the use of an ideal material.

Construction

The Herman Nelson Wedge Core Heating Element consists of a wedge shape fluid container or "core" on which a series of heat conductor plates are securely mounted. It is built entirely of aluminum which makes a light, practically non-corrosive, compact and effective heating element.

The core is a straight one-piece die casting of an aluminum alloy which is unusually strong, dense and ductile and has a high heat absorbing capacity. The conductor plates are of pure sheet aluminum which has a higher heat transmission value per unit of weight than even cast aluminum or any other metal. Because of its light weight and high conductivity pure aluminum will transmit about twice as much heat per unit of weight than either copper or silver, six times as much as brass and twelve times as much as cast iron.

The exclusive design employed in the Herman



Construction of the Herman Nelson Wedge Core Heating Element.

Wedge Core Heating Element

Nelson Wedge Core Section renders aluminum practical for radiators. It is ideal for the purpose but is not suitable for the types of construction used in other non-ferrous radiators because it cannot be commercially soldered, brazed or welded nor reliably cast except in simple forms and by special processes.

The "core" is provided with male threads at each end, for pipe connections. The outer surfaces are accurately machined. The plates are die stamped with inter-locking flanged apertures which fit the core and afford a contacting area many times greater than the conducting area. Aluminum possesses the characteristic of seizing other metals in contact with it and when the plates are pressed onto the core under heavy pressure and locked and inter-locked in position, a permanent efficient contact is obtained. The plates are also provided with inter-locking outer flanges which act as separators, strengthen the plates and give the heating element a very neat appearance.

Low Temperature Heating Surface

In the operation, of the Wedge Core Heating Element, heat is absorbed from the steam or hot water, transmitted thru the plates and delivered to the air. This arrangement affords a very large amount of comparatively low temperature surface which is much better, for heating purposes, than the high temperature prime surface commonly used since it does not overheat or scorch the dust particles contained in the air.

Free Air Passage

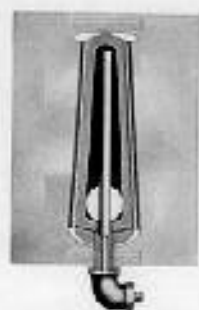
It is unnecessary for the air passing thru this heating element to continuously change its direction because the passages are straight and smooth. The air is quickly and uniformly heated by being split up into fine streams.

Clean and Sanitary

There is no place for dust or dirt to accumulate on the perfectly smooth, straight plates. From the standpoint of sanitation this is a very desirable feature.

Great Strength

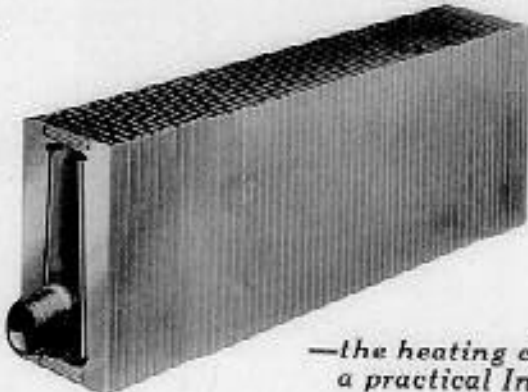
The heating element is so substantially built that it has frequently withstood pressures as high as 500 pounds per square inch after the plates had been applied. All cores are regularly tested at 300 pounds hydrostatic pressure before assembly. The method of mounting the plates adds strength to the core and provides a very large factor of safety even when operated at a pressure of 150 pounds per square inch.



Air Vent for Hot Water Systems

Proved Record of Durability

Before the Herman Nelson Invisible Radiator was offered to the public, the Wedge Core heating element was regularly employed in the Univent, which is used for heating and ventilating schools and similar buildings, under conditions where outdoor air as low as 40° below zero is blown thru the heating elements. Under these conditions it has served unflinchingly for years withstanding expansion, contraction and water hammer strains. Often, through neglect, it has been frozen but never damaged. Considering this record, The Herman Nelson Corporation does not hesitate to unconditionally guarantee this heating element against leaks, for the life of the radiator, to the extent of replacing, without charge to the purchaser, at any time, any Herman Nelson Wedge Core Heating Element found to be defective.



—the heating element that insured a practical Invisible Radiator

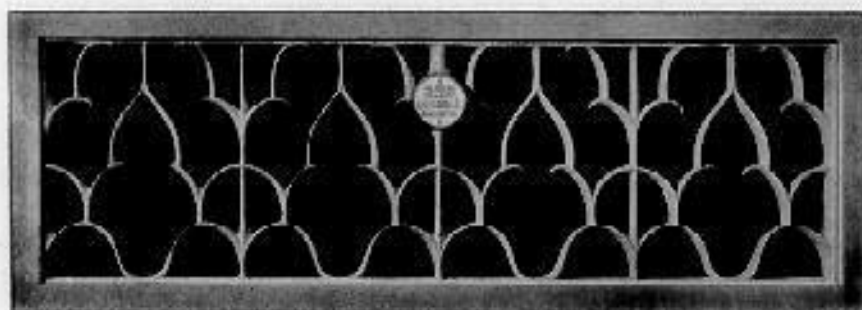
SELECTION OF GRILLES

(Design Patents Pending)



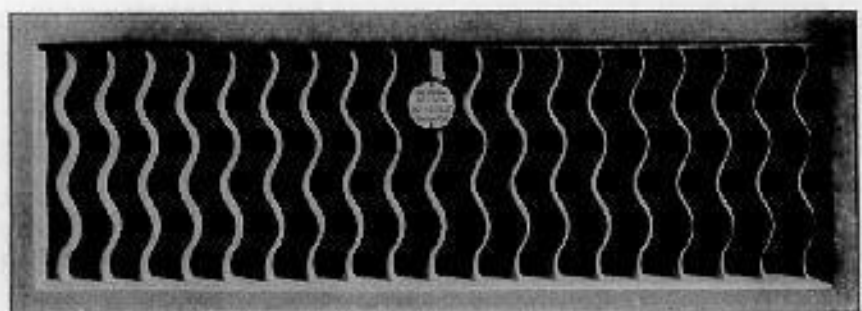
"The Standard"

This grille will always be furnished unless another design is specifically ordered. Because of its straight forward simplicity, it does not strike a discordant note in any room decoration. Where a more sympathetic design is desired, one of the other grilles illustrated will meet almost any situation.



"The Tracery"

The Gothic tendency of this design qualifies it for use in English and French Gothic interiors. However, it will also harmonize very nicely with interiors of the Spanish or Italian Renaissance periods.



"The Wave"

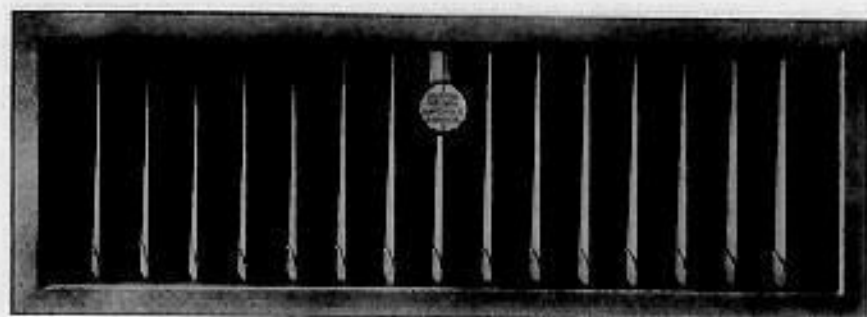
To be fully appreciated this grille should be considered as a part of an interior rather than as separate design. It is at its best in either formal or informal rooms of the English, Spanish, or French Renaissance, while its adaptability to Georgian or modern interiors is obvious.

SELECTION OF GRILLES

(Design Patents Pending)

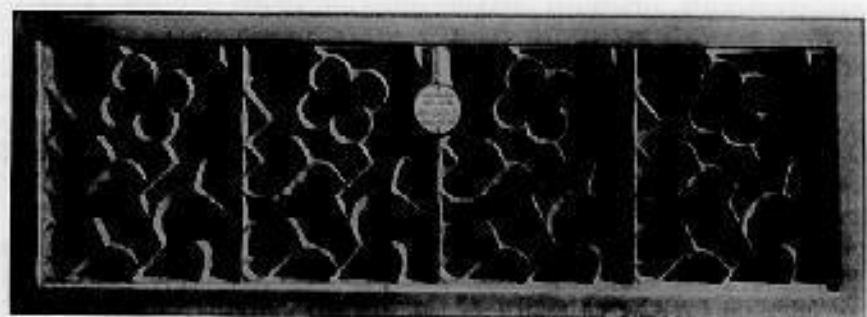
"The Bud"

This design, based on the sprouting bud motif combines originality, classic simplicity and delicacy without fragility. Because of these qualities it will be found to be in good taste in any formal Georgian, English, French, Adam, Directoire or modern room.



"The Floral"

This pleasing design has unlimited possibilities in informal or semi-informal interiors. It is particularly well suited to early American rooms.



"The Geometric"

A truly modern design without being faddish. It has characteristics that harmonize with rooms of Early American English, Chippendale, or Heppelwhite setting, while its suitability for modern and ultra modern rooms is apparent.



How to Select and Locate —

Both types of Herman Nelson Invisible Radiators are made in eight lengths and three heights. The "Immured" type is made in three depths while the "Paneled" type is made in two.

Thus the "Immured" type is made in seventy-two sizes and the "Paneled" type in forty-eight, making a total of one hundred and twenty Invisible Radiators from which a selection may be made to meet any requirement.

Neither "Immured" nor "Paneled" type radiators can be built in special lengths or depths. The "Paneled" type radiator can be built only in the three heights shown on pages 26-29. In addition to these three heights, "Immured" type radiators will be built in special heights when so ordered, at additional cost, but cannot be built less than 20-3/8" high.

