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Crown Law Department,
Perth, 24th February, 1960.

The undermentioned By-laws as amended from time to time prior to the 20th October, 1959, made by the Minister of Water Supply, Sewerage and Drainage and approved by the Governor under the provisions of the Metropolitan Water Supply, Sewerage, and Drainage Act, 1909, as amended, are reprinted pursuant to the Reprinting of Regulations Act, 1954, by authority of the Attorney-General.

R. C. GREEN,
Under Secretary for Law.

Metropolitan Water Supply, Sewerage, and Drainage Act, 1909-1956.

BY-LAWS.

(Published in the *Government Gazette* on the 27th January, 1939, and incorporating the amendments thereto published in the *Gazette* on the 3rd May, 1940; 15th November, 1940; 31st July, 1942; 19th January, 1945; 22nd March, 1946; 25th October, 1946; 5th August, 1949; 17th April, 1953; 19th June, 1953; 25th September, 1953; 18th December, 1953; 26th March, 1954; 20th April, 1955; 29th June, 1955; 4th November, 1955; 15th June, 1956; 18th December, 1956; 13th August, 1957; and 30th June, 1959, and reprinted pursuant to the Reprinting of Regulations Act, 1954.)

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METROPOLITAN WATER SUPPLY, SEWERAGE, AND DRAINAGE ACT, 1909-1956.

BY-LAWS.

PART I.

INTERPRETATIONS.

Part I.
Amended by
G.G. 3/5/40,
p. 696.

"Anti-siphonage Vent" or **"Back Vent"** means any vent pipe from an individual trap to the open air, or to a main or branch vent pipe having for its purpose the prevention of loss of water seal in the trap.

"Bore," "Diameter" or **"Size"** in reference to any pipe means the internal diameter thereof.

"Building" means any building used as a work place, residence, place of business, place of amusement, or a place of human habitation, or used for the storage of food intended for human consumption, but does not include outbuildings unless such are used for any of the above purposes or are provided with plumbing fixtures.

"Catchment Area" means all land over, through or under which any water flows, runs or percolates directly or indirectly into any reservoir erected or used by the Minister in connection with any water supply.

"Cesspit" includes any receptacle for night soil or for noxious or offensive matter below or above the ground, but does not include any regulation sanitary pan, or any appliance for the bacteriolytic treatment of sewage, or other approved receptacle.

"Combined Pipe System" means that type of plumbing installation in which disconnector traps are omitted and both soil and waste pipes are connected directly to the drain or to a common pipe taking both soil and waste discharges, and in which a common system of venting is used for all classes of pipe.

"Combined Waste Pipe" means any pipe which receives the discharges from both soil and waste fixtures and conveys the same to the drain. Combined waste pipes are connected directly to the drain and are used only in connection with the **"Combined Pipe System."**

"Department" means the Metropolitan Water Supply, Sewerage and Drainage Department, Western Australia.

"Disconnector Trap" means a trap for isolating or disconnecting waste pipes from the drain and soil pipes, and for providing inlet ventilation to the waste pipe or pipes discharging into it.

Inserted by
G.G. 3/5/40,
p. 696.

"Domestic purposes" in relation to the supply of water for domestic purposes means the ordinary household purposes for which water is required in or about a dwelling-house. The term includes the use of water for watering lawns and gardens appurtenant to a dwelling-house and for watering lawns and gardens growing in a street or road adjoining private land upon which a dwelling-house is erected, when such lawns and gardens are grown by or cared for by the owner or occupier or such private land and such lawns and gardens are watered with water which has first passed into such private land through the meter installed thereon by the Minister in connection with the water service on such private land.

The term does not include the use of water for cattle or horses, or for any steam or internal combustion engines or boilers, or for washing carriages or horses, where such carriages or horses are kept for hire or as the property of any dealer, or for any hotel, inn, trade manufacturer or business whatever, or for watering lawns and gardens (other than lawns and gardens of the kind or class previously mentioned in this definition), or for fountains or for any ornamental purpose, or for the cooling of roofs or refrigerating equipment or machinery, or for any form of air conditioning or temperature control, or for use in connection with any form of hydraulic ejector or hydraulic apparatus for power purposes.

"Drain" means every part of any conduit laid through, under or upon any street way or land whether public or private by or at the expense of the owner or occupier of any premises for the carriage therefrom of any sewage to any sewer.

"External W.C." means any closet which is entered solely from an area of not less than nine square feet open to the sky.

"Educt Vent" means an opening or pipe for the exit of air from a soil pipe, waste pipe, combined waste pipe or drain.

"Fixtures" mean all apparatus, together with their necessary appurtenances, which may be attached to the plumbing or drainage system of any property, and which are intended for the collection or retention of any wastes or waste waters for ultimate discharge into the Sewerage System, such as closet pans, urinals, baths, sinks, basins, troughs and the like.

"Feeder" means any watercourse, creek, stream, or other channel with either perennial or intermittent flow whereby water can be conveyed to any reservoir.

"Fittings" means all pipes, meters or other apparatus used for or in connection with the supply of water, and all pipes, cisterns, traps, syphons, manholes, ventilators and all other apparatus connected with and requisite to secure the safe and proper working of any sewer, drain, or water supply fixtures.

"Flat" means a suite of rooms used or intended or adapted for use as a separate habitation and comprised in a building containing one or more similar suites.

"High-water Mark" shall mean the level of full supply of any reservoir or feeder thereto.

"Inspector" means any person appointed by the Minister for the purpose of these By-laws or to administer the said By-laws and shall include any person acting in the capacity of ranger of any proclaimed catchment area.

"Interceptor Trap" (or **"Boundary Trap"**) means a trap situated on the drain at some point between the sewer and the lowest inlet to the drain, for the purpose of preventing the passage of air or gases from the sewer to the drain.

"Induct Vent" means an opening or pipe, for the admission of air to a soil pipe, waste pipe, combined waste pipe or drain.

"Internal Closet" means any closet which is entered from or has an opening into any building. Internal closet means any closet other than an external closet as herein defined.

"Piggery" means any building, enclosure, or yard in which one or more pigs are kept, bred, reared, or fattened for purposes of trade (or domestic use).

"Private Service" for the purposes of these By-laws includes all the pipes and fittings, and all connections and apparatus of whatsoever nature or kind, and whether used temporarily or otherwise on any part of any land or building, supplied with water, whether by meter or otherwise, and includes any pipes or fittings the property of the consumer, which are used for conveying water from the mains of the Minister whether situated on the premises of the consumer or otherwise.

"**Public House**" means any building in respect of which a publican's license, an hotel license, a wine and beer license, or wayside house license is held under any Act regulating the sale of intoxicating liquor.

"**Property**" for the purposes of these By-laws includes house, building, tenement, land and/or premises.

"**Relief Vent**" means any vent which is connected below the level of the lowest fixture for the purpose of relieving the main vent.

"**Separate Pipe System**" means that type of plumbing installation in which separate pipes are provided for soil and waste discharges and for the ventilation of soil and waste fixtures, and in which all waste pipes are connected to the drain through a disconnector trap.

"**Sewer**" means every part of any conduit through under or upon any street or land whether public or private for the carriage of any sewage not being a drain within the meaning of the Act and these regulations.

"**Sewerage Works**" means the sewers to which the Act and these regulations extend and all treatment works, pumps, pumping stations and machinery fittings and things connected therewith and all land acquired, held or used by the Minister for the purposes of the Act and these regulations in relation to sewerage.

"**Soil Pipe**" means any pipe which conveys the discharge from water closets, slop hoppers, urinals, mortuaries, or operating theatres to the drain.

"**Slop Hopper**" means any fixture, other than a closet pan or urinal used for the discharge of soil or urine waters and provided with flushing apparatus.

