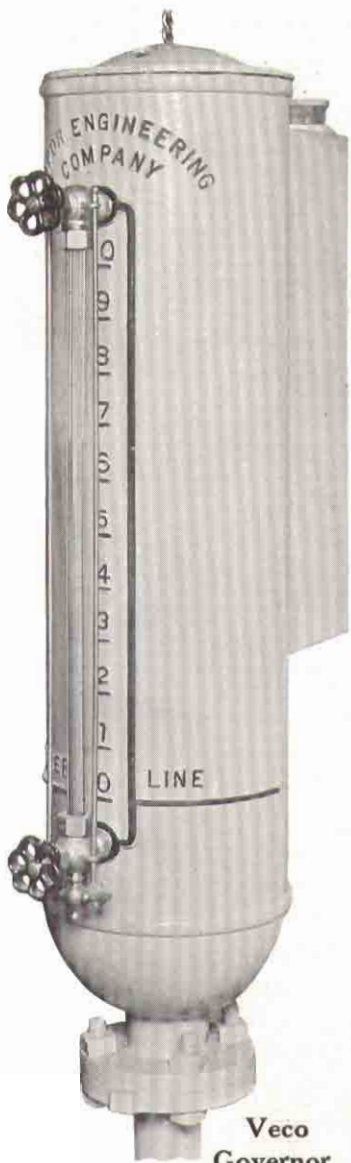




VAPOR ENGINEERING COMPANY

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PHILADELPHIA

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NEW YORK CITY



**Veco
Governor**

VAPOR HEATING

Vapor Heating, which is now recognized as the ideal method of heating, combines the advantages of steam and hot water heating systems, without the disadvantages of either; and, in addition, has many advantages unknown to the old-fashioned methods of heating. Vapor, as applied to heating, is steam not under pressure. Two piping mains are used, a Supply to carry Vapor to the radiators and a Return to carry water of condensation from the radiators back to the Boiler. The Supply mains in Basement are also provided with drip pipes to relieve them of water and insure free passage of Vapor.

With a steam-heating system it is necessary to build up a pressure at the Boiler before heat can be forced into the radiators. Fuel is consumed in building up this pressure and heat remains in the radiators only so long as pressure, ranging from one to five pounds or more, is held at the Boiler. With a Vapor System, when properly designed and when the proper Specialties are used, the steam is drawn naturally away from the Boiler without any pressure being required; the circulation of heat is noiseless and positive; there is no hammering or pounding in the pipes, and heat is delivered to the radiators quickly and silently. Radiator air valves, which get out of order and leak, are entirely eliminated; air is removed from the radiators through the Return piping. With a Vapor System, the radiators and pipes are not filled with water as they are on a hot-water system, and thus there is no possibility of damage from leaky fittings, frozen and cracked radiators, or overflow from the expansion tank. On a hot-water system, heat reaches the radiators slowly, depending on the flow of water through radiators and mains, and when the system is once heated up, and less heat is required, the system cools down as slowly as it heated. With a Vapor System, heat can be supplied to any of the radiators immediately on turning the radiator Valve, and cut off entirely or partly in the same way.

THE VECO VAPOR SYSTEM

In order to operate properly and to give heating satisfaction, a Vapor System must be installed from plans prepared by a competent and experienced engineer and must be provided with Specialties in every way adequate for the work required of them.

The Veco Vapor System, installed from Plans made exclusively by the Vapor Engineering Company, includes the newest features applicable to Vapor Heating, in connection with Vapor Specialties of the most modern design. The System is of the "open to atmosphere" type; that is, no vacuum apparatus is required on the Return piping to induce circulation, and no pressure is required in the boiler to force heat to the radiators. Circulation is induced by a natural suction on the Return piping, which is obtained without any mechanical apparatus. A very slight pressure, ranging from one to six ounces only, may be carried to operate the Boiler draft regulating apparatus, and this apparatus is provided with an equalizing feature, which prevents the pressure at any time going over ten ounces.

The Veco Vapor System requires no mechanical apparatus of any kind, thus eliminating the possibility of a breakdown in the System due to the failure of such apparatus. The System is adaptable to buildings of any size, from the smallest house to the largest building or group of buildings, and the operation of the System is the same and equally positive regardless of the size of the heating plant.

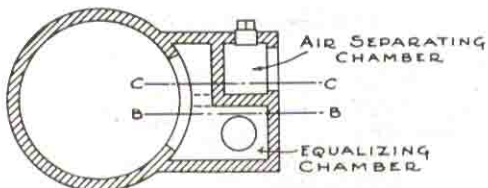
Plans for Veco Vapor Systems are made by heating engineers of many years' experience, accustomed to successfully adapting heating work to the particular requirements of any building and to solving any engineering problems. Work installed from these plans is regularly inspected while under construction, and at the completion of the work to the satisfaction of the Vapor Engineering Company, this company guarantees and assumes full responsibility for the performance of the heating plant. There is no extra charge for this service when the Veco Vapor System of Heating is installed.