If radiators are built higher than 30", the ratings should not be increased because experience has shown that when this height is exceeded, the heating effect may even be decreased.

We can guarantee only radiators of standard heights as shown in this catalog and can assume no responsibility for additional capacity or performance if radiators are made higher.

If grilles are made by others, we will not be responsible for the capacity of the radiators so equipped unless the free area of the grille is at least 75 per cent.

Ratings—Pages 20-29

Invisible Radiators of both types are rated in square feet of standard equivalent cast-iron radiation set exposed in the room.

By definition, a standard cast-iron radiator will give off 240 B. t. u. per square foot of surface per hour, when filled with steam at 215° and when setting in a room having a temperature of 70°. Such a standard radiator will have a certain heating effect in the room in which it is installed. Likewise, an Invisible Radiator will have a certain heating effect in the room. Invisible Radiators are, therefore, rated in terms of square feet of standard cast-iron radiation that they can replace to furnish the same heating effect.

For example, as shown on page 27, the "Paneled" type radiator number 3021-D is rated at 33.8 square feet, which means that this radiator would have the same heating effect in the room in which it is installed as a 33.8

square foot standard cast-iron radiator would have in the same room when set standard without recess or cover.

This relation holds, regardless of whether steam or hot water is used. If the temperature of the steam or water in the cast-iron radiator is reduced, the number of B. t. u. given off by each square foot is also reduced. In the same way the heating capacity of an Invisible Radiator is reduced if the steam or water temperature is reduced. Therefore, an Invisible Radiator is so rated that it will produce the same heating effect in the room as an exposed radiator of the same rating, if the steam or water and the air temperatures are the same, regardless of whether steam or hot water is used as the source of heat.

Method of Rating

The ratings published on pages 20 to 29 inclusive, are based on exhaustive tests conducted in the laboratories of this Company. As previously stated, these ratings are given in square feet of equivalent standard cast iron radiation, set exposed in the room and are approximately 10% greater than found by actual condensation to allow for increased heating effect.

The percentages of increase, for room heating effect, over the actual condensing capacities, agree with the results of tests and investigations conducted and published by well-known authorities. These investigations have shown considerable added room heating effect where the convection method of heating is employed.

It is left to the discretion of the engineer as to whether or not he wishes to take advantage of this increase. If not, he should reduce the ratings given on pages 20 to 29 by ten per cent (10%).

Many years' experience with thousands of heating installations, in this and foreign countries, have always shown Herman Nelson ratings to be conservative. There is no disposition on the part of this Company to unwisely economize in the amount of radiation to be specified for a given room, even though sales or business profits may be sacrificed.

We advise the architect and engineer to always employ a reasonable factor of safety, not because of the flexibility in radiator ratings but on account of heat loss and leakage conditions always found in buildings, which losses cannot generally be accurately predetermined by any rule or method of calculation. This

Herman Nelson Invisible Radiators

factor is far greater than any variation involved in the rating of a particular radiator.

We conceive it to be the duty of the manufacturer to scientifically establish and accurately state the method of rating his products and the responsibility of the engineer to determine the duty and to properly adapt the products to it.

Selecting the Radiator

On the following pages will be found diagrams showing the arrangement of both the "Immured" and "Paneled" type Herman Nelson Invisible Radiators when installed in outside walls. The letters on these diagrams refer to the tables on the opposite pages.

If the number of square feet of radiation required for a given room has been determined for the system to be used in terms of equivalent direct cast-iron radiation set exposed, it is only necessary to refer to the tables of dimensions and capacities to select a Herman Nelson Invisible Radiator or radiators to fit the space requirements and to have capacity equal to the required amount. This is equally true for gravity steam, vapor, vacuum, or hot water system radiators.

The actual capacity required for each room is a matter of engineering. This can be determined in any one of a number of ways. If the heating capacity required is determined in square feet of equivalent direct cast-iron radiation set exposed, it is a very simple matter to refer to the tables of dimensions and capacities to select the proper radiator.

If the heat loss is determined in terms of B. t. u. per hour, as recommended by the A. S. H. & V. E. it is necessary to divide the B. t. u. per hour by a factor which depends upon the type of system used, the temperature of the heating medium in the radiator, and the room temperature.

In the case of vapor, vacuum or gravity steam systems, this factor is 240 B. t. u. per hour for 215° F. temperature and 70° room temperature. This factor is higher for either greater steam temperatures or lower room temperatures and is lower for either lower steam temperatures or higher room temperatures.

In the case of hot water installations this factor varies with the mean temperature of the water in the radiator for which the system is designed and with the room temperature. As

in the case of the vapor, vacuum or gravity steam systems the factor is higher for lower room temperatures and vice versa.

The following table will serve as a guide in determining the B. t. u. output per sq. ft. of hot water installations for various water temperatures:

Average Temperature of Water in Radiator	B. T. U. Emitted Per Sq. Ft. of Equivalent Direct Cast-Iron Radia- tion Set Exposed for 70° Room Temperature
160	129
170	148
180	167
190	187
200	208

For example: if the temperature of the water at the inlet is 190° and the temperature at the outlet is 170° the mean temperature of the water in the radiator is 180°. With a room temperature of 70°, 167 B. t. u. will be emitted per hour per square foot of direct cast-iron radiation. Then if the total heat loss from the room is divided by this factor the result will be the number of square feet of equivalent direct cast-iron radiation required. This figure then determines the size of the radiator as given in the tables of capacities.

In general it will be found from a study of the tables of capacities that it is more economical of wall space to use the widest and highest Herman Nelson Invisible Radiators possible. It is also most economical in cost.

Location of Radiators

The laws governing the location of Herman Nelson Invisible Radiators are essentially the same as those governing the location of ordinary exposed radiators. In general, all radiators should be located at the points of greatest exposure, that is, they should be located on the outside walls and under the windows wherever possible.

There are many cases however, in which it is not feasible to locate the radiators at points of greatest exposure. As for example: in halls and vestibules where it is very frequently necessary to place them in the side of the stair case or in the side of the vestibule.

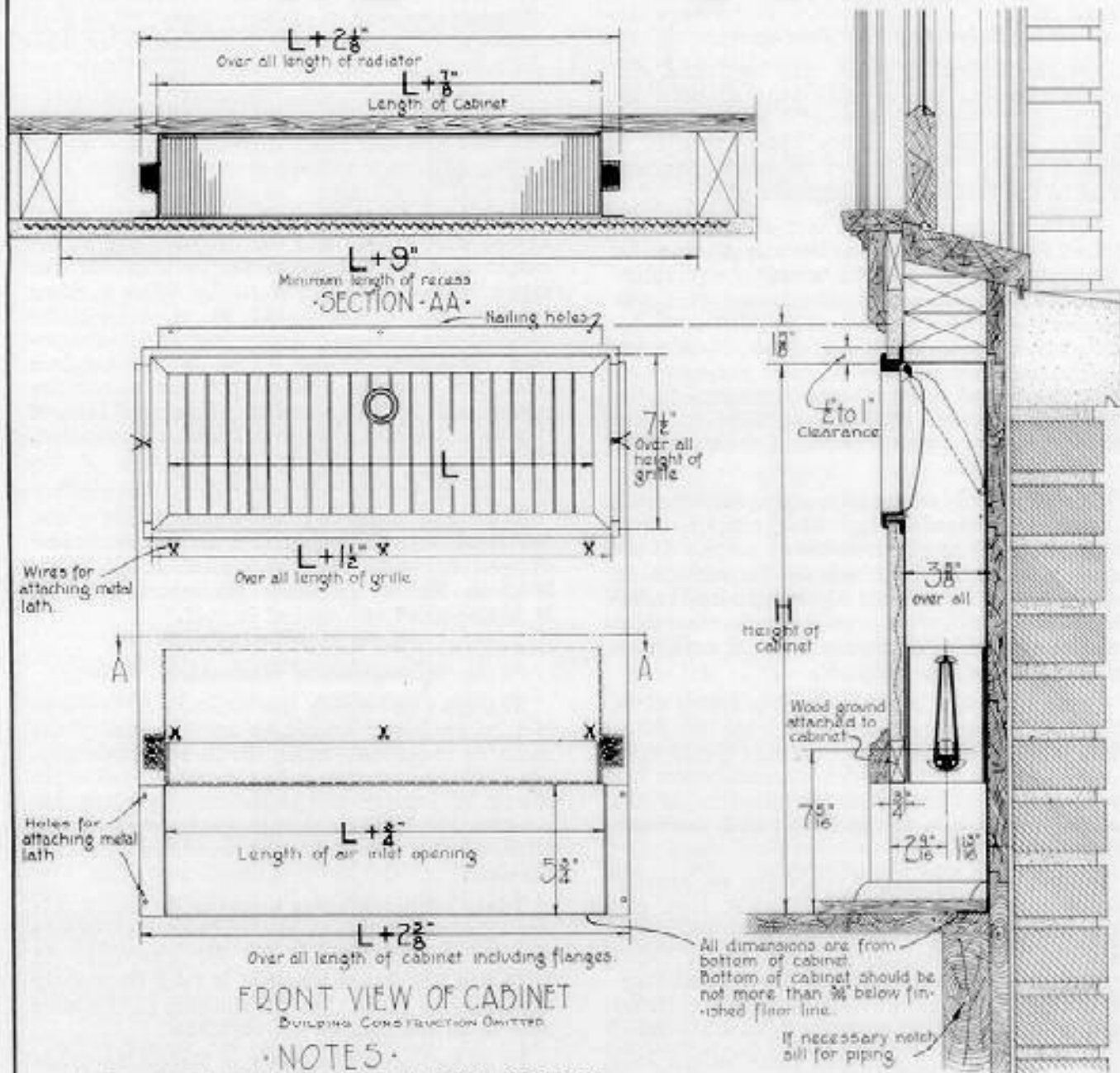
In all instances the Herman Nelson Invisible Radiators can be installed in the same locations as would be used for ordinary exposed radiators.