"**Stack**" means any vertical line of soil, waste, combined waste or vent piping with its offsets if any.

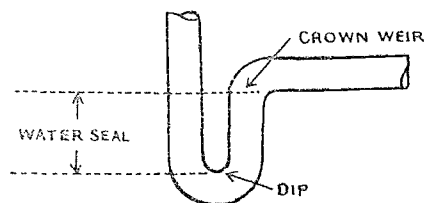
"**The Act**" means the Metropolitan Water Supply, Sewerage and Drainage Act, 1909, and includes amendment thereof.

"**Trade Waste**" means the liquid refuse from any business, trade or manufacturing premises other than domestic sewage, storm water or unpolluted water.

"**Trap**" means any fitting designed to retain a quantity of water for the purpose of preventing the passage of air or gases through such fitting.

"**Waste Pipe**" means any pipe which conveys the discharge from any fixture, other than water closets, slop hoppers, urinals, mortuaries, or operating theatres, to a disconnector trap in the case of "**The Separate Pipe System**" or directly to the drain in the case of the "**Combined Pipe System**."

"**Water Seal**" (or "**Trap Seal**") means the vertical distance between the dip and the crown weir of a trap, as shown in sketch.



"**Yard Gully**" means a drainage trap which is used externally and fitted with a basin top and grating

PART II.
PREVENTION OF POLLUTION OF THE
CATCHMENT AREAS.

SCOPE OF BY-LAWS.

3. The By-laws in this Part shall apply to all Water Reserves and Catchment Areas constituted under and for the purposes of the Act.

CLEANSING AND FILLING UP OF CESSPOOLS.

4. All cesspools existing on private land situated within a Catchment Area shall be cleansed and filled up by the owner or occupier to the satisfaction of an Inspector, within one calendar month after notice in writing to that effect has been given to such occupier or owner by the Minister.

SITUATION OF CLOSETS.

5. Closets shall not be constructed within fifty yards of high-water mark, and any closet situated within fifty yards of high-water mark shall be taken down by the owner or occupier of premises on which it is situated within one calendar month after notice in writing to that effect has been given by the Minister or by an Inspector to such owner or occupier and the cesspit, if such exists, shall be cleansed and a fire made therein, and afterwards filled up to the satisfaction of an Inspector.

**PROVISION FOR SUFFICIENT NUMBER OF PANS SHALL
BE MADE.**

6. The owner or occupier of every house situated within a Catchment Area shall provide, for the use of occupants, an earth closet, with a sufficient number of pans approved by an Inspector.

CONSTRUCTION OF CLOSETS.

7. (a) Every closet within a Catchment Area shall be of stone, iron, wood, brick, concrete, or a combination of such materials, and shall be supplied with a sufficient number of receptacles, which shall be interchangeable with others in the same district, and which shall be of approved size, shape, and style, and every pan shall be emptied and cleansed once every week or as often as may be required by an Inspector.

(b) Each dwelling within a Catchment Area shall be provided with a closet and urinal erected in such position as shall be directed by an Inspector.

(c) The floor and seat of every closet shall be so constructed that the top of the receptacle shall not be more than one inch below the under side of the seat.

REMOVAL AND RE-ERECTION OF CLOSETS.

8. Closets or urinals already in existence shall, whenever considered necessary by an Inspector, be removed to any position directed by him, and such removal or re-erection shall be at the cost of the owner, who shall have the work completed within one calendar month after service of a notice in writing by the Inspector requiring this to be done, provided that the owner may at any time within two weeks after service of such notice appeal to the Minister, whose decision shall be final.

NUISANCE SHALL NOT BE CAUSED.

9. The owner or occupier of any house situated within a Catchment Area—

(a) shall not permit the contents of any pan used in any closet or urinal attached to such house to overflow from any cause whatsoever;

- (b) shall not permit any closet, urinal or pan appertaining thereto, or used by the occupants of such house, to become offensive or a nuisance, and every such owner or occupier, whenever directed, either verbally or in writing, by an Inspector, shall properly and effectively empty and clean such closet, urinal, or pan to the satisfaction of the Inspector.

DISPOSAL OF NIGHTSOIL, ETC.

10. (1) Nightsoil, refuse, and garbage shall be disposed of from time to time as the Minister or an Inspector may direct.

(2) Nightsoil, fæcal matter, or refuse shall not be buried within a Catchment Area.

(3) Nightsoil or human urine whether mixed with any other substance or not, or any solution of nightsoil, unless the same has been thoroughly deodorised and disinfected to the satisfaction of an Inspector shall not be placed, deposited, spread, or permitted to be placed, deposited, spread, in or upon any land or garden situated within a Catchment Area, unless written consent thereto has been first obtained from the Minister.

DISPOSAL OF MANURE, ETC.

11. Refuse, dung, manure, or other offensive matter shall not be deposited or be permitted to be deposited in any place where, in the opinion of the Inspector such matter may be washed into any reservoir or any feeder.

USE OF ARTIFICIAL MANURES.

12. The owner or occupier of any house, land or premises situated within a Catchment Area shall not use any artificial manure for cultivation purposes, unless the approval of the Minister has been first obtained for the use of the fertiliser intended to be used.

SITUATION, ETC., OF OUT-BUILDINGS.

13. (1) No building of any description shall be used or constructed for use as a stable, cowshed, goatshed, sheep-pen, or fowl-house within any Catchment Area.

(2) No animal or bird shall be yarded in such a position within any Catchment Area that storm-waters may wash any manure or refuse therefrom into any reservoir or feeder.

(3) Every building (as aforesaid) within any Catchment Area shall have attached thereto for holding all liquid and solid manure a water-tight receptacle approved by an Inspector

(4) Every building (as aforesaid) erected on ground sloping towards a feeder shall be surrounded by a trench twelve inches deep and the soil from such excavation shall be deposited in the form of an embankment along the lower side of the trench and such work shall be done by and at the expense of the owner or occupier of such premises

CLEANING OF OUT-BUILDINGS.

14. The owner or occupier of any stable, cowshed, goatshed, sheep-pen, or fowl-house situated within any Catchment Area shall not allow any dung, manure, or other refuse to accumulate in or near such premises, but shall remove or dispose of same to the satisfaction of an Inspector in such manner that it cannot pollute any water flowing, or which may flow into any reservoir or any feeder, and the Inspector may, by written notice to the owner or occupier, order the immediate removal and disposal of any dung, manure, or other refuse from such premises, and any person omitting to comply with such notice to the satisfaction of the Inspector shall be guilty of an offence against these By-laws and be liable to penalties for breach thereof

DEODORANTS SHALL BE USED.

15. The occupier of every house or premises, whether public or private, situated within a Catchment Area, shall cause to be kept in every closet or privy belonging thereto a box containing either ashes, dry earth, lime, sawdust, carbolic powder, or other disinfectant approved by the Minister or by an Inspector, and shall cause all nightsoil or other matter deposited in such pan or receptacle in such closet or privy to be immediately deodorised or disinfected with a sufficient quantity of the disinfectant kept in such box.

TREATMENT OF NIGHTSOIL.

16. Every nightman or contractor shall cause the nightsoil removed from any premises to be either rendered inoffensive or treated in a destructor, desiccator or incinerator, buried in trenches outside the Catchment Area, or disposed of in a manner approved by an Inspector.

REMOVAL OF PANS.

17. (1) The mode of removal of pans shall be as follows:—
- (a) The nightman shall remove the pan and at once cover the same with a suitable tight-fitting lid.
 - (b) Upon every such removal the nightman shall carefully replace such pan with a cleansed pan, of a pattern approved by the Minister or an Inspector.
- (2) Each pan shall be dealt with as hereinafter prescribed, that is to say:—
- (a) It shall be removed by the nightman in a cart or vehicle of a pattern to be approved by the Inspector.
 - (b) The contents shall be deposited in such place or places as shall from time to time be fixed by the Minister or an Inspector.
- (3) Pans shall be emptied and thoroughly cleansed once a week at least or as frequently as the Minister or an Inspector may from time to time direct.

