

MORE HEAT FOR



CLEAN boiler's heating surfaces before starting your winter furnace fire. Open clean-out door above firing door and use a long-handled flue brush. A flashlight helps you do a thorough job. The fly-ash

coating that forms during the heating season falls off easily and drops down through the grate and into the ashpit—from which it can be removed with a shovel. Carefully done, job is not dirty.

Photographs from Anthracite Institute



DRAFT LEAKS can be detected by holding a lighted candle near suspected cracks in the furnace. Flame points at leaks. High fuel consumption may indicate faults of this type. Close furnace doors before testing so that they can be checked for possible leaks at same time.



SEAL THE LEAKS with furnace cement from your hardware store. Apply with a putty knife, and work the cement well into the crevices. If used on clean-out door, or others that won't be used, wire the door shut to prevent movement that would crack seal. Cement is heatproof.

YOUR MONEY

*Medicine for old furnaces—
and year-round manufactured
weather from the new ones*

HEATING the house with a refrigerator is the latest idea in temperature and air control to go into research. But it'll take time to work it out practically. Meanwhile, a few American homes will start the winter with new fully automatic heating systems—and all of the others will take up the annual struggle to make the fuel dollar go further. Know-how does it.

An afternoon spent in tuning up an old furnace may cut the bill as much as 10 percent. Proper firing methods can save still more, and also eliminate a number of heating troubles.

Of 500 heating complaints recently analyzed, more than 250 spring from improper firing methods or poor furnace condition. Causes of trouble range from draft leaks to the burning of garbage in the heating plant.

Perhaps it's your fire that appears sluggish; and the coal just won't "catch on." The cause probably is insufficient draft. The cure may be as simple as opening a cellar window in order to admit more fresh air for the furnace.

Excessive fuel consumption with inadequate heat through the house frequently indicates poor circulation of the hot water, the steam, or the warm air. In hot-water systems this trouble can often be cured by letting trapped air out of the radiators through the valve provided for the purpose. In aged hot-air systems, shutting off heat in an unused room frequently does the trick.

If you have an oil burner, follow the manufacturer's advice and call for professional servicing. If you have a coal furnace, start right by



TEST WATER in steam boiler to see if it needs changing. Drain a sample and boil it on the stove. If the water foams, it needs replacing. If it boils cleanly like clear tap water, it's okay. Keep boiler water level at half-full mark on gauge during winter. Keep it full in summer.



SMOKE PIPE between furnace and chimney—if it is removable—should be taken down and cleaned. If it is weak or perforated it must be replaced before the heating season begins. The upper end of the pipe should fit snugly in the hole in the chimney wall. Cement any crevices.

measuring the firepot to determine what size coal to use.

Measure the width inside, from front to back level with the bottom of the firing door, and the depth inside from the bottom of the firing door to the top of the grate. Use egg coal if the width is 24 inches or more and the depth at least 16. Stove coal should be used with a firepot width 16 inches or over, and a depth of 12. Fireboxes up to 20-inch width and 16-inch depth may also use nut coal, the stand-by of many an old-fashioned kitchen range and hot-water heater.

Trick in starting a fire

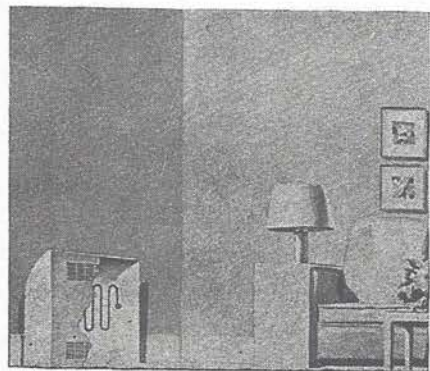
Pea coal is handy for keeping the fire in check during mild weather; since it is small, a layer of it retards the flow of air.