APPLICATION & DIMENSIONS

THE HERMAN NELSON INVISIBLE RADIATORS

IMMURED TYPE

3 5/8 INCHES DEEP



NOTES

- 1 See opposite page for valves of lettered dimensions.
- 2 All steam connections should be thoroughly tested before lathing and plastering has been completed.
- 3 Metal lath should be placed over entire cabinet and recess, attaching to cabinet by means of wire loops.
- 4 If there is a plate on rough floor it should be removed in recess.

CROSS SECTION

DIMENSIONS · CAPACITIES · WEIGHTS · ETC.

· THE · HERMAN · NELSON · INVISIBLE · RADIATORS ·

IMMURED TYPE

REFER TO OPPOSITE
PAGE FOR KEY TO
DIMENSIONS.

ALL DIMENSIONS
IN INCHES

3⁵/₈ INCHES DEEP

THESE RADIATORS MAY BE
USED FOR EITHER STEAM
OR HOT WATER. CAPACITIES
ARE GIVEN IN SQ. FT. OF
EQUIVALENT STANDARD CAST
IRON RADIATION SET EX-
POSED IN THE ROOM. SEE
METHOD OF RATING, PAGE 18.

HEIGHT - H - 20³/₈ INCHES

NUMBER	1511-C	2011-C	2511-C	3011-C	3511-C	4011-C	4511-C	5011-C
CAPACITY	10.9	14.5	18.2	21.8	25.4	29.1	32.8	36.4
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈
APPR. SHPG. WT.	50*	64*	77*	90*	105*	117*	132*	141*
CODE WORD	CABAL	CABIN	CACHE	CADDY	CADET	CAGED	CALCI	CALMY

HEIGHT - H - 24³/₈ INCHES

NUMBER	1521-C	2021-C	2521-C	3021-C	3521-C	4021-C	4521-C	5021-C
CAPACITY	11.8	15.8	19.7	23.7	27.6	31.5	35.6	39.5
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈
APPR. SHPG. WT.	54*	68*	82*	95*	112*	126*	142*	154*
CODE WORD	CALVE	CAMEL	CAMPO	CANAL	CANCH	CANDY	CANNA	CANOE

HEIGHT - H - 30³/₈ INCHES

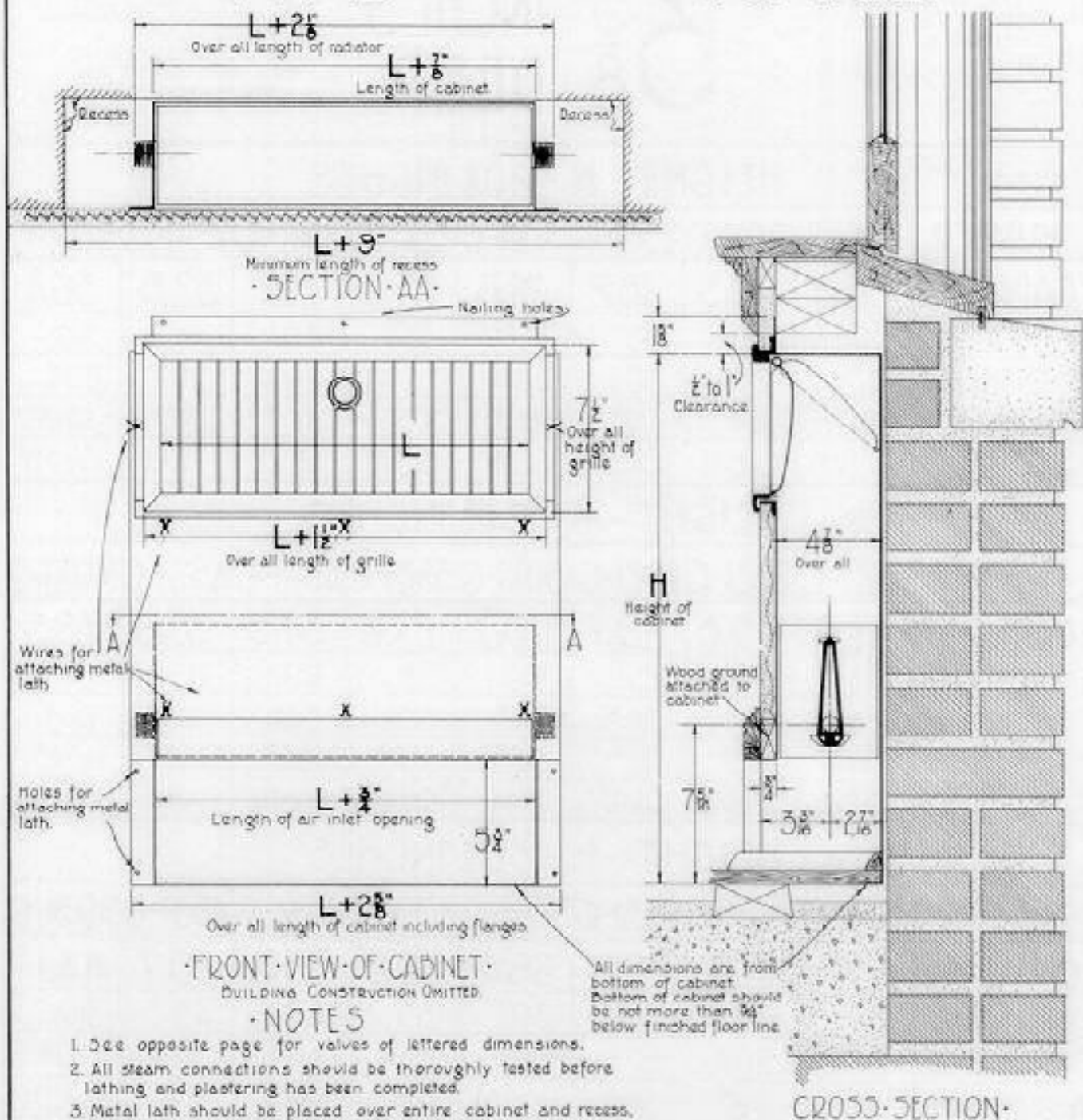
NUMBER	1531-C	2031-C	2531-C	3031-C	3531-C	4031-C	4531-C	5031-C
CAPACITY	13.3	17.7	22.0	26.4	30.8	35.3	39.7	44.1
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈
APPR. SHPG. WT.	62*	76*	90*	107*	124*	140*	156*	174*
CODE WORD	CAPER	CARAT	CARBO	CAROL	CARDY	CARVE	CASED	CASSE

APPLICATION & DIMENSIONS

THE HERMAN NELSON INVISIBLE RADIATORS

IMMURED TYPE

4 ⁷/₈ INCHES DEEP



NOTES

1. See opposite page for values of lettered dimensions.
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3. Metal lath should be placed over entire cabinet and recess, attaching to cabinet by means of wire loops.
4. If there is a plate on rough floor it should be removed in recess.

DIMENSIONS · CAPACITIES · WEIGHTS · ETC.

· THE · HERMAN · NELSON · INVISIBLE · RADIATORS ·

IMMURED TYPE

REFER TO OPPOSITE
PAGE FOR KEY TO
DIMENSIONS.

ALL DIMENSIONS
IN INCHES.

4⁷/₈ INCHES DEEP

THESE RADIATORS MAY BE
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OR HOT WATER. CAPACITIES
ARE GIVEN IN SQ. FT. OF
EQUIVALENT STANDARD CAST
IRON RADIATION SET EX-
POSED IN THE ROOM. SEE
METHOD OF RATING, PAGE 16

HEIGHT - H - 20³/₈ INCHES

NUMBER	1512-C	2012-C	2512-C	3012-C	3512-C	4012-C	4512-C	5012-C
CAPACITY	14.8	19.7	24.7	29.7	34.6	39.5	44.6	49.5
DIMENSION-L	15	20	25	30	35	40	45	50
DIMENSION-H	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈
APPR. SHPG. WT.	52*	65*	79*	94*	110*	121*	138*	156*
CODE WORD	CA5U5	CATCH	CATER	CAUMA	CAUSE	CAVIL	CEASE	CEDAR

HEIGHT - H - 24³/₈ INCHES

NUMBER	1522-C	2022-C	2522-C	3022-C	3522-C	4022-C	4522-C	5022-C
CAPACITY	16.0	21.4	26.8	32.2	37.5	42.8	48.2	53.6
DIMENSION-L	15	20	25	30	35	40	45	50
DIMENSION-H	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈
APPR. SHPG. WT.	57*	72*	86*	101*	117*	129*	146*	162*
CODE WORD	CENSE	CENTI	CERIC	CETYL	CHAIN	CHALK	CHAMP	CHANT

