Specifications, "DH" Series Dunham Differential Vacuum Heating System

As Applied to the Heating of Residences

1. GENERAL CONDITIONS.—

2. CONSTRUCTION AND MATERIAL.—

3. INSPECTION.—

(*Paragraphs 1, 2 and 3 same as "D" Series Specifications.*)

4. BOILER.—The steam boiler shall be a..... with guaranteed rating for.....sq. ft. of direct radiation installed upon suitable foundation and in accordance with manufacturer's setting instructions. It shall be equipped with all necessary connections and trimmings, including a safety valve set to blow at 10 lb. pressure, a Dunham Compound Gauge 15 lb. x 30 in. vacuum and a 10-in. Dunham Damper Regulator. (Omit Regulator on gas fired and automatic oil fired installations.)

5. SMOKE PIPE.—Connect boiler to chimney with suitable iron smoke pipe same size as boiler smoke outlet. Smoke pipe must be provided with approved Dunham Check Damper and hand stop damper between check damper and boiler. (On gas and automatic oil fired installations omit Dunham Check Damper.)

6. PIPE AND FITTINGS.—Furnish and erect with tight connections all necessary piping of sizes shown on plans and run as indicated, supported and properly graded to insure free and noiseless circulation. Use fittings of cast iron of standard quality. The ends of all pipes shall be reamed or filed. Proper provision must be made for expansion. Use graphite and oil for making up all pipe joints applied to male thread only.

7. All steam tappings in boiler shall be connected full size of tapping into a steam header which shall be dripped to the return header through a bleeder. All spring pieces to steam and return mains shall be taken off the top of mains at 45 deg.

8. The end of each steam main shall be dripped as indicated on the plans by means of a drip line to boiler, properly vented through Dunham "D1" Trap in accord with details furnished by manufacturer.

9. Grade steam mains ½ in. in 10 ft. Grade return mains and drip mains 1 in. in 10 ft. All steam supply branches such as spring pieces, offsets in steam risers and runout to radiators shall in each case be installed one size larger than the vertical pipes to which they connect and shall be given as much grade as possible. ½ in. per foot is preferable.

10. Return mains shall be connected to the Dunham Differential Vacuum Pump as shown in detail furnished by manufacturer.

11. Risers are to be run concealed or in the open as directed by the architect. All concealed piping must be tested and made tight at 15-lb. water pressure before being concealed and covered.

12. All union connections, flanges, packing nuts on gate and globe valves and on gauge glass of boiler must be drawn up tight so as to prevent air leaking into system when under a high vacuum. This work must be performed after system is completed and while it is working with a vacuum in both steam and return lines.

13. FLOOR PLATES, SLEEVES.—Furnish approved floor and ceiling plates and protecting sleeves on all pipes passing through floors or finished partitions.

14. THERMOSTATIC CONTROL.—Contractor shall furnish and install where shown on plans a Type 77 Minneapolis Honeywell Thermostat or other approved with D. S. Damper Motor and Switch according to Manufacturer's instruction. (If Thermostatic Control equipment is being supplied with oil or gas burner under another contract, then this Contractor shall connect Differential Vacuum Pump to the Switch of Thermostatic Control.)

15. DIFFERENTIAL VACUUM PUMP AND AIR ELIMINATOR.—Furnish and install a DH2A Dunham Differential Vacuum Pump. The pump shall be installed and connected in accordance with manufacturer's instructions and details. The necessary electric wiring between pump and differential control, shall be connected to Thermostatic equipment in accordance with manufacturer's instructions and in conformity with all local regulations.

Furnish and install in accordance with manufacturers' instructions a Dunham Air Eliminator, Type 220B. Install a Dunham Air Check, Type 222, in a tee from vent opening of Eliminator.

16. CHECK VALVES.— } *Same as "D" Series Specifications.*
17. RADIATION.— }

18. RADIATOR TRAPS, "D" SERIES, TEMPORARY ELBOWS AND VALVES.—Each radiator shall be provided with a Dunham Temporary Elbow loaned by the manufacturer and shall be installed at outlet end of radiator to facilitate the thorough cleaning of the radiator. After the System has been cleaned, a Dunham "D" Series Radiator Trap of suitable capacity shall replace this elbow. A Dunham Packless Radiator Valve with Dunham Regulating Plate shall be installed at inlet connection according to manufacturer's instructions. The plates shall not be inserted in the valves until after the system has been cleaned, but before final test is made.

19. PAINTING.— } *Same as "D" Series Specifications.*
20. COVERING.— }
21. FINISHING UP.— }

22. TEST.—The System when finished and cleaned shall be tested for tightness by filling it with water to its very top. Pockets of air in the piping or radiators must be vented so as to allow water to enter. The water shall be left standing in the system at least four hours after all leaks have been made tight, when final test and inspection in presence of Dunham Representative shall be made for leaks. The contractor must take precaution to guard against damage from freezing during test.