CHARGES FOR REMOVAL.

18. Every nightman shall be entitled to charge and to receive from the occupier of any premises from which any nightsoil, trade, or house refuse shall have been removed, unless other arrangements be made, such sum or sums of money as may be specified in the contract or approved by the Minister, and shall not ask, demand, or receive more than the sums so specified or approved.

LICENSING OF NIGHTMEN.

19. (1) Nightsoil shall not be removed from any closet, house or premises within the Area except by nightmen duly licensed by the Minister.
- (2) Individual householders shall not contract for the removal of nightsoil or any other refuse or offensive matter whatever except with a person licensed by the Minister, and in accordance with these By-laws.
- (3) The license shall be in the form set forth in Schedule A of these By-laws, and shall be subject to any conditions contained in such license, and to the provisions of the Health Act, 1911-1937¹, and of these By-laws.

¹ See now Health Act, 1911-1959.

PENALTY FOR BREACH.

20. Any licensed nightman committing any of the acts, neglects or defaults shall be guilty of an offence and shall be liable upon summary conviction to the penalty hereinafter prescribed for any such offence specified hereunder, that is to say:—

- (a) For neglecting to remove any pan at the time and in the manner authorised for the purpose—5s.
- (b) For any and every repetition of such neglect within three months of a neglect in removing any pan—7s. 6d.
- (c) For each neglect to substitute a clean pan for every pan removed—5s.
- (d) For each neglect to place a clean pan in its proper position for use—5s.
- (e) For each neglect to clean or keep deodorised any pan, night cart, or other vehicle—5s.
- (f) For every neglect or failure to properly dispose of night-soil as soon as it is deposited at the depot—5s.
- (g) For depositing any load, or part of any load, of night-soil, slops, rubbish, or refuse at any other place than the place appointed by the Minister or the Inspector—£1.
- (h) For neglecting to close the door or gate of any yard or door of any closet, which was closed when the nightman entered—5s.
- (i) For permitting any night-cart or other offensive vehicle to remain in or pass through a town or any part thereof during prohibited hours—5s.
- (j) For spilling the contents or any part of the contents of any pan within the premises, or at any place other than the depot—5s.
- (k) For neglecting to comply forthwith with any reasonable order of the Minister or the Inspector—5s.
- (l) For any failure to replace any pan when so ordered by the Inspector—5s.
- (m) For any or every neglect to clean soiled pans—5s.
- (n) For allowing any refuse, rubbish, or slops for pigs to be removed in carts or receptacles, or by other than those specially set apart for that purpose—10s.

KEEPING OF PIGS.

21. Pigs shall not be kept or be allowed to stray on any portion of a Catchment Area.

STRAYING OF ANIMALS.

22. Horses, cattle, sheep, goats, ducks, geese, fowls, or other species of livestock shall not be allowed to stray or depasture over any portion of a Catchment Area.

KEEPING OF POULTRY.

23. Poultry yards or premises for housing of poultry shall be kept at least 25 feet from any dwelling and shall be kept in a clean condition and disinfected at least once a week with lime, ashes, or other suitable disinfectant.

ABATTOIRS AND SLAUGHTER-HOUSES.

24. Abattoirs or slaughter-houses shall not be established or conducted in any part of a Catchment Area.

REMOVAL AND DESTRUCTION OF CARCASSES.

25. In the event of the death or of any accident necessitating the slaughter of any horse, cattle, or sheep, or other animal, the carcass of such animal shall be removed by the owner thereof to a safe distance from high-water mark, of any feeder, or to such place as an Inspector may direct, and the owner shall immediately thereafter dispose of same by burning, to the satisfaction of the Inspector, or if the owner cannot be found, the Inspector may remove and destroy it at the cost of the owner.

RECEPTACLES FOR REFUSE.

26. (a) The occupier of every house or premises shall provide and keep, in a position approved by an Inspector, such and so many receptacles or boxes of such material and dimensions as may be required by the Minister or the Inspector for the temporary deposit of solid house refuse.

(b) The owner or occupier of such house shall regularly collect all refuse or rubbish from such premises and place the same in approved receptacles, and shall not permit or suffer such receptacles to overflow or become offensive, and shall, when necessary or directed by the Inspector, thoroughly disinfect the same forthwith.

(c) The owner or occupier of every house or premises to which a receptacle as aforesaid is attached or used shall cause same to be emptied at least once a week, or as often as the Inspector may direct. The owner or occupier of such premises shall keep such receptacle in good repair, and upon notice from an Inspector shall immediately replace by a new and approved receptacle any receptacle that the Inspector may deem worn out or unfit for use.

DISPOSAL OF AND RECEPTACLES FOR NOISOME THINGS.

27. Rubbish, filth, blood, offal, manure, slops, soapsuds, urine, water containing urine, or other refuse, noisome things, or matter shall not be deposited or be permitted to be deposited in any part of a Catchment Area, where it may, in the opinion of an Inspector, be carried by storm water into any feeder, and every occupier or owner shall provide and maintain proper water-tight vehicles or receptacles fitted with close-fitting covers or lids, for the purpose of carting or receiving same.

LOCATION OF VEHICLES OR RECEPTACLES.

28. All such vehicles or receptacles shall be kept in such convenient place to allow of ready removal as may be directed by an Inspector, so as not to be a nuisance to any person, and shall be kept in a thoroughly sanitary condition, and removed at least once every week, and cleansed and disinfected both inside and out.

RESERVE FOR RUBBISH, ETC.

29. Foul or offensive water or other offensive liquid, or refuse, garbage, sweepings, or other offensive matter or thing, shall not be pumped, emptied, or swept, thrown, or otherwise discharged or deposited into or upon any street, lane, yard, vacant land, or other place, whether public or private, within a Catchment Area other than the place set apart by the Minister or the Inspector for that purpose.

POLLUTION OF STREAMS, ETC.

30. Bathing or washing of clothes or other articles in any stream, reservoir, aqueduct, or other waterworks within a Catchment Area shall not be permitted, nor shall any person wash, throw, or cause to enter therein any dog or other animal, or throw or convey, or permit to be conveyed or thrown therein any rubbish, dirt, filth, dead animal or other noisome thing.

ENTRY PRIVATE PREMISES BY OFFICERS OF MINISTER.

31. It shall be lawful for an Inspector, or any assistants acting under the directions of an Inspector, or other authorised officer, at his discretion, at any reasonable hour, with or without notice, to enter any land, house, or premises for the purpose of ascertaining whether any act or thing is being done or permitted within such land, house or premises in breach of these By-laws, and to remove, or cause to be removed, anything therein or thereon in breach of these By-laws, or to take such steps as he may deem necessary for carrying out these provisions. The cost of such removal or such other necessary act shall be borne by the owner or occupier of the premises upon which such breach shall occur.

PERIOD FOR COMPLIANCE WITH NOTICES.

32. Unless otherwise provided, the time which may elapse between the giving of a notice and the doing of a thing required to be done by any Inspector or other authorised officer shall be determined by the Minister according to the nature of each case.

CUTTING OF TIMBER.

33. Any person, whether in possession of a timbercutter's license or not, shall not cut or hew timber on any Catchment Area unless authorised to do so by the Minister.

SHOOTING, HUNTING AND FISHING PROHIBITED.

34. No person shall picnic, camp, light fires, shoot, hunt any game, or angle for or catch any fish within any Catchment Area.

