

HEATING EQUIPMENT

FIRE PROTECTION

1. GENERAL

1.01 This section covers practices recommended for the safe installation of appliances used exclusively for the heating of buildings. The following recommendations are based on provisions of the Building Code Recommended by the National Board of Fire Underwriters, 1949 Edition. For further details, reference should be made to Article XI of the above Code. Where local or state regulations require higher degrees of protection than those covered in this practice, the local or state regulations should be followed.

1.02 This section is reissued to refer to the latest edition of the "National Building Code" as recommended by the National Board of Fire Underwriters and other Bell System Practices relating to the same general subject. For operation and maintenance application, the section is dually numbered with this issue and the same issue is assigned for uniformity. Arrows are used to indicate changes throughout the text.

1.03 Heating plants for buildings, except in small structures such as community dial offices, are usually located in fire resistive rooms as covered in double numbered section BSP H41.230, H51.345.

1.04 The construction of chimneys, smokestacks, and flues is covered by BSP Section H41.260. Periodic cleaning of flues helps to prevent fires.

1.05 Gas, oil, and coal fired plants should be installed and maintained in accordance with current standards of the National Board of Fire Underwriters. Periodic inspection of safety devices should be made to insure that they function properly to prevent the possibility of creating fires.

1.06 The danger of fires originating in coal bins will be slight if the precautions described in double numbered BSP Section H34.284, H51.353 are followed. Coal fires should be combated as described in P.O.L. 1055.

2. HEATING FURNACES AND BOILERS DEFINED

2.01 Heating furnaces and boilers are intended to include floor mounted direct fired warm air furnaces, hot water boilers and low pressure steam boilers used for the heating of buildings.

3. FURNACES AND BOILERS BURNING OIL

3.01 Mounting: Furnaces and boilers burning oil should, where possible, be mounted on floors of fireproof construction having incombustible flooring or surface finish. Where it is not possible to mount furnaces or boilers on other than wood joist floors or other combustible construction, the floor under the appliance should be protected by two courses of 4-inch hollow clay tile laid at right angles with cells matched so as to preserve free circulation of air through each tile course. The entire tile base should extend at least 12 inches beyond the appliance on all sides and be covered with 3/16-inch thick metal plate.

3.02 Clearances: The clear distance from the appliance to woodwork or other combustible material whether plastered or unplastered should be not less than 18 inches above, at sides and rear, and 48 inches at front. Where it is not possible to obtain the above minimum clearances all exposed combustible surfaces should be protected with 28-gauge sheet metal set one inch clear of the protected surface with incombustible spacers. In no case should the clearances be reduced to less than 9 inches above, 6 inches at sides and rear and 48 inches in front. All protection should extend beyond the appliance not less than 18 inches, both vertically and laterally.

3.03 Installation: The installation should be made in accordance with the provisions contained in "Regulations of the National Board of Fire Underwriters for the Installation of Oil Burning Equipments," current edition.

4. FURNACES AND BOILERS BURNING COAL

4.01 Furnaces and boilers burning coal should have the same mounting and clearances as described for appliances burning oil, except

where mounting is on a combustible floor 1/4-inch asbestos mill board covered with 24-gauge sheet metal should be placed to cover the floor area not less than 18 inches beyond the front of the appliance or the side where ashes are removed.

5. FURNACES AND BOILERS BURNING GAS

5.01 Furnaces and boilers burning gas should have the same mounting and clearances as described for appliances burning oil.

6. STOVES

6.01 Mounting: Stoves for heating purposes, where placed on combustible floors, should be mounted on iron legs providing an open space of not less than 4 inches below the bottom of the stove. The floor should be protected with 24-gauge sheet metal extending at least 6 inches beyond the appliance on sides and rear, and 18 inches at the front.

6.02 Clearance: Stoves should be installed to provide a minimum clearance of 24 inches to combustible surfaces whether plastered or unplastered, unless protected with a 28-gauge sheet metal shield set one inch clear of the protected surface with incombustible spacers. With this protection the clearance may be reduced to not less than 12 inches. Metal shielding should extend from the floor to 18 inches above and 12 inches beyond sides of the stove.