23. GUARANTEE.—The Heating Contractor shall guarantee the apparatus installed to circulate steam thoroughly through every radiator without noise, with a vacuum of 15 in. in steam main. If the apparatus shall fail to accomplish this guarantee by reason of any defect developing within the period of one full heating season and that defect is due to faulty material or poor workmanship, the Heating Contractor shall remedy such defect at his own cost within reasonable time after notice thereof.

24. FINALLY.—Nothing herein contained can be construed to relieve the Heating Contractor from making good and perfect work in all usual details of construction, and he will be held responsible to provide and furnish necessary material and to perform all necessary labor and to bear all expenses incidental to the satisfactory completion of the work.

PRODUCTS

In addition to the Dunham Differential Vacuum Heating System hereinbefore described the Dunham Line consists of specialties for use in connection with **the Dunham Home Heating System; The Dunham Return System and the Dunham Vacuum Return Line System—all two-pipe systems, and the Dunham Air Line System for use in connection with one-pipe steam systems.**

These specialties are Radiator Traps; Float and Thermostatic Traps; Air Line Valve; Return Traps; Medium Pressure Traps; Packless Radiator Valves; Pressure Reducing Valves; Vacuum Pump Governors; Air Eliminators; Air Check; Dirt Strainers; Air Vents; Damper Control; Gauges.

In addition to the Dunham Differential Vacuum Pump already described, we build a full line of Vacuum Return Line Pumps, Condensation Pumps and Receivers; Centrifugal Pumps.

Bulletins

Bulletins of standard architectural size with detailed information covering each Dunham Product and System, including roughing-in dimensions, will be furnished on request.

Hoffman Specialty Co., Inc.

Waterbury, Conn.

GENERAL SALES DEPARTMENT

25 West 45th Street, **New York, N.Y.**

HOFFMAN VALVES and CONTROLLED HEAT EQUIPMENT

HOFFMAN VENTING VALVES

In the Hoffman line there is a specially designed venting valve for every type of steam heating system. The basic principle used in the design of all Hoffman venting valves is that of an all-metal thermostatic member, with one or more flexible diaphragms, containing a volatile or heat sensitive fluid which causes valve action upon slight temperature changes.

Hoffman valves have a wide pressure range in which they operate with the same degree of accuracy, for the internal fluid pressure in the thermostatic member maintains a constant relationship with the external steam pressures throughout the whole range of pressure for which each valve is intended.

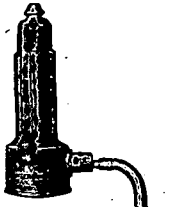
Hoffman valves are automatic, non-adjustable and guaranteed to properly function for a period of five years from date of installation when installed and operated under normal conditions for which designed.

VENTING VALVES FOR ONE-PIPE SYSTEMS

ALL METAL—NON-ADJUSTABLE—THERMOSTATIC

The No. 1 Hoffman Siphon Air Valve is designed for systems of the one-pipe gravity type, to vent all air from radiators without loss of steam. After contact of water with the valve the siphon drains all water from the valve and venting occurs without the slightest "spit" even if the radiator is under pressure.

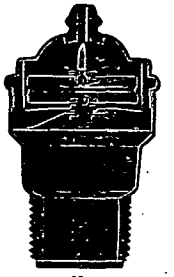
Radiator connection, ⅛ in. Maximum guaranteed operating pressure, 10 lb. Furnished with special short siphons for narrow pattern radiators.



No. 1 Hoffman Siphon Air Valve

The No. 4 is used in venting mains, risers, vento stacks, coils, etc. All air is freely vented through a ⅛ in. vent port without steam loss, but valve does not close against water.

Standard connection, ¾ in., can also be supplied with ¼ in. connection. Maximum guaranteed operating pressure, 10 lb.

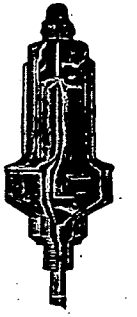


No. 4

The No. 5 is particularly adapted for use in venting: Ends of steam or dry return mains; Indirect radiators; Blast or "Vento" stacks; Hot-water generators; Dryers and drums, etc.

The basic principle is the same as the No. 1 Valve, having separate channels for air and water which are only found in Hoffman Valves.

Pipe connection, ⅜ in.; vent port for less than 3 lb. is $\frac{3}{16}$ in.; for 3 lb. and over is $\frac{1}{16}$ in. Unless otherwise ordered, will be shipped with $\frac{1}{16}$ in. port. Maximum guaranteed operating pressure, 10 lb.



No. 5

Write for Descriptive Circular—
The Watchman of the Coal Pile