FUEL ECONOMY

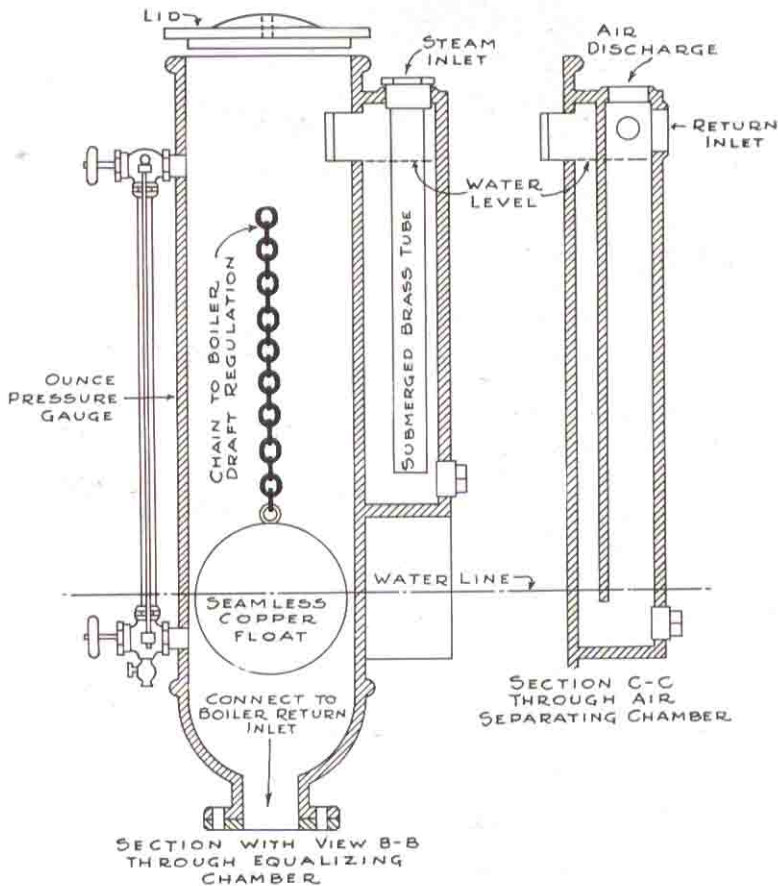
The question of coal consumption is of interest to every owner of a heating system. In this matter the Veco Vapor System especially recommends itself, since the owner is assured not only of satisfactory heating, but also of much greater fuel economy than can be obtained with other methods of heating. This economy is effected first by the saving of energy at the Boiler. With a Veco System it is not necessary to consume coal in building up pressure before heat can be obtained in the radiators; heat is drawn away from the Boiler by natural suction, and all Boiler energy is utilized directly in heating service. With this System economy is also effected by the positive regulation of the Boiler drafts by means of the Veco Governor, which keeps the Boiler fire under strict control, permitting the Boiler to produce only the amount of heat admitted to the radiators through the graduated Veco Valves, which are opened fractionally, depending on the outside temperature. Thus, on a mild day, when only partial heat is required in the radiators, the Valves are turned part way off and the Boiler is not permitted to operate at full capacity. This insures a positive economy in fuel consumption. All the Vapor produced is held in the radiators until condensed; the Return pipes do not carry any waste quantity of Vapor away from the radiators.

Fuel economy is also secured in plants where oil or gas is used as fuel by means of the Governor regulation, which on such plants acts directly on the fuel supply apparatus in the same positive manner as it does on the Boiler drafts when coal is used. The same relative economy is also obtained where the source of supply is from a Central Plant or street steam system.





CROSS SECTION



VECO GOVERNOR

VECO VAPOR SPECIALTIES

Governor

The Veco Governor is set up at the side of the Boiler in Basement, with the water-line on Governor even with the water-line of Boiler. The main body of the Governor is open to atmosphere at top, and at the bottom is directly connected, without any check valve, to the Boiler below its water-line. The Governor contains a seamless copper ball float, which is connected by means of chains to the draft and check doors of Boiler in such a way that the slightest movement of the water level in Governor, caused by the increase or decrease of ounces pressure in the Boiler and consequent movement of Boiler water-line, operates the draft and check doors of the Boiler. By means of an adjusting plate on the chain leading to draft door of Boiler the Governor can be set to close the Boiler draft at any desired pressure between one and six ounces. This method of controlling the Boiler is entirely non-mechanical, there is nothing to get out of order and the control is much more sensitive than that obtained from the ordinary boiler regulator. Aside from the copper float, there are no movable parts in the Governor.