PART III.**PROTECTION OF WATER, GROUNDS, WORKS, ETC., FROM TRESPASS AND INJURY.****TRESPASSING PROHIBITED.**

35. No person shall trespass within the fenced-off ground adjacent to or reserved for Water Supply, Sewerage, or Stormwater Drainage Works, nor enter without proper authority any Water, Sewerage, or Stormwater Drainage Work not open to the public.

CAMPING AND LIGHTING OF FIRES.

36. No person shall camp or light any fire within the vicinity of any reservoir except on land set apart for such purposes or light any fire on any other reserve or fenced-off land.

PROTECTION OF FLORA, SHRUBS, ETC.

37. No person shall remove, pluck, or damage any wildflower, shrub, bush, tree, or other plant, growing on any land or reserve vested in the Minister, within half a mile of any reservoir.

DOGS PROHIBITED.

38. No person shall permit any dog of which he is the owner to trespass on any portion of the ground in the vicinity of any water, sewerage, or stormwater drainage works.

DISPOSAL OF REFUSE, ETC.

39. No person shall leave loose paper or other refuse on any portion of the grounds in the vicinity of any reservoir or works, except in the receptacles provided therefor.

POSTING OR DISTRIBUTION OF BILLS, ETC.

40. No person shall post or distribute bills, advertisements, or other notices on any portion of any reservoir or works, or on any portion of the works or ground in the vicinity thereof.

NUISANCES.

41. No person shall commit a nuisance on any portion of the grounds in the vicinity of any reservoir or works.

PROTECTION OF PIPES.

42. No person shall drive take or ride any vehicle, conveyance, or animal in such manner as to endanger the main conduit or any branch thereof, or permit such vehicle, conveyance or animal to cross the same except where crossing places have been provided as indicated by signboards.

PROTECTION OF WORKS FROM INJURY.

43. No person shall in the vicinity of any works carry on or cause to be carried on any mining or quarrying operation, or make any excavation of any sort, or cause any explosion so as to injure any waterworks, sewerage works, sewers, drains, pipes, or fittings whatsoever.

PART IV.**LICENSES AND PERMITS.****WATER SUPPLY PLUMBING WORKS SHALL BE DONE ONLY BY LICENSED PLUMBERS.**

44. No person shall carry out any work in connection with the water supply or apparatus connected therewith, unless he shall have been duly licensed by the Minister as a "Licensed Water Supply and Sanitary Plumber" or as a "Licensed Water Supply Plumber."

SEWERAGE OR DRAINAGE WORK SHALL BE DONE ONLY BY LICENSED WATER SUPPLY AND SANITARY PLUMBERS.

45. No person shall carry out any work in connection with sewerage or drainage on any premises or in connection with any fitting or apparatus connected therewith unless he shall have been duly licensed by the Minister as a "Licensed Water Supply and Sanitary Plumber."

PENALTIES FOR DOING WORK WITHOUT A WATER SUPPLY OR SANITARY PLUMBER'S LICENSE.

46. Any person who contravenes either of the two preceding By-laws, shall be guilty of an offence and liable on conviction to a penalty not exceeding ten pounds.

DESCRIPTION AND SCOPE OF LICENSES.

47. The conditions upon which licenses will be issued by the Minister are:—

- (a) The Minister may grant licenses to Water Supply and Sanitary Plumbers and to Water Supply Plumbers on condition that the certificate of a Board of Examiners appointed by the Minister has been obtained, the prescribed payment made, and provided that he is satisfied that the applicant is a fit and proper person to hold a license and is more than 21 years of age.
- (b) Such licenses shall be issued subject to the By-laws or any special conditions that the Minister may consider desirable.

- (c) The holder of a Water Supply and Sanitary Plumber's License may carry out any water supply or sewerage plumbing or drainage work within the Metropolitan Water, Sewerage, and Drainage Area, and only plumbers holding such licenses shall do or cause to be done plumbing or drainage work within areas open for sewerage house connections.
- (d) The holder of a Water Supply Plumber's License may carry out water supply work only outside any area open for sewerage house connections.

CONDITIONS OF LICENSE.

48. (1) Every holder of a license from the Minister:—
- (a) shall execute such works in accordance with the provisions of the Act and of these By-laws, and of any special directions or orders given or issued by the Department; and
 - (b) shall execute such works in a thorough and tradesman-like manner to the satisfaction of the Department as expeditiously as practicable; and
 - (c) shall on actual sewerage plumbing work, but not including drains employ only such certificated operatives as provided for in By-law 58; and
 - (d) shall obtain permission from the person or authorities concerned when necessary for the execution of such works on, over, or through any private property, or any streets, roads, parks, reserves, or other public places or properties; and
 - (e) shall pay any fees demanded by any Municipality or other local authority for opening any street, road, or thoroughfare, or otherwise in connection with such work; and
 - (f) shall restore any part of any street, road, or thoroughfare interfered with by such work to the satisfaction of the local authority having control thereof, upon the completion of such work; and
 - (g) shall restore any other property interfered with by such work to the satisfaction of the Department's Inspector; and
 - (h) shall, in the execution of such work, take such proper and necessary precautions that no accident or damages or unnecessary inconvenience may be directly or indirectly occasioned thereby.

(2) Every license granted by the Minister shall be subject to suspension or cancellation, as the Minister may determine when, in the opinion of the Minister, the holder thereof has failed to comply with the conditions of such license. Such suspension or cancellation shall not prejudice the Department's right to take any other proceedings against the holder of such license which the Department is by law authorised to take.

EXAMINATION—WATER SUPPLY AND SANITARY PLUMBERS.

49. Subject to the provisions of these By-laws every applicant for a License as a Water Supply and Sanitary Plumber shall pass an examination set by a Board of Examiners appointed by the Minister in the following subjects, namely:—

- (a) All branches of the plumber's trade, including a knowledge of all materials used by the plumber or drainer.
- (b) Water supply, sewerage and drainage work, including the proper disposal of pipes, fittings, etc., for hot water installations.

- (c) A knowledge of these By-laws, and the construction of all water supply and sewerage apparatus and appliances required thereby; and a knowledge of the By-laws of Local Authorities in the Metropolitan Water Supply, Sewerage, and Drainage Area.
- (d) The general principles of sanitary and water supply plumbing work.
- (e) Every candidate shall satisfy the Board of Examiners as to his practical ability as a sanitary plumber and drainer and that he has served not less than five years at the trade and may be required to submit samples of work done by himself, and also to do any plumbing or drainage work which may be required by the Examiners.

**CANDIDATES HOLDING LICENSES FROM OTHER
AUTHORITIES.**

50. Candidates holding licenses issued by other authorities may be exempted from such portions of the examination as the Minister may think fit.

EXAMINATION—WATER SUPPLY PLUMBERS.

51. Subject to the provisions of these By-laws every applicant for a Water Supply Plumber's License shall pass an examination by a Board of Examiners appointed by the Minister in the following subjects, that is to say:—

- (a) A knowledge of that branch of the plumber's trade relating to water supply.
- (b) Water supply work, including the proper disposal of pipes, fittings, etc., for hot water installations.
- (c) A knowledge of these By-laws as applied to water supply plumbing.
- (d) The general principles of water supply plumbing work.
- (e) Every candidate shall satisfy the Board of Examiners as to his practical ability as a water supply plumber and may be required to submit samples of work done by himself, and also to do any water supply plumbing work which may be required by the Examiners.

**CANDIDATES HOLDING LICENSES FROM OTHER
AUTHORITIES.**

52. Candidates holding licenses issued by other authorities may be exempted from such portions of the examination as the Minister may think fit.

ANNUAL FEE FOR LICENSE.

