

*Work to be passed by Inspector.*

Any and all work connected in any way with the drainage of any premises shall be executed in every respect in accordance with these by-laws. All such work shall be inspected by the Inspector, and every facility shall be offered for such inspection. No underground or enclosed work shall on any account be covered up or concealed from view until the same has been duly tested and passed by the Inspector.

*In case of Defective Workmanship.*

If any drain, pipe, trap, water-closet, urinal, sink, or other fitting shall be begun, laid, or completed in contravention of any of the provisions of these by-laws, or shall be or become of bad or defective quality, the person by whom such work shall be so begun, laid, or completed, or the occupier of the premises, shall, by a notice in writing which shall be signed by the Clerk and shall be duly served upon or delivered to such person, be required, on or before such day as shall be specified in such notice, by a statement in writing under his hand or under the hand of an agent duly authorized in that behalf and duly served upon the Board, to show sufficient cause why such drain, pipe, trap, water-closet, urinal, sink, or other fitting shall not be removed, altered, repaired, or pulled down, or shall be required, on such day and at such time and place as shall be specified in such notice, to attend personally, or by an agent duly authorized in that behalf, before the Board, and show cause why such drain, pipe, trap, water-closet, urinal, sink, or other fitting shall not be removed, altered, repaired, or pulled down. If such person shall fail to show sufficient cause why such drain, pipe, trap, water-closet, urinal, sink, or other fitting shall not be removed, altered, repaired, or pulled down he shall proceed within forty-eight hours to remove, alter, repair, or pull down, and shall remove, alter, repair, or pull down the same. The Board may, should it think fit, on failure by the person liable to perform such removal, alteration, or repair, remove, alter, or repair the said improper or defective fitting, and charge the owner or occupier of the premises with the cost incurred.

*Size of House Drains.*

Every house drain shall be not less than 4 in. internal diameter, and shall be constructed of glazed stoneware or cast-iron pipes of the best quality. No soft-burnt, cracked, crooked, or distorted pipes shall be used; right-angled junctions shall not be used; curves shall be formed by proper bendpipes.

*Method of laying Drains.*

As far as possible all house drains shall be laid in straight lines; where changes of direction occur, these shall be made by open manholes or by bendpipes as directed by the Inspector. The pipes shall be laid with true gradients, the inclination as steep as circumstances will conveniently permit, if possible, not less than 1 in 40 for 4 in. pipes and 1 in 60 for 6 in. pipes. All pipe-trenches shall be carefully cut in the solid ground and well rammed, and all pipes laid as follows:—

All earthenware pipes shall be carefully laid and bedded on a concrete bed 4 in. thick up to the shoulders, and jointed in 2-to-1 cement mortar; the concrete must be put in carefully round them and rammed, to fill in everything tight. Also, after the cement joint has been made, a scraper must be used inside to remove any mortar that has squeezed in, and the joints left perfectly level. All gully-traps and disconnecting traps must have at least 4 in. of concrete under and around them, and be well bedded in it up to their top.

*Iron Pipes under Buildings.*

As far as possible no drainpipe shall pass beneath any building. Where, however, this is unavoidable, the pipe must be of cast iron, lead-jointed, or if of stoneware the pipe must be bedded in and surrounded with good cement concrete 4 in. in thickness. In every such case the pipe shall be ventilated in the manner directed by the Inspector by a suitable shaft or opening at each end. Such drains shall be laid in a direct line for the whole distance beneath the building. Should the drain have to pass through an opening in the wall, such opening shall be large enough to leave a clear space of 2 in. all round the pipe.

*Ventilator Shafts.*

Every branch drain exceeding 15 ft. in length shall be furnished with a ventilation shaft having a diameter of 3 in. Such connection shall be made on the drain by means of a vertical branch. No part of such shaft shall be placed inside any building. Such shaft shall be carried to a height not less than 3 ft. above the highest point of the highest roof within a radius of 50 ft. in a horizontal direction from the shaft. A cap or cowl of a pattern approved by the Inspector shall be fixed on the top thereof. The outlet of the ventilation shaft shall be placed as far away as possible, not being less than 6 ft., measured in any direction, from any window or chimney top. No connection other than with the drain