The Return pipe, carrying air and condensation from the radiators, is connected to the Air Separating Chamber on back of Governor. From this chamber the water is discharged into the Governor and returns to the Boiler, while the air is carried off through the connection on the top of Separating Chamber through an air pipe which enters the Boiler flue. The upward movement of gases in the flue provides a constant suction on this air pipe, which suction is carried back through the Return piping to the radiators. It is this natural suction which draws Vapor into the radiators without pressure on the Supply pipes.

A direct steam connection either from the Boiler or from the Supply main is made to the Safety Valve and Equalizing Chamber, which is also on the back of Governor. This Chamber is constructed in connection with the Air Separating Chamber so as to provide an equalizing device which liberates steam, at ten



Supply Valve

ounces pressure, through a submerged brass tube, and equalizes the pressure, preventing the pressure from rising above ten ounces, and preventing the water in Governor from overflowing at the top.

The front of Governor is provided with a gauge glass and pressure indicator for pressure up to ten ounces. The Veco Vapor System is guaranteed to heat buildings of any size at a pressure not to exceed six ounces at the Boiler.

This Governor is accurate and dependable; it is never out of order and never requires repairs.

Supply Valves

The Veco Supply Valve is of best manufacture, heavily nickel-plated over steam metal and neatly finished with polished trimmings and with etched dial plate inset on top. The handle is of black composition over a metal base. The Valve is provided with a rising worm movement and a Jenkins Disc, insuring positive seating of the Valve and no leakage when the Valve is closed. The Valve is also provided with a graduated feature called the Restrictor, which is furnished with slots of varying sizes, depending on the size radiator for which the Valve is required, and so arranged that Vapor is permitted to enter the radiator only in proportion to the extent to which the Valve is turned on. Valves are furnished in seven sizes, numbered from 0 to 6, and the number of the Valve indicates approximately the size of the inlet openings in the Restrictor and, consequently, the size radiator for which the Valve is suitable.

By means of this graduated Valve, it is possible to heat radiators one-quarter, one-half, three-quarters, or entirely, depending on the temperature of the outside air.

On a mild day in spring or autumn, when only a little heat is required in the radiators, if the Supply Valves are cut down to one-quarter or one-half capacity, the operation of the Float in the Veco Governor will hold the Boiler fire in check so that Vapor



Return Trap

will be produced at the Boiler only in sufficient quantity to heat the amount of radiation in actual use.

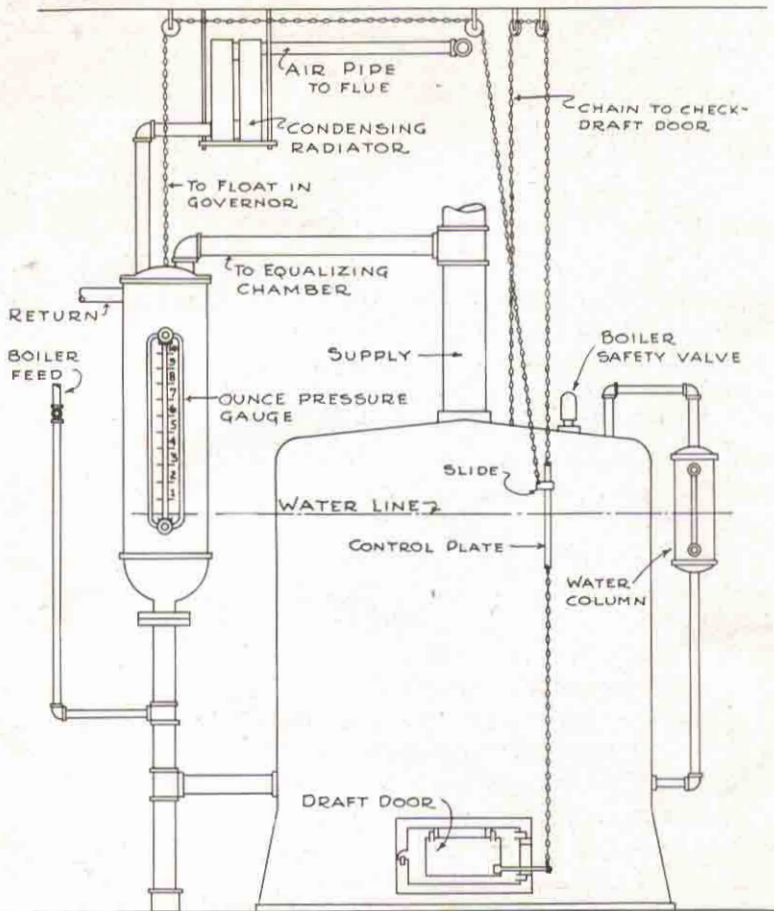
Where radiators are concealed in recesses, as they often are in fine residential work, the Veco Supply Valves will be furnished with Extension Stem with Dial Plate and Handle to be set in sill or on top of enclosure above radiator, thus permitting the easy operation of the Supply Valve from the outside of the radiator enclosure.