53. A fee of ten shillings shall be payable for every Water Supply and Sanitary Plumber's License or Water Supply Plumber's License except when such license is granted after the 31st day of December in any year, in which case the fee shall be five shillings.

RENEWAL OF LICENSES.

54. Licenses issued by the Minister under these By-laws shall be current only from the 1st July to the 30th June in the next succeeding year, and water supply sanitary plumbers and water supply plumbers shall apply for a renewal and pay the necessary fee before the expiry of the year for which their existing license is current.

LIST OF LICENSED PLUMBERS SHALL BE PUBLISHED.

55. A list of licensed water supply and sanitary plumbers and water supply plumbers shall from time to time be published at the office of the Minister.

PENALTIES FOR BREACHES OF BY-LAWS BY PLUMBERS.

56. (a) Any licensed water supply and sanitary plumber or water supply plumber who shall refuse either by himself or by those employed by him to give any needful or proper information required by an officer of the Department shall be guilty of an offence and liable on conviction to a fine not exceeding Twenty pounds.

(b) Any licensed water supply and sanitary plumber or water supply plumber who commits a breach of any of these By-laws may be required by the Minister to show cause why his license should not be suspended or cancelled.

(c) Any water supply and sanitary plumber or water supply plumber whose license has been suspended shall not be relicensed as a licensed water supply and sanitary plumber or water supply plumber until the term of his suspension has expired, or the Minister has directed the reinstatement of his license.

NOTICES, APPLICATIONS, PERMITS, AND INSPECTION OF WORKS.

57. (1) Applications for permission to undertake work in connection with water supply, sewerage, or drainage or the extension or alteration or replacement thereof shall be made in writing on the prescribed form by the owner or occupier of any tenement. If approved by the Department a permit will be issued to the owner or occupier, and in the case of minor alterations and additions which in the opinion of the Engineer do not require a departmental plan to a licensed plumber nominated by the owner or occupier.

(2) Any person licensed as a water supply and sanitary plumber may perform any specified work in connection with water supply, sewerage or drainage work, for which a permit has been issued by the Department, in any area whether sewered or unsewered.

(3) Any person licensed as a water supply plumber may perform any specified work in connection with water supply work for which a permit has been issued in any unsewered area.

(4) No person shall perform any work as aforesaid unless a permit has been issued by the Department covering such work. Where the permit has been issued to the owner or occupier it must be sighted by the licensed plumber who shall give not less than 48 hours' notice to the Department of his intention to commence the work.

In no case shall any water pipes, drains, or apparatus in connection with water supply, sewerage or drainage be used until the said work shall have been inspected, and tested by the said officer, and certified by him on the prescribed form. No underground or enclosed work shall be covered up or concealed from view until the same shall have been duly inspected and passed by the Inspector, and for this purpose the licensed plumber shall immediately report any work which is ready for inspection or test, and every facility shall be accorded to such officer for making such inspection or test.

(5) Such permit shall be issued by the Department, subject to the following conditions:—

- (a) That a duly licensed water supply and sanitary plumber or water supply plumber, as the case may be, shall be employed to carry out the work for which the permit is issued.
- (b) That the application has been made at least seven days prior to the date such work is to commence.
- (c) That the information as required on the Department's application form has been supplied.
- (d) That the application has been signed by the owner or occupier and in the case of minor alterations or additions by the licensed plumber who is actually engaged to carry out the work referred to in the notice.

Any licensed plumber signing an application for work which is not actually done either by himself or by a person employed under his direct supervision shall be guilty of an offence and shall be liable to have his license suspended or cancelled.

- (e) That the fees as prescribed in these By-laws have been paid to the Department.
- (f) That only work described on the permit shall be executed.
- (g) That if any further work shall be required in addition to that covered by the original permit an additional permit shall be obtained.
- (h) Provided that in extreme cases where water is wasting, pipes are choked, or property is being damaged the work may be put in hand at once, but a permit shall be applied for by the licensed plumber who carried out the work as soon thereafter as possible.

(6) If any person shall execute work unless the proper notice has been given to and the permit obtained from the Department, the Department may in addition to exercising any other remedy, charge to and recover from such person an inspection fee in connection with such work.

PERSONS AUTHORISED TO CARRY OUT PLUMBING WORK UNDER THE DIRECTION OF A DULY LICENSED SANITARY PLUMBER.

58. No person shall be employed upon actual plumbing work in connection with sewerage installations unless he complies with the following conditions, where such are applicable:—

- (1) That he has passed the practical examination for Water Supply and Sanitary Plumbers (as defined in By-law 49) and possesses a certificate from the Department that he is authorised to execute work of a plumbing nature only.
- (2) That he has prior to 1st October, 1938, been employed under a licensed plumber and has satisfied the Board of Examiners as to his tradesmanship and knowledge of practical plumbing, and possesses a certificate to that effect.
- (3) That he is a duly registered licensed plumber's apprentice, or a trainee apprenticed under the Commonwealth Reconstruction Training Scheme to a licensed sanitary plumber.
- (4) That he is in possession of a provisional certificate from the Minister allowing him to work at the trade of sanitary plumbing and draining under the immediate supervision of a licensed sanitary plumber, but such provisional certificate shall not continue in force for longer than a period of 12 months.

By-law 58
amended by
G.G.
25/10/46,
p. 1315.

REGISTRATION OF CERTIFICATES OF PERSONS PROVIDED FOR IN BY-LAW 58.

59. A record shall be kept at the Department's Head Office of all persons registered under By-law 58.

DELAY IN WORK.

60. Licensed plumbers shall execute any work they undertake with reasonable despatch; and any inconvenience to the public or the Department caused by licensed water supply and sanitary plumbers or water supply plumbers by unnecessary delay in carrying out work shall be rigorously dealt with.

DAMAGE TO PIPES SHALL BE REPORTED.

61. Damage caused by licensed water supply and sanitary plumbers or water supply plumbers or their employees to water, sewer, gas, or other pipes shall be reported forthwith to the authority concerned, and immediate steps shall be taken to have repairs effected, and the cost of same shall be defrayed by such plumber.

DEPOSIT AND STATEMENT.

62. Prior to issue of the license, the person to whom the same is to be issued shall deposit with the Minister a sum of five pounds, which shall be retained during the currency of the licence as security for the proper performance of all work done by him, and shall sign a statement that he accepts such license subject to and in conformity with the conditions thereof and with these By-laws and that he will conform and comply therewith.

DEDUCTIONS FROM DEPOSIT.

63. The Minister may deduct from such deposit the expense incurred by the Department in making good any bad or incomplete work of the licensed water supply and sanitary plumber or water supply plumber or his workmen, and so often as any amount is so deducted the licensed water supply and sanitary plumber or water supply plumber shall make good the deposit to the sum of five pounds, and in default his license may be suspended or cancelled by the Minister.

CHANGE OF ADDRESS SHALL BE NOTIFIED.

64. Every licensed water supply and sanitary plumber or water supply plumber shall, within forty-eight hours of any change in his address, give notice in writing thereof to the Minister.

PART V.**WATER SUPPLY PLUMBING.****SPECIFICATION OF PIPES, FITTINGS, AND APPARATUS FOR PRIVATE SERVICES.**

65. In connection with the laying down, maintenance, alteration, or repair of every private service, the following conditions shall be observed by the owner or occupier of the premises:—

- (1) Except with the written consent of the Department only piping, fittings, and apparatus of approved quality or that conforming to the Australian Standard Specification and tested and stamped by the Department, shall be used for services whether outside or inside the building line.
- (2) All pipes and fittings shall be of lead, wrought or malleable iron, copper, brass, cast iron, cement asbestos, or other approved material provided that in any special case the Minister may give approval for the use of wooden pipes subject to such conditions as he may think fit. Where galvanised wrought iron pipes and fittings are used they shall be true in section, of uniform thickness, perfectly smooth on the inside and properly galvanised internally and externally.
- (3) A charge shall be made by the Department for testing and branding all pipes, fittings, and apparatus to be used in connection with water supply plumbing work.