shall be made to any main ventilation shaft. Where underground, every such ventilation shaft shall be of stoneware drainpipes laid in a workmanlike and efficient manner, to the satisfaction of the Inspector, or of cast-iron pipe with lead or rust joints. To a height of 6 ft. above the surface of the ground the shaft shall be of cast iron, not less than  $\frac{3}{8}$  in. in thickness, similarly jointed, or of screwed wrought-iron piping, thence of its outlet it may be of cast iron, screwed wrought-iron pipe, 6 lb. lead, or galvanized iron of not less than 22 B.W.G. The connection between the stoneware and the vertical pipe shall be made with cement, which together with all other joints shall be perfectly airtight. If galvanized iron is used, the pipes shall be made with double-lapped and soldered longitudinal joints in long lengths, and transverse joints shall be not less than 2 in. in length, slipped or socketed and soldered. The connection between the galvanized-iron pipe and the cast-iron portion of the shaft shall be of lead, run in and caulked, the portion of the galvanized-iron pipe inside the socket of the cast-iron pipe being strengthened by a galvanized-iron band, 3 in. wide, of 22 B.W.G. soldered to it. Putty shall not under any circumstances be used for jointing any ventilation pipes. No angular joints or elbows shall be used below the eaves-level. The shaft shall be properly constructed and supported and carried in as direct a manner as possible.

*Ventilating-pipes.*

At the head of every house drain a proper and effective ventilating-pipe with a proper and effective top shall be provided, and shall be carried up at least 3 ft. above the eaves of the adjacent building, or to the ridge of the roof, as may be directed. No communication whatever will be allowed with the interior of any building except by means of a proper trap (in addition to that fixed by the Board at the boundary), and duly ventilated by a pipe carried up to a sufficient height.

*Ventilating-pipes outside Buildings.*

Pipes used solely as ventilating-pipes and situated wholly outside buildings may be of cast iron, galvanized iron, lead, or stoneware. Where one such pipe only is fixed upon a line of drain, its internal diameter shall be not less than 4 in.; where more than one pipe is fixed on the same line of drain, the internal diameter of each pipe shall not be less than 3 in. Ventilation pipes shall be carried up without angles or horizontal lengths 3 ft. at least above the eaves, or, better, to 3 ft. above the ridge of the highest adjacent building, as may be directed by the Inspector. Rain-water pipes shall not be used as ventilators. As far as possible all ventilating-pipes shall be placed outside buildings.

*Waste-pipes.*

All sanitary fittings, including baths, sinks, and lavatories, must have traps fixed immediately under their intake, and shall not be connected directly with any drain, but shall discharge over a gully-trap in the open air at a height of not less than 3 in. or more than 6 in. above the level of the water seal thereof. Washtubs fixed in a detached building having a length of waste exceeding 6 ft. must have a trap fixed on same. Any waste-pipes not exceeding 6 ft. in length may discharge over a watertight concrete channel led to a gully-trap not more than 6 ft. distant. Two or more tubs may connect to one trap, such joint to be above water seal of trap. The traps to such waste-pipes to be approved self-cleansing siphon type, having a water seal of not less than 2 in. A cleansing screw must be wiped to each trap.

Where one waste-pipe exceeds 14 ft. in length, or receives the discharge from two or more branch waste-pipes, and the length from the more distant siphon trap to the end of main waste is more than 12 ft., such waste-pipe shall be carried up without diminution to a point 3 ft. above roof of building to which it is attached. The branch waste-pipe entering such main waste shall be trapped and ventilated by pipes of same diameter as the largest branch, which shall be carried up 3 ft. above roof or branched into main waste-pipe at a height of not less than 3 ft. above highest branch. All sanitary pipes and fittings shall be placed against external walls where possible.

In the case of hotels, boardinghouses, restaurants, and eating-houses there shall be provided, in addition to the above requirements, a suitable and effective grease-trap provided with flushing-rim and automatic flushing-tank.

No wood shall be built around sinks unless well bedded round with red-lead putty to the satisfaction of the Inspector.

Overflow-pipes from sanitary fittings must discharge into the open air where directed by the Inspector, and be provided with a hinged flap or grating.

*Sanitary Appliances forbidden inside Buildings.*

No sink, gully, water-closet, urinal, bath, lavatory, wash-house, or other appliance for domestic, trade, or manufacturing purposes necessitating drainage therefrom will be