

Modern and Modernized Hot Water Heating

By
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Article III

Suppose that used and misused heating systems were displayed on prominent boulevard lots like used cars, or were offered for sale in bargain basements like used furniture and other household necessities—I doubt if prospective buyers would even be interested in "looking", for Mr. Average Owner has become too economy-conscious, to take a chance on an obsolete heating system. Although he may be heating his home with mid-Victorian equipment and an antiquated system of piping, he knows there is a better and more economical way to do it. Owners have an innate habit of comparing fuel bills and know that Neighbor Jones' modern heating system with ALL the latest improvements, costs less to operate.

Just as much progress has been made in home heating in recent years as in the many other factors affecting the home. The comforts of living, which include proper heating and the conditioning of the air we breathe, are receiving more than casual attention. Owners have suddenly become aware of these developments and are asking for detailed information and costs on radiator heat and air conditioning.

The manufacturers of this equipment have paved the way for the trade by extensively advertising their products in national magazines and periodicals. The concerted sales efforts of the manufacturers have acquainted owners with the need for GOOD HEATING. Their advertising has emphasized RADIATOR HEATING as the first requisite for air conditioning. This advertising has created an owner-desire. It is quite natural that the prospective purchasers will go to their plumbers for further information. What will the plumbers do with these inquiries? If they are smart they will be ready to capitalize on this potential business.

No discussion of home comfort would be complete today without some mention of air condi-

tioning. Although the subject will not be treated at any length, it is the writer's thought that home air conditioning and home heating are very closely allied. Too closely allied in fact to permit a divided installation responsibility. As plumbing and heating contractors you probably have been asked about this subject scores of times. Now, what to do about it? The heating trade will either "take in" air conditioning or the air conditioning contractor will soon absorb the

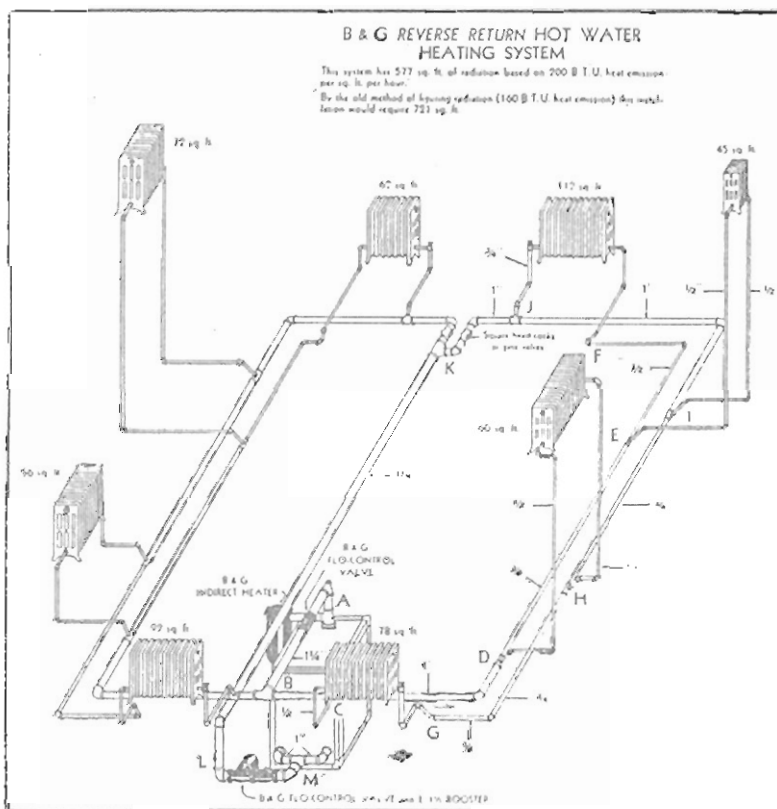
heating business. There are many time proven air conditioning units on the market that are applicable for home use with radiator heat. Choose a manufacturer you have confidence in and study his products. You will find much instructive product information available. It will not be an easy lesson, but when well learned, will give you plenty of confidence to reflect on to your customers.