- (4) Where lead pipes are used they shall be of drawn lead of equal thickness throughout, and of at least the respective weights following, viz.:—

Diam. in inches.	Lb. per yard.
$\frac{3}{8}$ inch	5
$\frac{1}{2}$ inch	6
$\frac{3}{4}$ inch	9
1 inch	12
$1\frac{1}{4}$ inches	16
$1\frac{1}{2}$ inches	20

- (5) Where wrought iron tubes are used they shall be butt welded or solid drawn of regular section with British standard thread and of the following weights:—

Diam. in inches.	Lb. per foot.
$\frac{1}{2}$ inch	.891
$\frac{3}{4}$ inch	1.262
1 inch	1.825
$1\frac{1}{4}$ inches	2.581
$1\frac{1}{2}$ inches	3.215
2 inches	4.093
$2\frac{1}{2}$ inches	5.705
3 inches	6.741
4 inches	8.820

- (6) Cast iron pipes shall conform to the Department's standard specification for cast iron pipes for water supply.

- (7) Cement asbestos pipes shall conform to the Department's specification for asbestos cement pipes.

Australian standard to apply where applicable.

- (8) Copper or brass pipes suitable for screwed connections:—

Nominal Bore Pipe.	Nominal Outside Diameter.	Actual Outside Diameter.	Wall.	Thick-ness.	Inside Dia-meter of Tube.	British Standard Pipe Thread.	Number of Threads per inch.	Wall Thick-ness at root of Thread.	Calcu-lated Weight.
in.	in.	in.	S.W.G.	in.	in.	in.		in.	lb. per lin. ft
$\frac{1}{4}$	$\frac{3}{8}$	.381	16	.064	.253	$\frac{1}{8}$	28	.042	.25
$\frac{1}{2}$	$\frac{5}{8}$	.515	14	.080	.355	$\frac{1}{4}$	19	.048	.42
$\frac{3}{4}$	$\frac{7}{8}$	.822	13	.092	.638	$\frac{3}{8}$	14	.048	.81
$1\frac{1}{4}$	$1\frac{1}{2}$	1.038	13	.092	.854	$\frac{1}{2}$	14	.048	1.05
1	$1\frac{1}{8}$	1.289	12	.104	1.081	1	11	.056	1.49
$1\frac{1}{2}$	$1\frac{3}{4}$	1.630	12	.104	1.422	$1\frac{1}{4}$	11	.056	1.92
$1\frac{3}{4}$	$2\frac{1}{8}$	1.862	12	.104	1.654	$1\frac{1}{2}$	11	.056	2.21
2	$2\frac{1}{4}$	2.335	11	.116	2.103	2	11	.064	3.12
$2\frac{1}{2}$	$2\frac{3}{4}$	2.948	11	.116	2.716	$2\frac{1}{2}$	11	.064	3.97
3	$3\frac{1}{4}$	3.456	10	.128	3.200	3	11	.072	5.15

- (9) Copper or brass pipes suitable for expanded compression couplings:—

Nominal Bore of Pipe, inches.	External Diameter, inches.	Wall Thickness S.W.G.	Calculated Weight, lb. per lin. ft.
—	$\frac{1}{4}$	19	.10
$\frac{1}{2}$	$\frac{5}{8}$	19	.22
$\frac{3}{4}$	$\frac{7}{8}$	18	.41
1	1	18	.55
$1\frac{1}{4}$	$1\frac{1}{4}$	16	.92
$1\frac{1}{2}$	$1\frac{1}{2}$	16	1.11
$1\frac{3}{4}$	$1\frac{3}{4}$	16	1.31
2	2	16	1.50
$2\frac{1}{2}$	$2\frac{1}{2}$	14	2.34
3	3	14	2.83
$3\frac{1}{2}$	$3\frac{1}{2}$	12	4.28
4	4	12	4.91

- (10) Tees, thimbles, bends, reducing couplings, plugs, etc., shall be of the best material and manufacture, true in section, regular, and of equal thickness, properly and truly cut with the British standard thread, perfectly sound and new, and free from all defects.

The tees, bends, tubes, etc., shall be capable of withstanding a hydrostatic pressure of 300 lbs. per square inch, shall be tested to this pressure by the duly authorised officer, and shall conform otherwise to the British standard specification existing at the time.

- (11) All joints between pipes, tees, bends, thimbles, couplings, elbows, and cocks, etc., shall be made with flax or other approved jointing material. All joints on lead pipes shall be of the kind known as "wiped joints," and all connections between lead and iron water pipes shall be made with brass couplings and wiped joints.
- (12) No pipe or other apparatus shall be laid through any sewer, drain, ashpit, cistern, or manure bin, or through, in, or into any place where, in the event of the pipe becoming unsound, the water conveyed through such pipe would be liable to be polluted or to escape without observation, unless such pipe or apparatus be laid through an exterior approved iron pipe or box of sufficient length and strength to afford due protection to the same and to bring any leakage or waste within easy detection.
- (13) All taps, stop-cocks, ball-cocks, valves, other fittings or apparatus used in connection with the supply of water shall be of approved types and capable of withstanding a pressure of 300 lbs. per square inch, and shall be tested and stamped by the duly authorised officer of the Minister before being fixed.
- (14) No valve or cock or apparatus of any description shall be permitted unless the construction of the same is such that a rise in pressure of not more than 10 lbs. per square inch shall occur when the valve, cock, or apparatus is closing.
- (15) Every cistern and tank shall be provided with an equilibrium ball valve and stop-cock, and the overflow pipe shall be laid and fixed in a suitable manner, so as to discharge in some conspicuous place open to inspection.
- (16) No service pipe on private property below the ground surface shall be laid at a less depth than 18 inches, unless otherwise approved by the Minister.
- (17) No part of any service shall communicate directly with any vessel (other than approved apparatus for heating water for domestic purposes), except with the written permission of the Minister.
- (18) No part of any service shall communicate directly with any steam boiler or other vessel used for generating steam, or with any other vessel, in such manner that noxious liquids or gases can return into the main or service pipes.
- (19) Every water closet, urinal, slop hopper or other fixtures as directed by the Minister shall be supplied from the service pertaining to the building through an approved waste-preventing apparatus. No service pipe shall communicate directly with the fixture, or otherwise than with the cistern.

- (20) Unless otherwise approved by the Minister, the outlet of every fixture, such as baths, lavatory basins, kitchen sinks, etc., shall be distinct from and unconnected with the inlet, and the inlet shall be placed at least one inch above the highest water level of such fixtures. The outlet of every fixture shall be provided with a perfectly water-tight plug, and shall be constructed so as to prevent a waste of water.
- (21) Projection pieces between a bib tap and fitting on the end of a horizontal water service pipe shall not be permitted unless so supported as to prevent the pipe and tap swinging downwards.
- (22) All taps over fixtures shall be so arranged that any drips from same will fall within the fixture.
- (23) Stand pipes not secured to buildings shall be securely fixed to an approved support fixed in the ground.
- (24) Pipes shall be secured to woodwork by means of approved galvanised clips and screws and to concrete, stone or brickwork with approved galvanised hooks or bolted clips.
- (25) Pipes shall be laid in a straight line and where change of direction occurs under ground bends shall be used.
- (26) In all cases where a water service pipe is attached to a cistern, lavatory basin, or any other plumbing fixture when directed by the responsible officer, the connection shall be made by means of an approved lead or annealed copper connection between the fixture and supply pipe, the length of which shall not be less than 15 inches over all.
- (27) Automatic siphons, etc.:—No person shall fix any water ejector, automatic siphon, or other water power pumping appliance to the Minister's supply without the permission in writing of the Department being first obtained. If approved, such apparatus shall be fixed only under such conditions as the Department shall notify in writing.