If you don't know the size of coal already in your bin, make yourself a measuring scale by using these lines of type as a guide. Draw a circle on a cardboard with a diameter equal to 23 lines. That will represent the average size of egg coal. Stove coal is equal to 18 lines; nut, 12 lines; and pea, 6 lines.

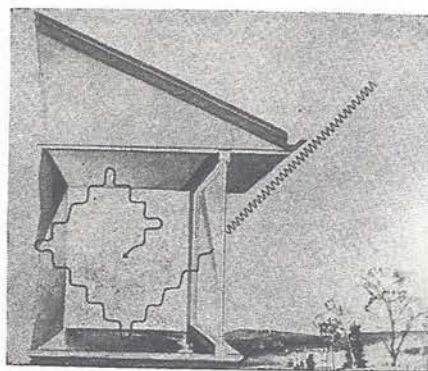
Longest-lasting fuel for fireplace use is hard coal, burned in a basket grate. The trick in starting it lies in building a wood or charcoal fire not merely in the center of the grate, but over the entire area. When this fire is burning briskly, add stove or chestnut coal. Your fireplace can then be kept burning day in and day out, with attention once or twice a day.

Humidity figures prominently in home heating. If the air in your home is warm but dry, it tends to absorb moisture from everything in the house, including the skin of the occupants. It makes you feel dry, and by increasing the flow of heat from your body, makes you feel cold. A sure sign that the air in your home is too dry is the appearance of new cracks in furniture. Humidifying cans that hold water behind the radiators are helpful. Adequate moisture in the air saves fuel, since the occupants of the house will feel comfortably warm at a lower temperature.

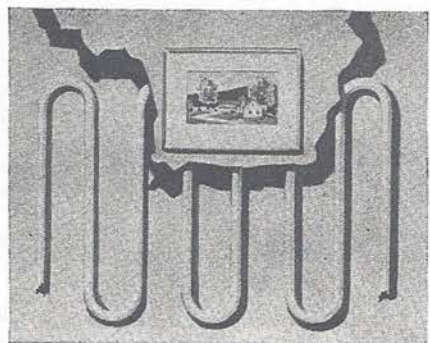
The newest heating systems developed by engineering research take care of all these details for you. Serving as complete indoor weather fac-



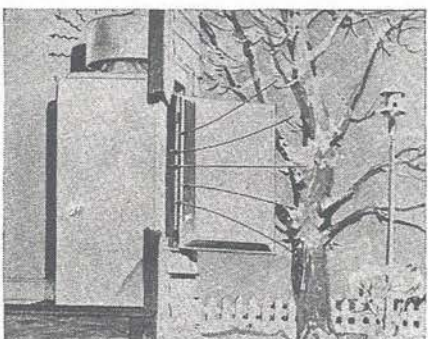
ELECTRIC, fully automatic heating units are now 100 percent efficient, silent, and clean. Push-button control permits temperature variations between rooms.



SOLAR HEATING supplements the regular system in many modern houses. It is most effective when planned into new house by the architect. Works all year.



RADIANT HEATING is provided by steam or hot-water pipes embedded in walls or floors. Floor temperature is generally 80 to 85 degrees; walls, 115 degrees.



HEAT PUMP, or Reverse Refrigeration Cycle heating, now developing, takes heat from the outside air and pumps it into the house. No chimney necessary with it.

tories, they warm and humidify the air in winter, cool and dehumidify it in summer.

Among the projects entering heating research right now is the heat pump, or Reverse Refrigeration Cycle System, which heats the house with a refrigerator.

It steals the heat from the outside air and brings it inside the house. There's plenty of heat in the outside air even when the temperature is at zero. If that seems hard to believe, feel the warm coil of your refrigerator and remember that it got its heat from the ice compartment.