HEIGHT - H - 30³/₈ INCHES

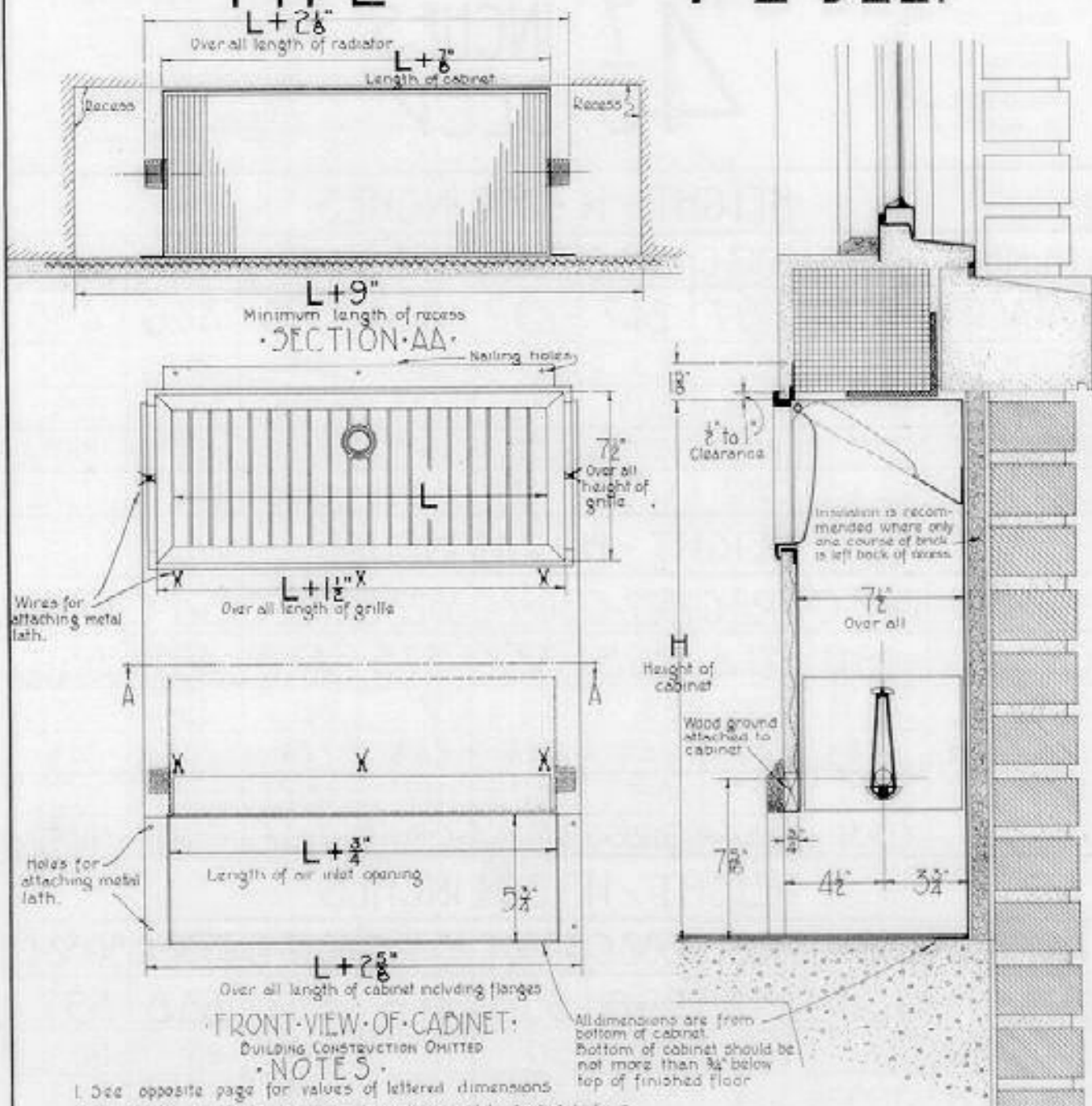
NUMBER	1532-C	2032-C	2532-C	3032-C	3532-C	4032-C	4532-C	5032-C
CAPACITY	18.0	23.9	29.8	35.8	41.8	47.7	53.8	59.7
DIMENSION-L	15	20	25	30	35	40	45	50
DIMENSION-H	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈
APPR. SHPG. WT.	66*	82*	96*	111*	127*	144*	162*	181*
CODE WORD	CHAOS	CHAPE	CHARA	CHARM	CHATI	CHAYA	CHECK	CHEER

APPLICATION & DIMENSIONS.

THE HERMAN NELSON INVISIBLE RADIATORS.

IMMURED TYPE

7 1/2 INCHES DEEP



FRONT VIEW OF CABINET.
BUILDING CONSTRUCTION OMITTED.

NOTES.

1. See opposite page for values of lettered dimensions.
2. All steam connections should be thoroughly tested before lathing and plastering has been completed.
3. Metal lath should be placed over entire cabinet and recess, attaching to cabinet by means of wire loops.
4. If there is a plate on rough floor it should be removed in recess.

CROSS SECTION.

DIMENSIONS · CAPACITIES · WEIGHTS · ETC.

· THE · HERMAN · NELSON · INVISIBLE · RADIATORS ·

IMMURED TYPE

REFER TO OPPOSITE
PAGE FOR KEY TO
DIMENSIONS

ALL DIMENSIONS
IN INCHES.

7 ¹/₂ INCHES DEEP

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IRON RADIATION SET EX-
POSED IN THE ROOM. SEE
METHOD OF RATING, PAGE 18.

HEIGHT - H - 20 ³/₈ INCHES

NUMBER	1513-C	2013-C	2513-C	3013-C	3513-C	4013-C	4513-C	5013-C
CAPACITY	18.6	24.9	31.1	37.3	43.5	49.7	55.9	62.2
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈
APPR. SHPG. WT.	57*	78*	97*	113*	132*	143*	163*	222*
CODE WORD	CHERT	CHESS	CHEVE	CHACK	CHUNK	CHURD	CINCH	CIRRO

HEIGHT - H - 24 ³/₈ INCHES

NUMBER	1523-C	2023-C	2523-C	3023-C	3523-C	4023-C	4523-C	5023-C
CAPACITY	20.3	27.1	33.9	40.6	47.4	54.2	61.0	67.7
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈
APPR. SHPG. WT.	65*	86*	105*	120*	140*	153*	180*	235*
CODE WORD	CLACK	CLANG	CLASP	CLEAR	CLICK	CLIMB	CLOAK	CLOSE

HEIGHT - H - 30 ³/₈ INCHES

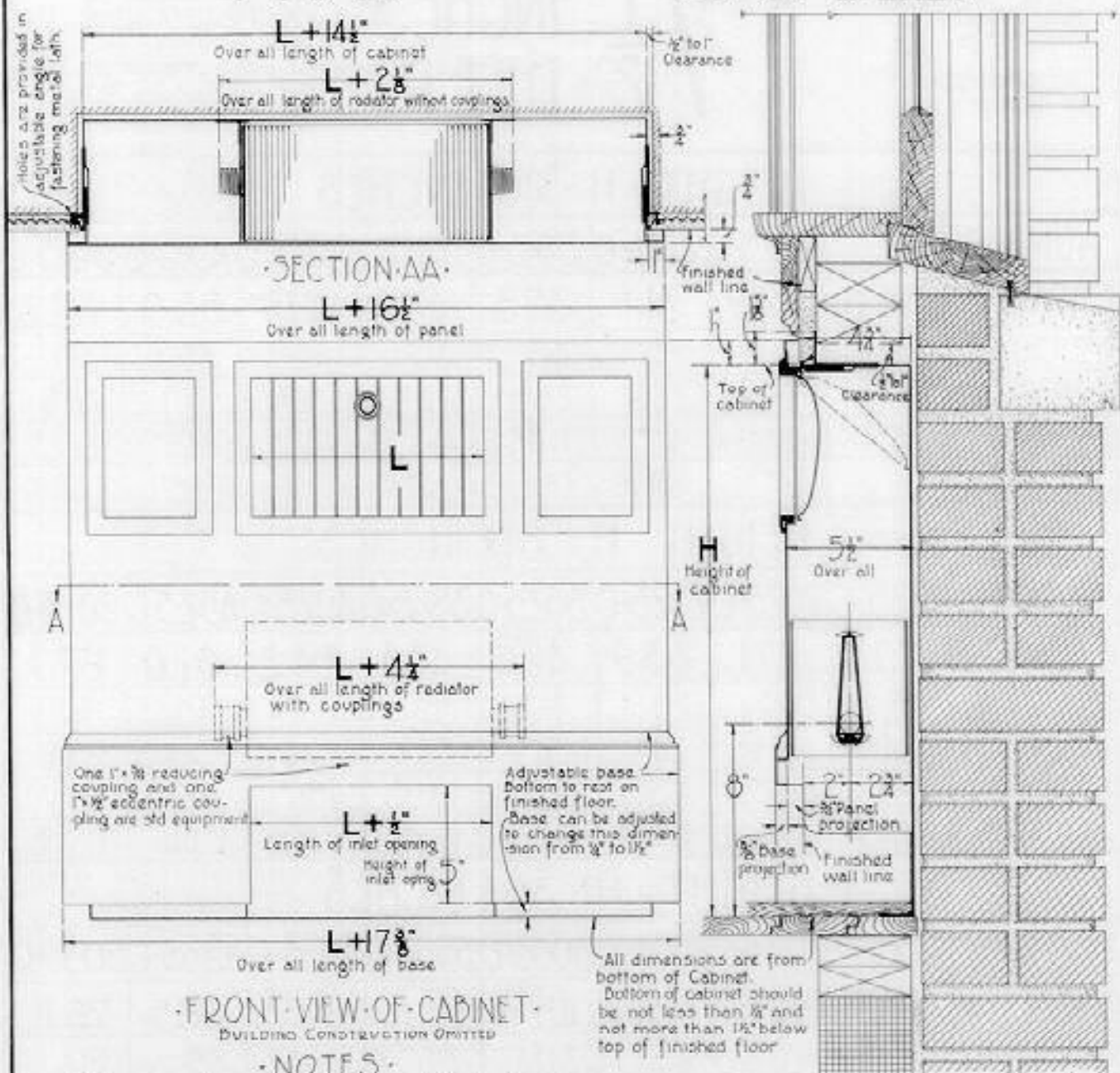
NUMBER	1533-C	2033-C	2533-C	3033-C	3533-C	4033-C	4533-C	5033-C
CAPACITY	22.8	30.5	38.1	45.7	53.3	60.9	68.5	76.1
DIMENSION - L	15	20	25	30	35	40	45	50
DIMENSION - H	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈
APPR. SHPG. WT.	75*	97*	115*	129*	148*	161*	220*	260*
CODE WORD	CLOTH	CLOUD	CLOVE	COACH	COAST	COIGN	COLOR	COMER

APPLICATION & DIMENSIONS.

THE HERMAN NELSON INVISIBLE RADIATORS.