It seems so natural for the plumbing trade to install radiator heating, and especially hot water heat, that it is a wonder that more do not "take" to this branch of their profession. Surely they are thoroughly

familiar with the theory, installation and circulation of domestic hot water. Then it is only a short step to heating. Heating so closely parallels their daily plumbing efforts that the two should be inseparable. The installation of modern hot water heating is ideally "set-up" for any plumber interested in improving and increasing his business. Excellent product literature has been prepared on the subject and many schools of instruction are being conducted for his education. Expert plan-service is being extended to him.

The market is right and co-operative service is plentiful. PLUMBERS, it's up to YOU!

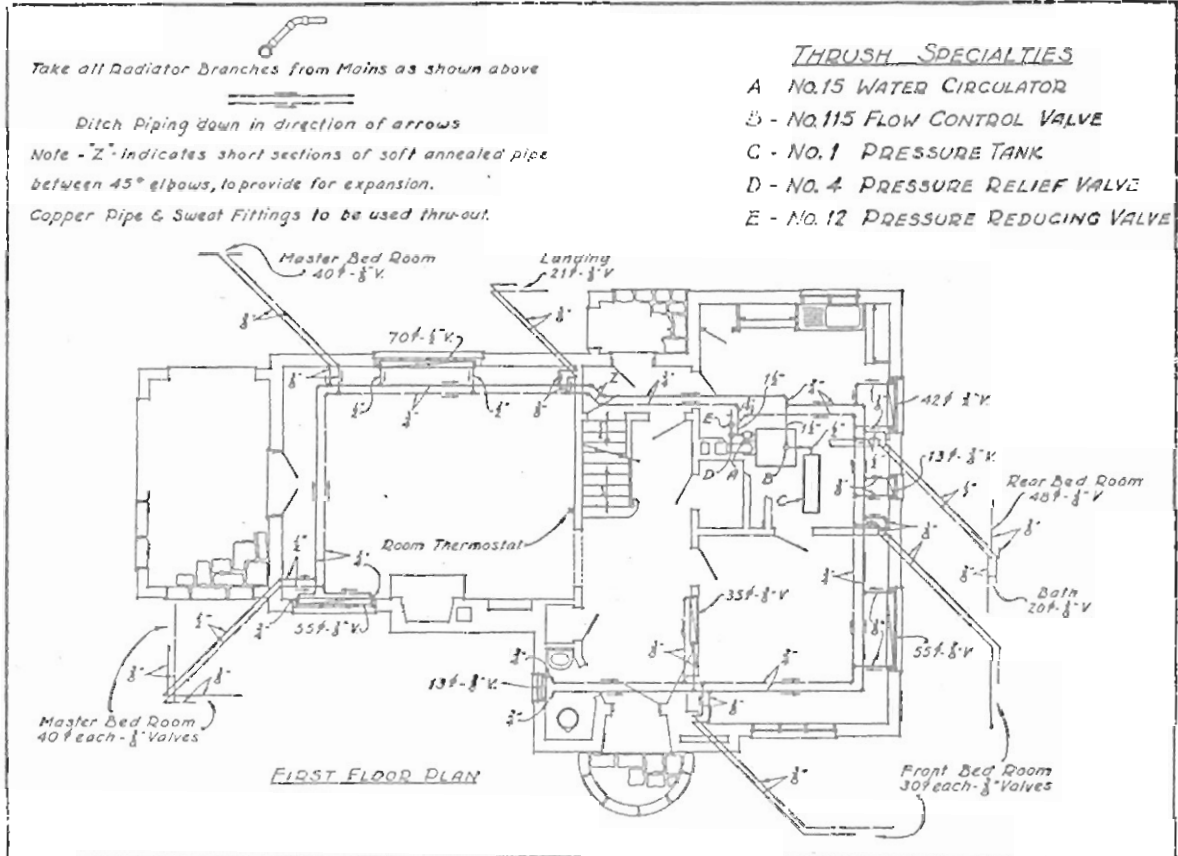
In speaking of "Modern Hot Water Heating" it is assumed the reader is acquainted with the small-pipe-size forced-circulation method of radiator heating. In brief, the new system, by using



forced circulation of the heating medium, and by carrying considerably higher water temperatures, permits the use of much smaller piping and smaller radiators. The reduction in pipe sizes has been startling; some manufacturers recommending as small as $\frac{3}{8}$ " radiator valves, branches and risers for average size radiators, and 1" and $1\frac{1}{4}$ " piping for major trunk lines. (Note accompanying piping sketches). Many notable installations have been made with alarmingly small piping and copper tubing, yet these systems have proven to be of adequate capacity. The boldness in pipe size reduction is well fortified with the addition to the gravity system of