MAINTENANCE OF PRIVATE SERVICES.

66. (a) The owner or occupier for the time being of any property supplied with water shall at his own risk and expense lay down his private service and keep it in good order and repair, in such a manner as to conform with the provisions of these By-laws.

(b) The service pipe or apparatus within the boundary of the property being the property of the owner or occupier of the property supplied by such service pipes or apparatus the occupier (if any) and if none, the owner shall, upon receiving notice that his service pipe or apparatus requires repairing, or is blocked up or broken, immediately proceed to repair the same by employing a licensed plumber, subject to the provisions of these By-laws, and he shall be responsible for any loss of water or other damage which shall be caused by reason of such service pipe or apparatus being leaky or otherwise out of repair or broken, and, in default, be liable on conviction to a penalty not exceeding ten pounds, and, in the event of continuing the offence, to a further penalty of two pounds for each day after receipt of such notice, and the Minister may stop the water from flowing into such premises, either by cutting off the service pipe, or otherwise, as the Minister may see fit, until the necessary repairs shall have been effected.

(c) Without prejudice to the right of the Minister to proceed for any penalty for the breach or non-observance of any of the provisions of this By-law, the Minister may cut off the supply of water to any premises whereon the private service or any part thereof is not at all times laid, fixed, used or maintained in all respects in accordance with the provisions of the said By-law, and may keep the same cut off until such provisions have been fully observed.

INTERFERENCE WITHIN THREE FEET OF STOP-COCK.

67. Licensed plumbers or other persons shall not, under any circumstances, disconnect the joints from the meter. No branch shall be taken off the service pipe within a distance of three feet on the consumer's side of the Departmental stop-cock, or meter.

PART VI.

SEWERAGE—PLUMBING AND HOUSE CONNECTIONS.

PROCEDURE FOR CONNECTIONS TO SEWER.

68. When a sewer is completed and ready for use, action may be taken under sections 59 and 60 of the Act.

PROOF OF CONNECTIONS HAVING BEEN MADE.

69. The certificate of such officer as the Minister may appoint, in writing, shall be *prima facie* evidence that water-closet or water-closets, or drains, appliances, apparatus and connections have been provided, or the works, matters, and things have been performed, as the case may be, and *prima facie* evidence as to the amount of costs, expenses, and interest recoverable in respect thereof.

WORK CARRIED OUT UNDER SYSTEM OF DEFERRED PAYMENT.

70. If any owner wishes to avail himself of the provisions of the Act regarding deferred payments, and the Minister has approved of his doing so, he shall sign an agreement to pay the costs incurred by the Minister in relation to such work, in not more than twenty-four quarterly instalments, with interest at the prescribed rate per annum on the amount remaining to be paid added to each instalment. But the said owner may at any time pay to the Minister such portion as then remains unpaid of such costs and expenses, together with interest thereon, at the said rate, to the date of such payment. In the event of any of the instalments or interest not being paid within fourteen days after the due date thereof, the whole amount then unpaid shall, if the Minister so desires, become due, payable and recoverable with interest as prescribed by the said principal or any amending Act.

MAINTENANCE BY MINISTER.

71. In the event of the Minister carrying out the work or providing such water closet or water closets and such drains, appliances, apparatus, and connections, the owner or occupier is legally liable for the cost of repairs and maintenance, but the Minister shall, for a period of twelve months from the date of completion of the said work, and without charging the owner or occupier therefore, carry out any work of maintenance and repair which in the opinion of the Minister is necessary, and which is not, in the opinion of the Minister, occasioned by any neglect or wilful act of the owner or occupier.

FEES FOR PLANS OF DRAINAGE.

72. (1) A drainage plan may be obtained from the Minister by lodging at the office of the Under Secretary, Metropolitan Water Supply, Sewerage and Drainage Department, two copies of the plans and sections to conform with and include the detail required by by-law 74 of these by-laws.

By-law 72
substituted
by G.G.
30/6/59,
p. 1747.

(2) (a) A fee calculated in accordance with this sub-by-law is payable when the copies of the plans and sections are lodged.

(b) The fee to be paid in respect of a drainage plan for any house or building

(i) where it is proposed

to connect or re-connect in a new position, one
water closet,
urinal outlet,
slop hopper,
pan washer, or
trade waste outlet,

or

to alter any sewerage house connection drain if 20 feet or more of drain is involved in the alteration;

or

(ii) where it is proposed

to connect or re-connect in a new position, one
water closet,
urinal outlet,
slop hopper,
pan washer, or
trade waste outlet,

and

to alter any sewerage house connection drain if 20 feet or more of drain is involved in the alteration,

is £1 10s.

But where a drainage plan requires more than one of those fittings to be so connected or re-connected, an additional fee of 15s. is payable for each such fitting in excess of one and in that case no fee is payable in respect of a proposed alteration, if any, to any sewerage house connection drain.

(c) One copy of the plans and sections submitted shall be retained by the Minister.

(3) Copies of drainage plans obtained under the provisions of sub-by-law (1) of this by-law may be obtained on application to the Minister and payment of the fee of 10s. for each copy.

72A. A person may, upon application to the Under Secretary, Metropolitan Water Supply, Sewerage and Drainage Department, for a diagram of existing drains in any area the plans or records of which are in the custody of the Department and on payment of such sum as the Under Secretary requires, be supplied by the Under Secretary with a diagram of the existing drains in that area in accordance with those plans and records.

By-law
Regulation
72A added
by G.G.
30/6/59,
p. 1747.

PLAN TO REMAIN THE PROPERTY OF OWNER.

73. The plan supplied by the Minister shall be produced, whenever required during the progress of the work, to an Inspector or other officer of the Minister. Any special instruction which may be written on the plan shall be strictly adhered to.

NOTICE AND PLAN OF INTENDED NEW BUILDING OR ADDITIONS, ETC., TO EXISTING BUILDING.

74. Every person intending to erect a building, or rebuild, or to make any addition or alteration to any building adjacent to the Minister's sewers shall give to the Minister at least seven days' notice of such intention, and with such notice shall submit for approval plans and sections of such intended building, or additional

alterations, drawn to a scale of not less than one inch to every sixteen feet, showing the position of proposed fixture and approaches thereto. And provided that, when required by the Minister, enlarged details to such scale as instructed shall be supplied.

WORK INCIDENTAL TO SEWERAGE INSTALLATIONS.

75. Any work of a structural nature in connection with a new building and additions or alterations to existing building, which is not part of the actual plumbing and/or drainage installation but which is necessary in order to conform with these By-laws must be carried out by the owner. This provision applies to lighting, ventilation, approaches and floors to water closets, slop hoppers, urinals, baths and similar conveniences.

USE OF DRAINS.

76. The owner and/or the occupier of any sewered property shall discharge into the sewerage system all faecal matter, urine, household slops, and household liquid refuse from such property and such other polluted water from stables, washing areas, manure bins, basements, cellars, and roofed yards and, subject to these By-laws in regard thereto, such trade wastes as may be authorised under the hand of the Minister.

INFECTIOUS DISEASE.

77. Solid or liquid discharge from patients suffering from typhoid fever or any other infectious or contagious disease shall not be emptied into any sewer or drain from any hospital, institution, or other private or public building, unless such discharge has been thoroughly disinfected.

PROHIBITED DISCHARGES.