PANELED
TYPE

5 1/2 INCHES
DEEP



DIMENSIONS · CAPACITIES · WEIGHTS · ETC.

· THE · HERMAN · NELSON · INVISIBLE · RADIATORS ·

PANELED TYPE

REFER TO OPPOSITE
PAGE FOR KEY TO
DIMENSIONS

ALL DIMENSIONS
IN INCHES.

5 ¹/₂ INCHES DEEP

THESE RADIATORS MAY BE
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EQUIVALENT STANDARD CAST
IRON RADIATION SET EX-
POSED IN THE ROOM. SEE
METHOD OF RATING, PAGE 18.

HEIGHT - H - 20 ³/₈ INCHES

NUMBER	1511-D	2011-D	2511-D	3011-D	3511-D	4011-D	4511-D	5011-D
CAPACITY	15.5	20.6	25.8	31.0	36.1	41.3	46.5	51.6
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈
APPR. SHPG. WT.	105*	125*	146*	167*	188*	209*	230*	250*
CODE WORD	DAILY	DALLE	DANDY	DASHY	DATUM	DAUNT	DEBAR	DEBUT

HEIGHT - H - 24 ³/₈ INCHES

NUMBER	1521-D	2021-D	2521-D	3021-D	3521-D	4021-D	4521-D	5021-D
CAPACITY	16.9	22.5	28.2	33.8	39.4	45.2	50.8	56.5
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈
APPR. SHPG. WT.	110*	133*	155*	177*	200*	221*	244*	266*
CODE WORD	DECAN	DEIGN	DELVE	DEMIT	DEMUR	DENSE	DEPOT	DEPTH

HEIGHT - H - 30 ³/₈ INCHES

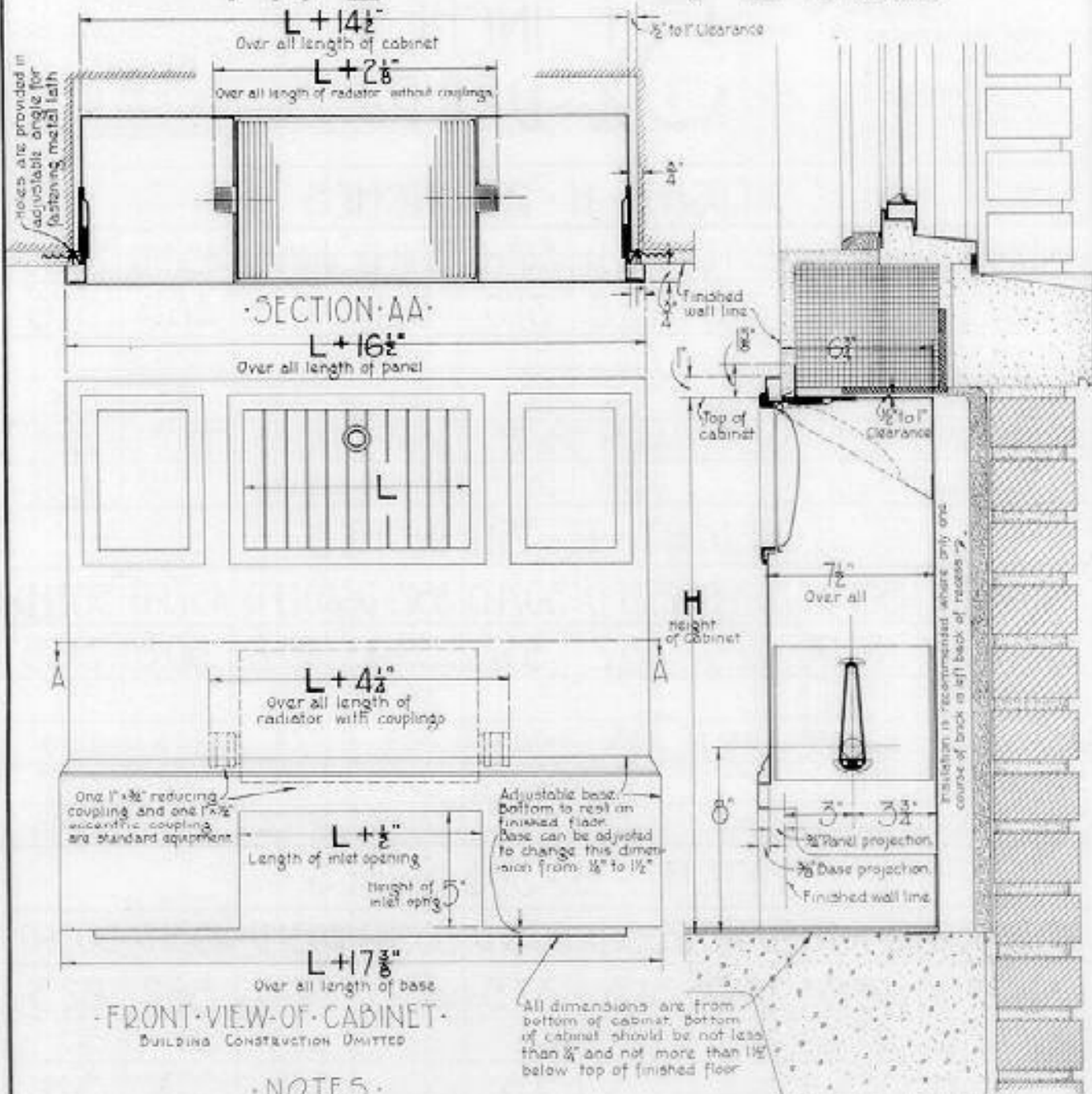
NUMBER	1531-D	2031-D	2531-D	3031-D	3531-D	4031-D	4531-D	5031-D
CAPACITY	18.8	25.0	31.3	37.5	43.8	50.0	56.2	62.5
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈
APPR. SHPG. WT.	125*	149*	175*	200*	225*	250*	275*	300*
CODE WORD	DIARY	DIGHT	DIPHY	DONOR	DORMY	DORSE	DATER	DOUSE

APPLICATION & DIMENSIONS.

THE HERMAN NELSON INVISIBLE RADIATORS.

PANELED
TYPE

7 1/2 INCHES
DEEP



FRONT VIEW OF CABINET
BUILDING CONSTRUCTION LIMITED

CROSS SECTION

NOTES

1. See opposite page for values of lettered dimensions
2. Metal lath should be placed around entire cabinet and recess attaching to cabinet by means of wire loops
3. If there is a plate on rough floor it should be removed in recess.

DIMENSIONS · CAPACITIES · WEIGHTS · ETC.

· THE · HERMAN · NELSON · INVISIBLE · RADIATORS · PANELED TYPE

REFER TO OPPOSITE
PAGE FOR KEY TO
DIMENSIONS.

ALL DIMENSIONS
IN INCHES.

7 ¹/₂ INCHES DEEP

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ARE GIVEN IN SQ. FT. OF
EQUIVALENT STANDARD CAST
IRON RADIATION SET EX-
POSED IN THE ROOM. SEE
METHOD OF RATING, PAGE 15.