Automatic air vent valves should be located at the high point of all down feed systems. Hot water piping methods have not materially changed, but another type of installation, the one pipe system, has been added to the other well known designs. This method of piping has proven very popular in the past few years. The use of this same pipe for the delivery of hot water to the radiators, and the return of cooler water from the radiators, is made possible through the use of cleverly designed "shunt" or "flow" fittings and the before mentioned impeller pump.

A recommended water temperature at the



MODERN THRU (Direct Return) HOT WATER HEATING SYSTEM
Using Copper Tubing and Sweat Fittings
(Note $\frac{3}{8}$ " Valves and Branches)

a small, fractional horsepower circulator pump. The creeping water in the gravity system has been stimulated by this accelerated circulation, forcing it to travel at high velocities through the piping system and radiators. We know the oftener the water is returned to its source of heat, the more heat it will carry to the radiators. The element of SPEED has always been the hurdle in the path in selling hot water heating, but the booster pump has taken care of the circulation problem in a very definite manner. No apologies for quick heating need be made now.

In addition to creating a positive travel of water through the system the circulator pump has indirectly aided in the installation of the piping. The old question of proper grade, so necessary in a gravity system, can be practically forgotten. Except in a one pipe system where most of the radiators are located below the main, or in an overhead supply two-pipe installation, the piping can be run with little or no pitch.

radiators with the forced flow system of circulation is 200 degrees, which temperature gives an emission of 200 B.t.u.'s per square foot. This emission is very close to steam's output and considerably above past calculations. The usual amount of radiation required for hot water heating is consequently reduced with this high temperature water. Many systems installed in the past few years are operating at steam temperatures with heating units (radiators and convectors) sized as for steam use. The reduction in pipe sizes, radiation, covering and valves have united in reducing the costs of hot water heating. Thus the market for this type of heating is enlarged by bringing it within the reach of more prospective customers.

This modern method of heating has provided the fastest, most positive and most uniformly distributed type of heating comfort ever attained
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for home use. Hot water heat now HAS what your customer WANTS.

Potential hot water heating business can naturally be divided into two separate fields of endeavor; the installation of new systems and the modernization of old. Piping information covering most phases of new installations can be gotten from the manufacturers of hot water heating accessories or from most heating jobbers. This information is carefully detailed for plumbers use and the instruction steps need no further explanation. The possibilities of heating modernization is not so thoroughly covered. The modernization of existing hot water heating plants is a potential source of profit as great as the modernization of obsolete plumbing. There are dozens of different possibilities for the improvement of the efficiency of ANY gravity hot water heating system. You probably have in mind scores of jobs that can be readily improved in a number of ways.

Owners of hot water heating systems are, as a rule, great boosters for this economical and healthful method of heating. This source of advertising will be extended when you have demonstrated to them the improvements that can be made in their existing equipment. The addition of modern accessories does not necessarily mean that the existing plant is not a "perfect" gravity installation. The automobile was just as useful before the self-starter was added but was considerably improved by the addition. Your client's heating plant is the BOSS of his heating bills and to assure him economic operation may require the addition of modern specialties.

Assuming that the plant is one of thousands of good installations, the addition of only a motor driven circulator pump and a thermostat will greatly improve its performance. If the existing system is only a "fair" job, the addition of this equipment will promote it to the better class, by overcoming short circuits, sluggish circulation or faulty installation. At the call of the thermostat,

hot water travels to the radiators regardless of pipe size, pitch, or frictional resistance. The heating boiler itself becomes more productive when the water is forced through it mechanically. The small impellor-type circulator pumps have done more to stimulate hot water heating business than any other improvement we can name. They seem to do the impossible in correcting sick heating jobs.