Return Trap

The Veco Return Trap is of the water-seal type without movable parts, with a water-seal which discharges the water of condensation from the radiator without permitting the passage of Vapor, but with a small vent opening in the interior of the Trap just large enough to free the radiator of air and to cause sufficient suction in the radiator to insure the introduction of Vapor for heating purposes. The Trap is constructed at its outlet with a movable elbow feature, permitting right and left return piping connections to it, as well as direct upright connections, thus making it adaptable for the return piping requirements of any individual radiator. The top of Trap is provided with a test plug for testing the air suction.

For nearly all heating work this water-seal Trap is preferable to Traps having movable thermostatic members, as it does not get out of order and will function for years without attention. The Vapor Engineering Company, however, will furnish with their Specialties, Thermostatic Return Traps, where, in their judgment, these are required on account of any unusual requirements, such as the installation of air heating and tempering coils for school house ventilation, etc.





Installation at Boiler

METHOD OF CONNECTING DRAFT REGULATION

FIRST. Run chain between Draft and Check doors, balancing the doors, adding weights if necessary, so that Draft door is just heavy enough to close and to hold Check door open. Control Plate to be set in chain in front of the Boiler.

SECOND. Connect chain from Float in Governor to slide on Control Plate so this chain will have no slack when slide is set at zero mark on Plate. Be sure all chains run free over pulleys.

THIRD. To operate on two ounces pressure set slide at "2" mark on Control Plate, which will pull open the Draft door of Boiler and hold it open until two ounces of pressure have developed, when Float will rise and close Draft door.

Condensing Radiator and air pipes must drain back to Governor. If necessary, on account of head room, Condensing Radiator may be made of Wall sections laid flat.

Where no condensing Radiator is shown on plan, run Air Pipe direct from Governor to flue.

OPERATING SUGGESTIONS

When the installation is completed, Heating Contractor should wash out the Boiler and clear it of oil and grease, after which it should be refilled, up to the water-line, with fresh, clean water. Detailed instructions for washing out Boiler will be furnished by the Vapor Engineering Company. Clean-out plugs at bottom of Air Separating and Equalizing Chambers on Governor should be taken out and these Chambers drained clean. When operating, water should be maintained in the Boiler at the Water-line.

With the Veco Vapor System only a very slight replacement of water in the Boiler is necessary. It should not be necessary to run in any fresh water oftener than once a week, and then only a small quantity. In supplying fresh water to a Boiler in operation, the water should be run in slowly.

In building a fresh fire, it is desirable to first cover the grates with a layer of ashes. Plenty of wood should be used to properly ignite the coal. A fresh fire should not be shaken for twenty-four



**Extension Handle
for Supply Valves**

hours; a fire should never be shaken so hard as to cover the grate with red-hot coals.

The Hand Damper on Smoke Pipe should be regulated according to the weather, being partly closed on windy days and opened wider on still days. An excess of heat should never be allowed to pass through Smoke Pipe into the flue, but should be retained in the Boiler by means of the Hand Damper. On the other hand, the Damper should not be closed too tight, as this will prevent the fire from burning properly.

On mild days the plant should be run with the Control Slide on regulating chain set at one or two ounces pressure. On cold days the Slide should be set at three or four ounces, or as required to insure the fire burning sufficiently to fill the radiators with Vapor. If too much heat is delivered to the radiators, cut down the Supply Valves.

The flue spaces of Boiler should be cleaned once a week; accumulation of soot in these spaces retards the efficiency of the Boiler.

The fire should be shaken at night, rather than in the morning. The ash pit should be kept clear of accumulation of ashes. The ash pit door should never be left open; the hinged Draft door will provide sufficient draft for the Boiler.

ENGINEERING

The engineering work of the Vapor Engineering Company is not confined to Veco Vapor Systems. If required, Plans and Specifications will be furnished for heating and ventilating plants of any kind, including steam or hot water systems, swimming pool heating systems, high pressure steam plants, etc. All such engineering work will be handled carefully and accurately, and will be guaranteed when installed according to the Plans and Specifications. Surveys will be made of old heating systems which are unsatisfactory, with a view of putting them into proper operating condition or of changing them to Vapor Systems. Consultation with the engineers of the Company can be arranged in the matter of any heating problems.