HEIGHT - H - 20 ³/₈ INCHES

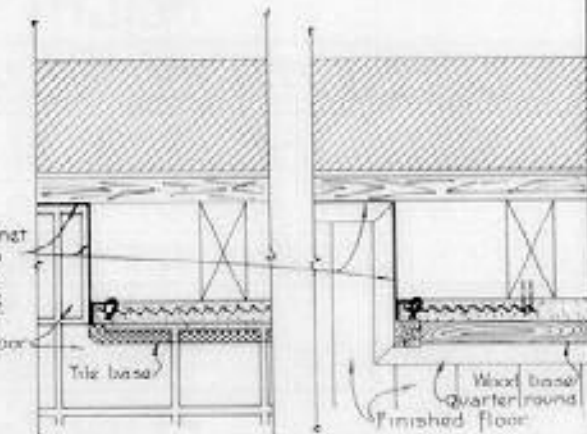
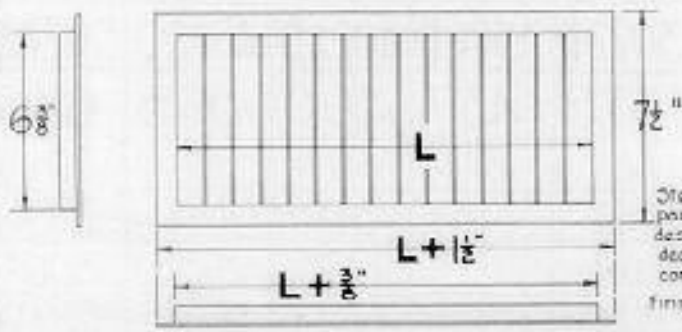
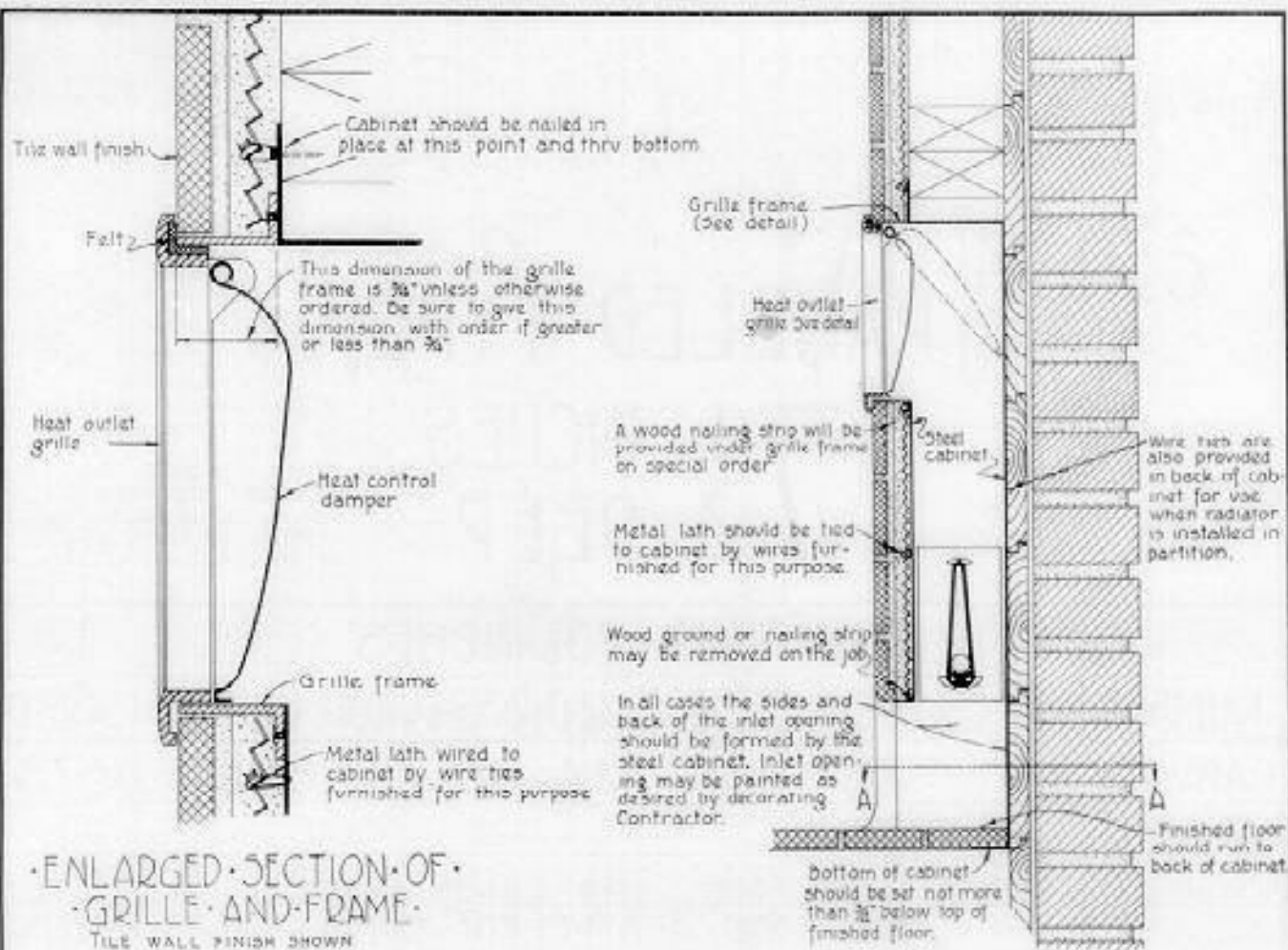
NUMBER	1512-D	2012-D	2512-D	3012-D	3512-D	4012-D	4512-D	5012-D
CAPACITY	17.2	23.0	28.6	34.4	40.0	45.8	51.5	57.3
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈	20 ³ / ₈
APPR. SHPG. WT.	117*	140*	164*	187*	211*	233*	257*	280*
CODE WORD	DOWEL	DRABA	DRACO	DRAFF	DRAIL	DRAMA	DRAPE	DRAWL

HEIGHT - H - 24 ³/₈ INCHES

NUMBER	1522-D	2022-D	2522-D	3022-D	3522-D	4022-D	4522-D	5022-D
CAPACITY	18.8	25.0	31.2	37.5	43.7	50.0	56.3	62.5
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈	24 ³ / ₈
APPR. SHPG. WT.	125*	148*	175*	201*	225*	249*	275*	300*
CODE WORD	DREAR	DRENG	DRESS	DRIER	DRIFT	DRILL	DRIVE	DROIT

HEIGHT - H - 30 ³/₈ INCHES

NUMBER	1532-D	2032-D	2532-D	3032-D	3532-D	4032-D	4532-D	5032-D
CAPACITY	21.1	28.2	35.2	42.3	49.3	56.4	63.4	70.5
DIMENSION L	15	20	25	30	35	40	45	50
DIMENSION H	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈	30 ³ / ₈
APPR. SHPG. WT.	136*	162*	189*	216*	243*	270*	297*	325*
CODE WORD	DROLL	DRONE	DRUID	DUCAT	DULSE	DURRA	DWANG	DWELL

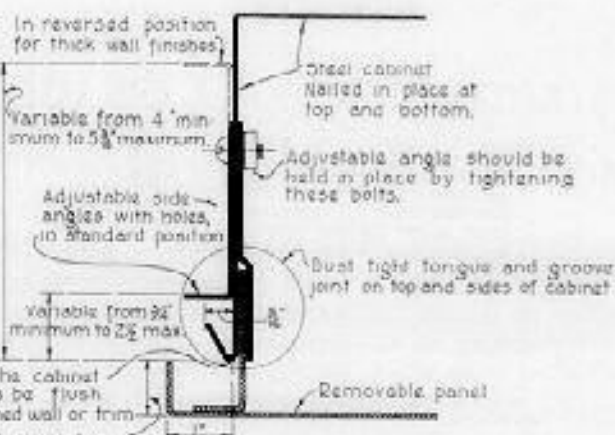


APPLICATION DETAILS

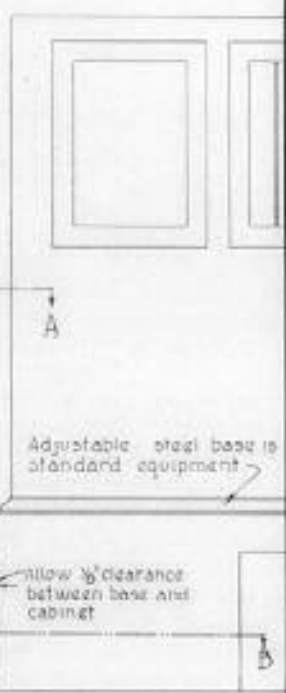
IMMURED TYPE

- NOTE -

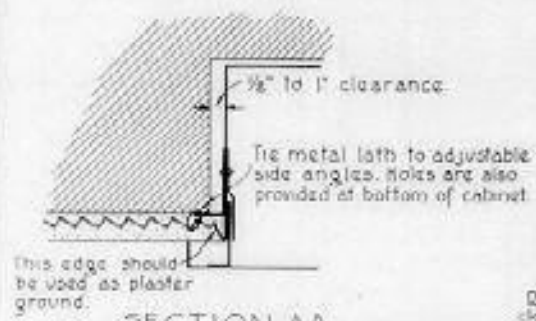
Where metal lath is used around the cabinet it should be wired to the side adjustable angles and to the cabinet near the floor. Where metal lath is not used these side angles may be used to give additional support if required as shown in some of the details below. If not required for support or for tying the metal lath the side angles may be omitted.



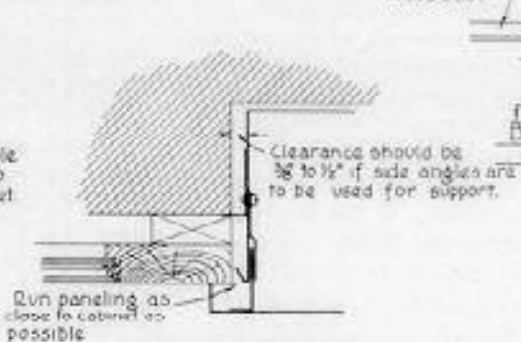
ENLARGED SECTION AA
BUILDING CONSTRUCTION OMITTED



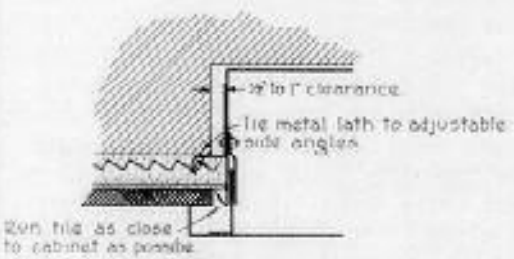
FRONT VIEW OF STANDARD INSTALLATION



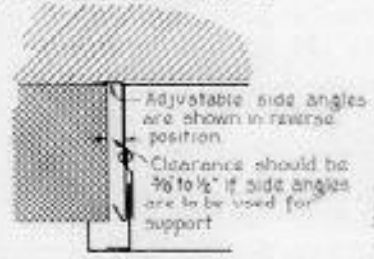
SECTION AA WITH PLASTER WALL FINISH



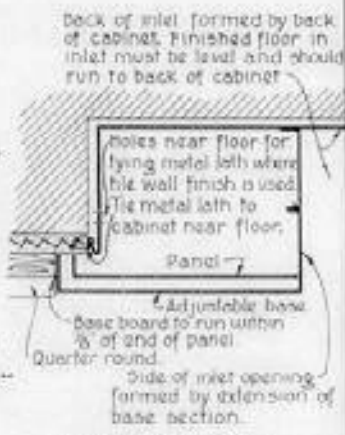
SECTION AA WITH WOOD PANELING



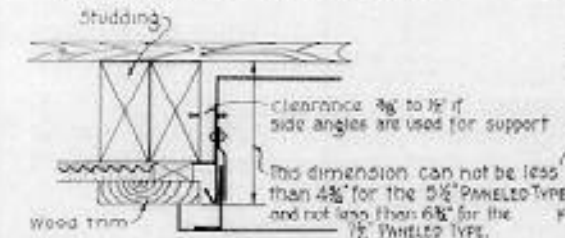
SECTION AA WITH TILE WALL FINISH



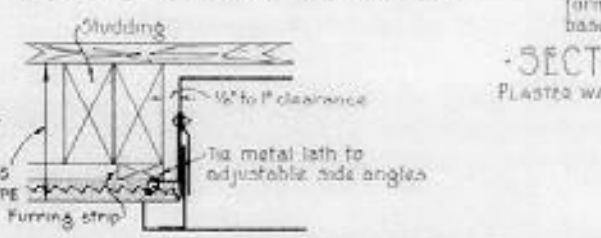
SECTION AA WITH FACE BRICK OR OTHER THICK WALL FINISHES



SECTION BB PLASTER WALL FINISH SHOWN

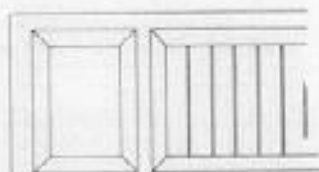
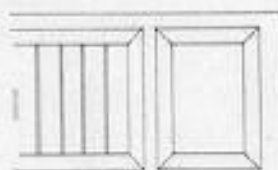


SECTION AA WITH SHALLOW RECESS USING WOOD TRIM TO PROVIDE REQUIRED DEPTH



SECTION AA WHERE FURRING IS USED TO PROVIDE REQUIRED DEPTH

APPLICATION DETAILS
PANELED TYPE



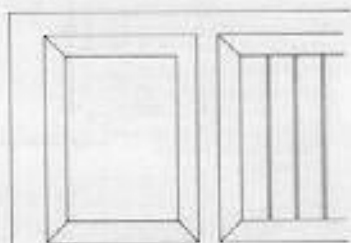
Bottom of cabinet should be set as close as possible to top of finished floor but not closer than $\frac{3}{8}$ " nor farther than $\frac{1}{2}$ ". Finished floor in inlet must be level.