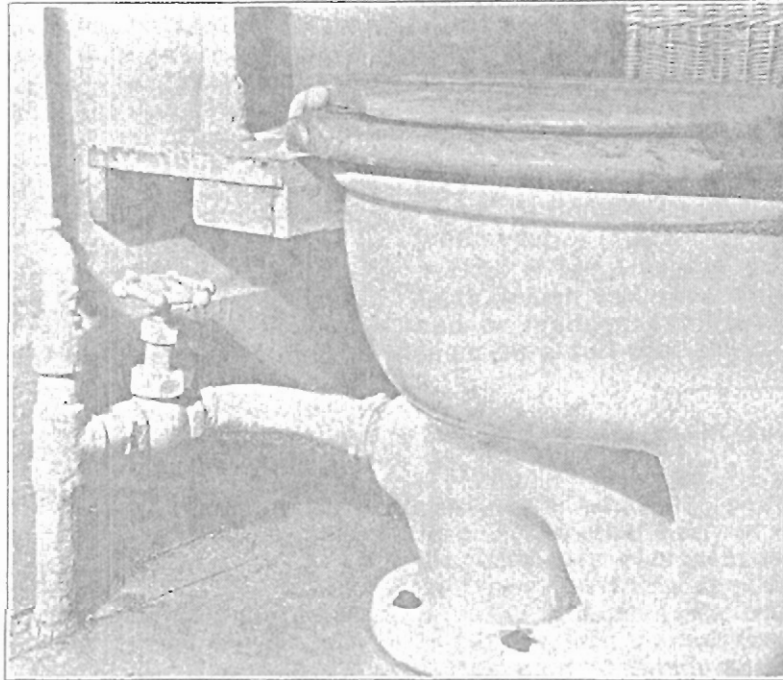
The conversion of two-pipe direct return gravity heating systems to indirect return forced-flow jobs is perhaps the greatest source of possible business. This conversion changes the installation from a first feed and first return system to one that assures all radiation of a uniform water temperature. Most existing direct return heating

mains are of adequate size to permit the reversal of the flow of water. The return connections at the boiler only need be changed. The circulator draws the water from the far end of the return main (the beginning of the gravity return main) to the boiler. In this method of piping the water travel to and from all radiators is of the same length. Flow corrections can be made by setting the radiator valves or by installing orifice plates to balance the system.

The change to forced circulation permits the extension of the system to remote, hard-to-heat rooms or detached buildings, which have always been problem installations. It is possible with accelerated circulation to place basement radiators on the floor, where they are more effective, and circulate the water down to

them. The installation of unit heaters, for quick, volume heating has proven most effective when used with forced-flow heating. There are scores of heating difficulties that can be corrected with the use of these heating units.

All year round domestic hot water provides another market for potential heating sales. The installation of indirect copper coil heating units, for providing domestic hot water during the heating season and also during the summer months, has proven most popular with owners. The higher boiler water temperatures together with modern control accessories have united in providing a practical and economical means of heat-



A "HORRIBLE" EXAMPLE

Every master plumber of experience has run across glaring examples of insanitary plumbing, but the prize-winning "horrible example" comes from A. J. Farrell, state plumbing inspector of Oregon, who discovered it in a dwelling in a small community in southwest Oregon where the plumbing was installed by a handyman.

As illustrated, the cross connection is between the vent horn of an obsolete type of washout closet bowl and the water supply. The handyman knew, of course, that the bottom outlet of bowl should be connected to sewer line, but the other two connections, the vent horn and flush connections, confused him. He could not understand why there should be two such connections, but to make sure he connected both to the water line.

As Mr. Farrell states, it is just such examples as this that make the strongest argument in favor of strict enforcement of sanitary regulation and examination of plumbers in rural communities as well as in cities, and we heartily agree with him.

ing domestic water. There is no longer a need for two separate heating systems.

Every gravity heating plant owner is a prospect for some modern improvement. Even your best jobs can be made better. If you only change the open attic expansion tank to a closed basement system you will have improved the installation. And the possibilities only start here.

Take an inventory of your past jobs—a convincing sales talk will sell many of them over again.