7. GAS-STEAM RADIATORS AND PORTABLE HEATERS

7.01 General: Gas-steam radiators equipped with pilot lights should be so located as to avoid the possibility of the pilot flame being extinguished by air currents. They should be connected to the gas supply with rigid piping. Portable heaters such as oil stoves should be located where they will not be subject to accidental overturning, and they should not be filled while lighted.

8. SMOKE PIPES

8.01 Smoke pipes should be connected with smoke flues as described in Bell System Practice H41.260 - Chimneys, Smokestacks and Flues. Two or more smoke pipes may be joined for a single flue connection, including junctions of smoke pipes from oil burning appliances with those from appliances burning solid fuel, provided the several smoke pipes are constructed to comply with the severest requirements for any one of those connected. Connections of vents from appliances burning gas to chimney flues are covered in Section H41.260 of these practices.

8.02 Smoke pipes should not pass through a floor, roof or exterior wall unless such floor, roof or wall is of fireproof construction.

8.03 Passing Through Partitions: Smoke pipes from heating furnaces or boilers should not pass through combustible partitions. Where necessary, smoke pipes from ordinary stoves may do so if they are guarded by double metal ventilated thimbles not less than 12 inches larger in diameter than the pipe, or by steel or tile sleeves built into brickwork or other approved fireproof materials extending not less than 8 inches beyond all sides of the sleeve.

8.04 Clearances for Smoke Pipes: The clear distance between a smoke pipe or metal breeching and combustible material, including plaster on a combustible base should be not less than 18 inches. This clear distance may be reduced to not less than 9 inches if the combustible material or construction is protected by sheet metal no thinner than 28 gauge placed one inch from the combustible surface and extending full length of the smoke pipe and not less than 12 inches beyond it on both sides.

9. WARM AIR DUCTS

→ 9.01 Installation: Warm air heating ducts should be installed in accordance with Standards of the National Board of Fire Underwriters Pamphlet No. 90.

↳ 9.02 Protection: Warm air ducts extending from the furnace to vertical wall ducts should, for their initial 6 feet of horizontal run, be placed not less than 18 inches from woodwork. This clearance may be reduced to 9 inches if the woodwork is protected with 28-gauge sheet metal placed one inch from its surface and extending 12 inches beyond the duct on both sides. Elsewhere the horizontal warm air ducts should be placed not less than one inch from woodwork unless such woodwork is covered with asbestos paper overlaid with sheet metal.

→ 9.03 Ducts and duct fittings and connections installed in combustible partitions, walls or concealed ceiling spaces should be covered with at least one thickness of asbestos paper weighing not less than 12 pounds per 100 square feet. An air space of not less than 5/16 inch should be provided on all sides of such ducts.

→ 9.04 No warm air duct should be placed in a partition, wall or other enclosure of combustible construction unless it is at least 6 feet distant in a horizontal direction from the nearest surface of the furnace.

10. WARM AIR SUPPLY REGISTERS

10.01 Setting: Where registers are placed in floors or walls of combustible construction the register boxes should be covered with 12-pound asbestos paper and a clear space of at least 5/16 inch maintained between the sides of the box and the combustible material.

10.02 Register Over Furnace: When a register is placed in a floor of combustible construction over the furnace, the register box should be constructed with double sides spaced 4 inches apart, except where the warm air passage is entirely surrounded by a cold air return passage.

10.03 Fixed Register: Each warm air furnace system should have at least one register installed without valves or louvers.

11. STEAM AND HOT WATER HEATING PIPES

11.01 Protection: Where steam or hot water heating pipes pass through combustible floors, partitions or other combustible construction, an open space of at least one inch

should be provided at all sides of the pipe. This space should be closed at ends with metal collars or escutcheons. Steam and hot water heating pipes should be kept not less than one inch from any combustible construction except where they are covered with at least one inch of approved insulation.

11.02 Wood casings or enclosures for steam or hot water heating pipes, or wood covers for wall recesses in which such pipes are placed should be lined with sheet metal.

11.03 Pipe Coverings: Coverings used on all steam or hot water heating pipes should be of incombustible material.

12. ASH PITS

12.01 Pits or receptacles for the storage of ashes should be of brick, iron or other incombustible material. The walls of such pits should be of approved masonry not less than 8 inches thick. The floor, and the roof if covered, should be of fireproof construction. If the ash pit is not covered, the ceiling of the room in which it is located should be of fireproof construction.