Making walls heat rooms

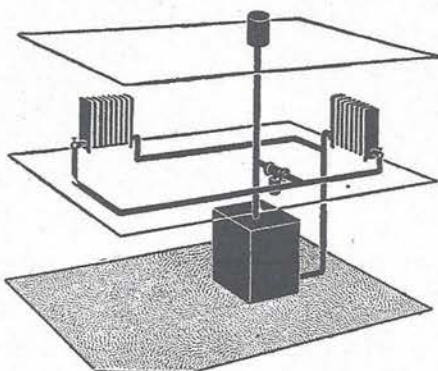
Radiant heating, a modern development already several years along, has its own surprises. In this system, the walls and floors are heated to temperatures of 80 to 115 degrees. Then they radiate heat directly to the occupants of the room and keep them warm even though the air temperature there may be far below the comfort level.

Electric heating is fully automatic and 100% efficient, but must wait a

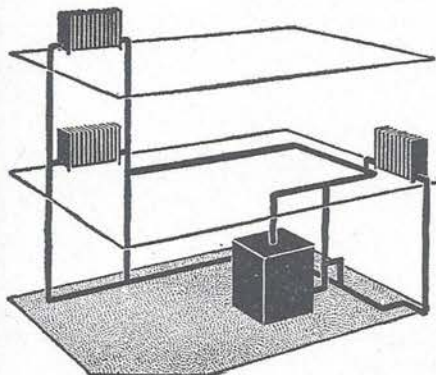
while for the downward trend in power rates to make it popular.

Solar heat, however, is free, and is being utilized to an ever-increasing extent in new homes. Even on icy winter days, the sun's infrared rays reduce the heating bills of modern "solar houses."

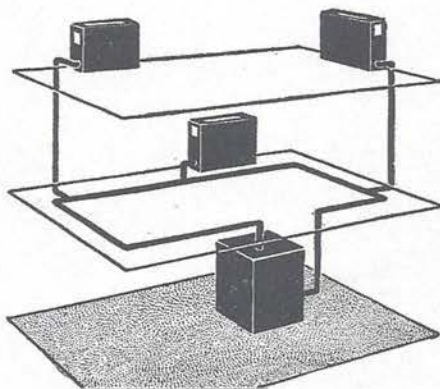
Diagrams from General Electric



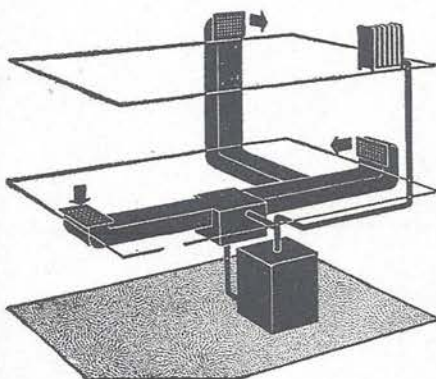
FORCED HOT-WATER. Water is pump-driven through the system, which brings heat to radiators more quickly than usual gravity type does. Quiet in operation.



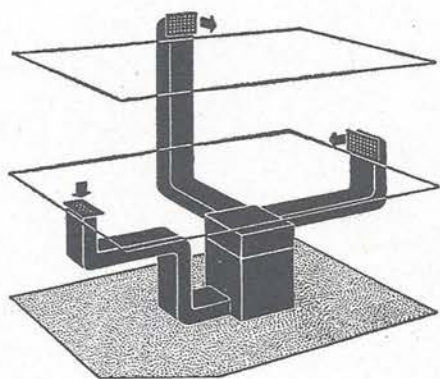
TWO-PIPE STEAM. A system best suited to large, rambling houses. Affords easy control, individual radiator thermostats, and great operational flexibility.



ONE-PIPE STEAM. Steam rises through the pipes; condensate returns through them. Radiators closest to the boiler usually heat first and stay hot longest.



SPLIT SYSTEM. Part warm-air, part hot-water or steam, operating from the same boiler. Radiator in the bathroom provides radiant heat where necessary.



AIR CONDITIONING. Modern-type hot-air heat. Air is filtered, heated, and humidified, then fan-blown through ducts to rooms. Cycle then repeats endlessly.