ADJUSTABLE BASE IN HIGHEST POSITION.

ADJUSTABLE BASE IN LOWEST POSITION.

METHOD OF ADJUSTING BASE FOR VARYING DISTANCES FROM THE BOTTOM OF THE CABINET TO THE TOP OF THE FINISHED FLOOR.



Back of inlet should be formed by steel cabinet. Do not run base board along back of inlet.

Quarter round nailed to floor

Steel angle bolted to panel furnished by R.N.C. on special order

Baseboard screwed to panel and angle

Allow $\frac{3}{8}$ " clearance to base board.

Quarter round nailed to base board.

Baseboard return in inlet if desired. Cut return to conform with top of steel angle.

Wood base board on removable panel

Length of inlet opening should not be less than $L - \frac{1}{2}$ "

Inlet opening should not be less than 5" high.

Return branch

Outline of steel angle

Finished floor in inlet must be level.

SECTION AA

PARTIAL FRONT VIEW

SECTION BB

SUGGESTED METHOD OF INSTALLING WOOD BASE BOARD ACROSS FRONT OF PANEL

APPLICATION DETAILS
PANELED TYPE

Piping Suggestions for "Paneled" Type

(See opposite page)

In general, "Paneled" Type Invisible Radiators are piped in exactly the same way as direct radiators because any traps or valves that may be required are installed directly on the heating element. There are, however, a few exceptions as will be explained later.

A 1" male piping connection is provided at each end of the heating element. These sizes are ample for any type of vapor, vacuum or hot water system.

Gravity Systems

However, in the case of one-pipe gravity systems, the 1" connections are not ordinarily large enough for one-pipe connections except for the smaller sizes. Therefore, it is essential in most cases, that two-pipe connections be used for the "Paneled" type, even though other radiators on the same job may be connected as one-pipe radiators. Two general methods of making two pipe connections to a one-pipe system are shown on top of the opposite page.

In most cases, the best location for the air valve is in top of the tee on the return end as shown. In all cases, it is essential that the air valve be placed high enough above the boiler waterline so that it will not become water logged.

Usually the reducing couplings furnished with the radiator should not be used with gravity steam systems.

Hot Water Systems

Radiators for hot water systems should be ordered specially for this service. When ordered for hot water systems the couplings mentioned above are omitted and an air vent tapping is placed in the bottom of the heating element. This consists of a small internal pipe extending to the top of the core. A 1/8" brass elbow is provided at the bottom of this vent

into which a 1/8" hand operated air valve should be installed by the heating contractor for the purpose of venting the air from the top of the core. This air valve can be easily reached through the air inlet opening at the bottom of the cabinet.

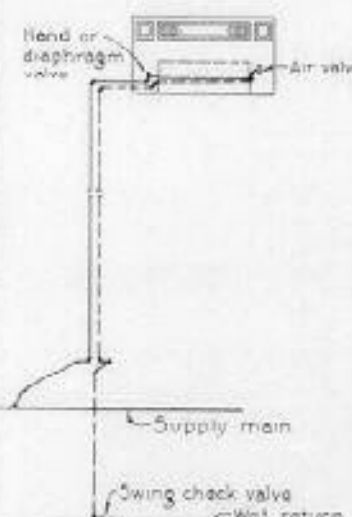
When ordinary radiators are used on a down-feed hot water system it is customary to connect the flow pipe to the top of the radiator in such a way that any air that may accumulate in the radiator will work its way up the flow riser and can then be removed from the system at a central point. With the Herman Nelson Wedge Core Heating Element, which is used for both types of Invisible Radiators, this is not possible because the connections are always made at the bottom. For this reason the air vent as shown on page 15 must be used on all types of hot water systems and the heating element will be equipped in this way when ordered for any hot water system.

Vapor and Vacuum Systems

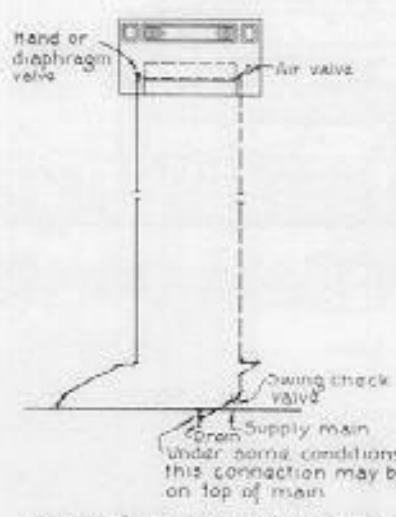
For vapor and vacuum systems, "Paneled" type Invisible Radiators may be piped in exactly the same way as used for exposed radiators. Any valves that may be required should be installed directly on the heating element. A 3/4" reducing coupling for use on the supply end and a 1/2" eccentric reducing coupling for use on the return end are furnished as standard equipment.

The outlet of the eccentric reducing coupling on the return end should be at the bottom in order that the water will drain freely from the heating element at all times.

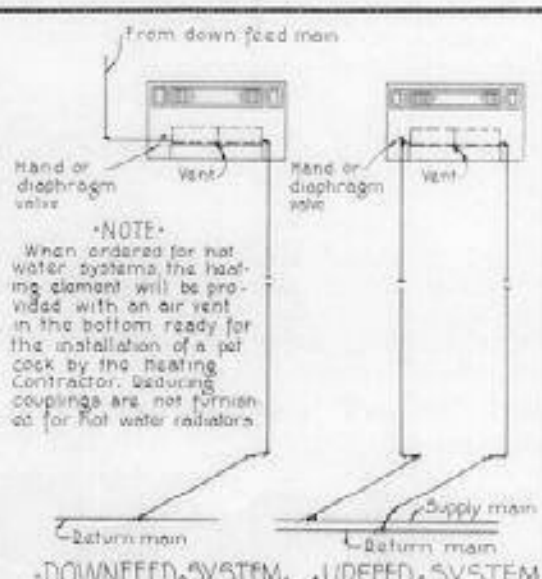
As previously explained, the piping may enter the radiator cabinet in almost any manner. The diagrams on the opposite page illustrate some of the many possibilities for piping the "Paneled" type Invisible Radiator.



• WITH WET RETURN •
(PREFERRED METHOD)



• WITH RETURN CONNECTED •
• TO BOTTOM OF SUPPLY MAIN •

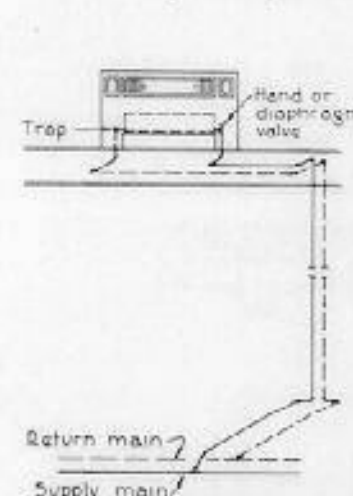


• NOTE •
When ordered for hot water systems, the heating element will be provided with an air vent in the bottom ready for the installation of a pet cock by the heating contractor. Reducing couplings are not furnished for hot water radiators.

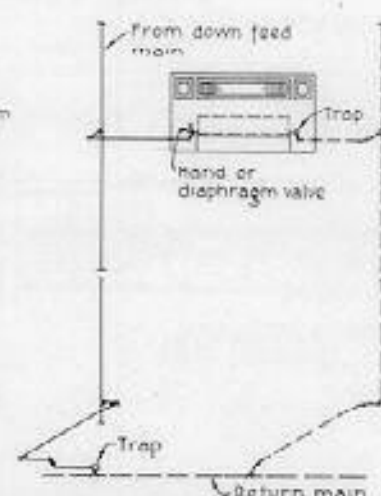
• DOWNFEED SYSTEM • • UPFEED SYSTEM •
• SUGGESTED CONNECTIONS FOR •
• HOT WATER SYSTEM •

• SUGGESTED CONNECTIONS FOR •
• ONE PIPE STEAM SYSTEM •

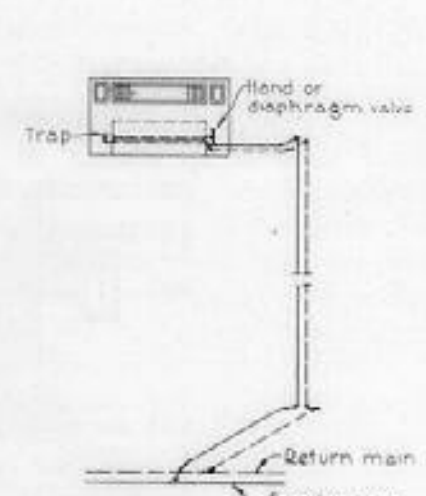
With a one pipe steam system do not use the reducing couplings furnished



• UPFEED SYSTEM •
WITH BRANCHES IN FLOOR CONSTRUCTION



• DOWNFEED SYSTEM •



• UPFEED SYSTEM •
WITH BRANCHES IN HORIZONTAL CASE

• SUGGESTED CONNECTIONS FOR VAPOR OR VACUUM SYSTEM •

• NOTE •
Connections are shown for second floor radiators. First floor radiators are connected in the same way. Unless radiators are ordered for a hot water system, a 3/4" x 1" coupling for use on the supply end and a 1/2" x 1" eccentric coupling for use on the return end are furnished. The eccentric coupling on the return end should be installed with the outlet at the bottom. Ordinary fittings may be used for one pipe steam and hot water systems.

• PIPING SUGGESTIONS •
• PANELED TYPE •

Piping Suggestions for "Immured" Type

(See opposite page)

In general, the piping required for "Immured" type Invisible Radiators does not differ from any other type of radiator except that it is not practical to install traps, valves or union connections directly on the heating element because they would not be accessible. See page 2.

In order to avoid using concealed union connections it is desirable to first set the radiator in place and to run the piping from the heating element to the main piping. Hand valves are not usually required with "Immured" type radiators because the temperature control is accomplished by operation of the outlet damper. However, where cut-off valves are required they should be located as explained below.

As explained on page 41 the Herman Nelson Wedge Core Heating Element, is provided with 1" male pipe connections at each end. On the "Immured" type these male connections extend through the cabinet, making it unnecessary to remove the heating element from the cabinet at any time.

Gravity Steam Systems

As in the case of the "Paneled" type, whenever the "Immured" type Invisible Radiator is used on a gravity system, it should be connected as a two-pipe radiator even though other radiators on the same job are connected as one-pipe radiators. This is necessary, because the 1" connections are not usually large enough for one-pipe connections and because the air valve should be installed in an accessible position.

Two general suggestions to meet these conditions are shown on the opposite page. In general, all air valves should be placed high enough above the boiler waterline that they will not become water logged.

Hot Water Systems

Radiators for hot water systems should be specially ordered for this service. As previously

explained an internal hot water vent tapping is provided in the bottom of the heating element in order to remove the air from the top of the core. A small brass elbow is provided on this vent tapping into which a 1/8" hand operated air valve should be installed by the heating contractor. This air vent tapping is so located that it can be easily operated thru the air inlet opening at the floor.

As in the case of the "Paneled" type Invisible Radiator this vent tapping should be used for down-feed hot water systems as well as for up-feed systems.

Vapor and Vacuum Systems

All traps and valves should be installed where they will be readily accessible. In order to accomplish this in the case of the "Immured" type, it is necessary to place the traps and valves, when used, in the basement or below the floor on which the radiator is installed.

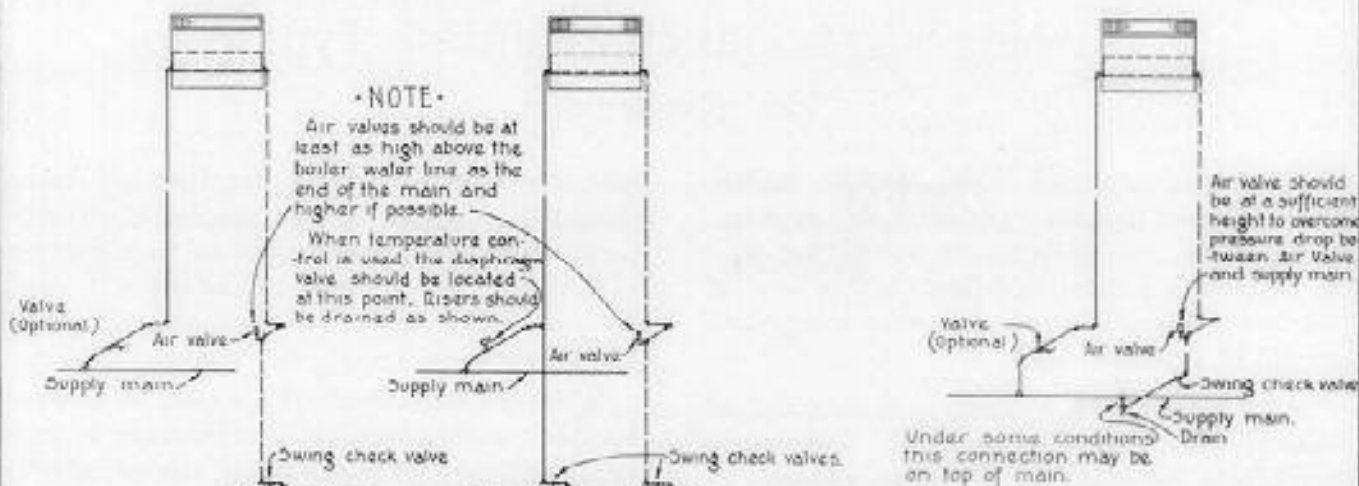
The valves are optional in most cases because the actual control of the temperature is obtained by the operation of the outlet damper. However, they may be desired for cut-off purposes.

It is usually necessary to install two connections from the radiator to the basement, or to some other place, where the traps and valves can be installed in some accessible place. It is not generally advisable to connect more than one radiator to one trap. However, the engineer or manufacturer of the system used should be consulted on this point.

Temperature Control Valves

When "Immured" type radiators are thermostatically controlled it is also necessary to install the diaphragm valves in the basement or below the floor on which the radiator is installed. In this event it is highly desirable to drain the riser beyond the diaphragm valve, in order that pounding will not occur when the valve opens.

Suggested methods of draining the riser are shown on the opposite page for gravity, and vapor or vacuum systems.



• NOTE •

Air valves should be at least as high above the boiler water line as the end of the main and higher if possible.

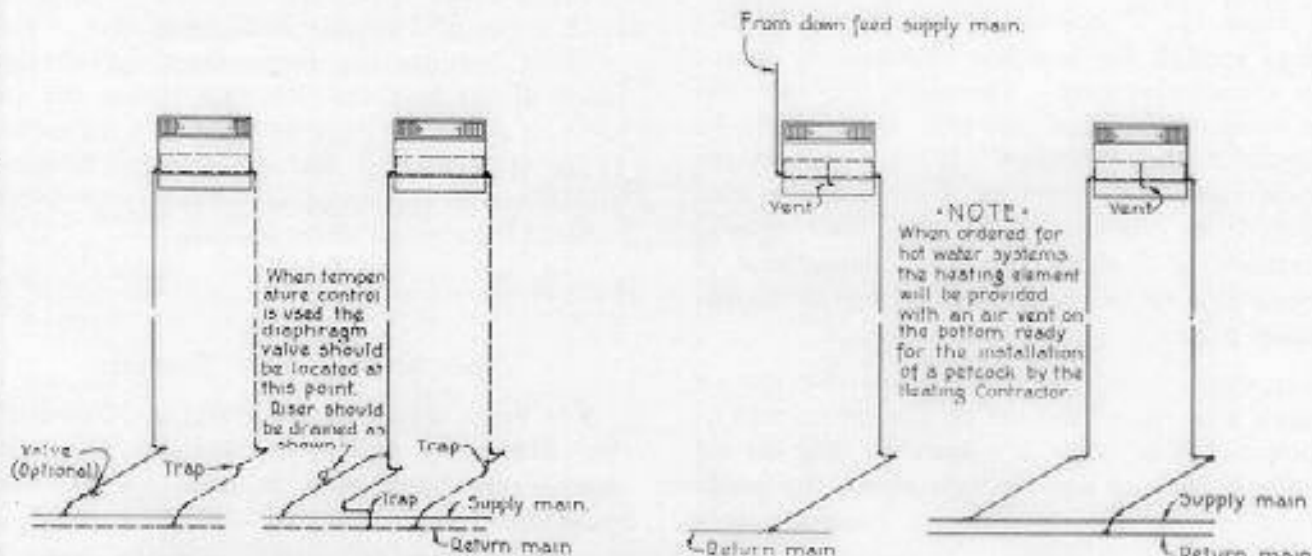
When temperature control is used, the diaphragm valve should be located at this point. Drains should be drained as shown.

Air valve should be at a sufficient height to overcome pressure drop between air valve and supply main.

• SYSTEM WITH WET RETURN •
(PREFERRED METHOD)

• SYSTEM WITH RETURN CONNECTIONS TO BOTTOM OF SUPPLY MAIN •

• SUGGESTED CONNECTIONS FOR ONE PIPE STEAM SYSTEMS •



When temperature control is used, the diaphragm valve should be located at this point. Drains should be drained as shown.

• NOTE •
When ordered for hot water systems the heating element will be provided with an air vent on the bottom ready for the installation of a petcock by the heating contractor.

• SUGGESTED CONNECTIONS FOR VAPOR OR VACUUM SYSTEMS •

• DOWNFEED SYSTEM • UPFEED SYSTEM •
SUGGESTED CONNECTIONS FOR HOT WATER SYSTEMS •

• NOTE •
Connections are shown for second floor radiators. First floor radiators are connected in the same way.

• PIPING SUGGESTIONS •
• IMMURED TYPE •

Guarantee

Like all other Herman Nelson Corporation products, Herman Nelson Invisible Radiators are guaranteed without reservation against defects in material or construction. If it should develop at any time that a defective radiator has been furnished a new one will be installed without cost to the purchaser.



The Herman Nelson Corporation is constantly striving to improve its products in order that they may better serve the ultimate user. For this reason this company reserves the right to make any improvements or changes, deemed advisable, without notice. It is therefore important to have on file the latest catalog. This is the January 1st, 1930, Edition.

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