78. The deposition or discharge of any of the following substances into any drain or into any sewer shall be an offence against these By-laws, viz.:—

- (a) Any animal matter, other than as mentioned in By-law 76, fleshing, wool, hair, dead animal, grease, dust, ashes, rubbish, garbage, offal, vegetable and fruit or their parings, rags, oil, fat, mud, sand, gravel or like substance, or any other substance, which is, in the opinion of the Minister, liable to be injurious to any part of the sewerage system or to employees of the Department engaged in the operation or maintenance of the same.
- (b) Any petrol or other inflammable or explosive substance, whether solid, liquid, or gaseous.
- (c) Any rain, roof, surface, river, or flood waters, except by special permission in writing under the hand of the Minister.
- (d) The contents of any nightsoil cart, cesspool, or privy unless special permission in writing under the hand of the Minister is obtained.
- (e) Any trade waste or any substance which has an acid reaction to litmus paper.
- (f) Any trade waste which is above the temperature of 100 degrees Fahrenheit, or such lower temperature as may be prescribed by the Minister, having regard to the special circumstances of any particular case.
- (g) Any liquid which contains such percentage of common salt, or of any other mineral, salt, acid, or gas, as is, in the opinion of the Minister, injurious to, or liable to form compounds injurious to, any part of the sewerage system or to employees of the Department engaged in the operations or maintenance of the same.

TRADE WASTES.

CONDITIONS, ETC., OF DISCHARGE.

79. The discharge of trade wastes into any sewer shall be subject to the following terms, provisions, and conditions:—

- (a) Application for permission to discharge any trade wastes from any property into any sewer shall be made, in writing, to the Department and shall set out:—
- (i) the processes of manufacture from which trade wastes are discharged into the Minister's sewer;
 - (ii) the nature of the trade waste from every such process;
 - (iii) the estimated maximum rate of discharge of trade waste from every such process;
 - (iv) the hours of the day during which discharge of trade wastes from every such process will normally take place;
 - (v) the estimated maximum daily discharge of such trade wastes into the Minister's sewer.

Such applications shall be accompanied by detailed plans of the apparatus to be used for the treatment of the said trade waste and by such other information regarding the nature, quantity, rates, and times of discharge as may be required by the Minister.

- (b) No trade waste shall be discharged into the Minister's sewer unless and until a written permit has been granted under the hand of the Minister, and an agreement executed by the applicant containing a covenant to comply with the conditions of the said permit. Such permit shall be subject (inter alia) to the following conditions, namely:—

That if at any time in the opinion of the Minister—

- (i) the quantity, quality, or rate of the discharge of the said trade waste is not in compliance with the terms, provisions, and/or conditions of the said permit; or
- (ii) the occupier is not fully and faithfully performing and observing the terms, provisions, and conditions of the said permit and/or of this By-law or of any other By-law of the Department; or
- (iii) the treatment apparatus is not in efficient working order; or
- (iv) a breach of the said agreement has been made, the Department may serve a notice in writing upon the occupier of the said property by leaving the same thereon or posting it addressed to him at the said property, in which notice reference shall be made to such of the matters aforesaid in respect of which a breach has taken place or as to which the occupier is in default and/or concerning which there is any complaint by the Minister, and such notice shall call upon the said occupier to make good the same in all things to the satisfaction of the Minister, within a period to be stated therein, from the date of service thereof, in manner aforesaid, and the said notice shall also state that the Minister is at liberty to terminate and put an end to the said permit: And, further, that if the requirements of the

said notice have not been complied with on the expiration of the period mentioned therein the said permit shall automatically terminate and the same shall be and be deemed to be at an end, save and except as to the power of entry by the Department's officers as mentioned in the said permit without any further or other notice from the Department, and the Department by its officers may enter upon the said property, and at the cost and expense in all things of the occupier disconnect the apparatus used to discharge the trade waste into the Minister's sewers, and prevent and put an end to the further entry of trade waste to the sewers, and the occupier shall be entitled to no compensation whatever in connection therewith.

- (c) The Minister shall be the sole judge as to the quality, quantity, and rate of discharge of such trade waste and as to whether the same complies with the conditions of the said permit and of Part VI. of these By-laws, and his decision in regard thereto shall be final and conclusive.
- (d) Except by special permission of the Minister, in writing, the volume per hour of trade waste discharged from any property into a sewer of the Minister shall not in any case exceed:—
 - (i) a volume of 600 gallons per hour, if the trade waste is discharged into a 4-inch sewer of the Minister;
 - (ii) a volume of 1,500 gallons per hour, if the trade waste is discharged into a 6-inch sewer of the Minister;
 - (iii) a volume of 2,500 gallons per hour, if the trade waste is discharged into a 9-inch sewer of the Minister.
- (e) The maximum aggregate daily quantity of trade waste which may pass from any property into a sewer, the size and capacity of the drain for conveying such trade waste from the property to the sewer, and the hours during which such flow will be permitted, shall be determined by the Minister. The volume of trade waste discharged shall, if ordered by the Minister, be determined by meter or by some approved means of measurement.
- (f) All such trade wastes shall be passed through such settling, screening and/or neutralising chambers and/or such other apparatus as ordered or approved by the Minister to insure that the resulting effluent shall comply with the requirements of the said permit and of this By-law. All such apparatus or machinery shall be approved in type and general arrangement by the Minister, but the applicant shall determine the size, capacity and details of the treatment apparatus necessary to provide an effluent in compliance with the requirements of the said permit and this By-law.
- (g) The occupier shall notify the Department in writing of his desire to make any alteration which shall in any way affect—
 - (i) the nature of the waste from any process of manufacture;
 - (ii) the estimated maximum rate of discharge from any such process of manufacture;

- (iii) the hours of discharge of trade waste from any such process; and all alterations or additions to the treatment apparatus shall in all things comply with the requirements of the said permit and of this By-law, but in no case shall any such alteration be made without the approval in writing of the Minister.
- (h) The person to whom the said permit is granted shall notify the Department in writing of any change of ownership or occupancy of any trade property connected with the Minister's sewers, at least fourteen days prior to such change.
- (i) In no case shall the said permit be assigned or transferred, except by permission in writing under the hand of the Minister.
- (j) The owner or occupier of any property connected with the Minister's sewers shall, if and where directed, install to the Department's design an approved chamber for inspection, sampling, and measurement, and such chambers shall at all times be readily accessible to the Department's officers.
- (k) The Minister or any other authorised officer, servant, agent, or workman of the Department shall be at liberty at any time and from time to time to enter upon the property and every part thereof and take samples of the said trade waste for analysis and otherwise and also to inspect the said treatment apparatus.
- (l) Every settling, screening, or neutralising chamber, or other apparatus for the treatment of trade wastes in accordance with this By-law shall be cleansed and maintained by the occupier at his own expense and at such intervals as may be considered necessary by the Minister to ensure the efficient operation of such chamber or apparatus.
- (m) Notwithstanding the permission or approval of the Minister, the occupier of any property shall be solely liable for and in respect of:—
 - (i) any accident or damage, loss, or injury directly or indirectly arising out of or resulting from the discharge of the said trade waste from the said property into the Minister's sewer, and the occupier shall agree to hold harmless and keep indemnified the Department against all claims and demands for such damage, loss, or injury of any description made and/or suffered by the workmen of the Department or any other persons whomsoever; and
 - (ii) all damage, loss, or injury occasioned or done to the Minister's sewer or any property belonging to the Department or any Company, person, or persons whomsoever by reason of such discharge failing to comply with the terms, conditions, and provisions of the said permit and/or of the By-laws of the Department, and the occupier shall agree to pay the cost of making good any such damage, loss, or injury.
- (n) The Minister may from time to time without payment of any compensation thereof exclude from its sewers all trade waste from any property during the repairing, examination, or maintenance of the said sewers or the carrying out by the Department of any works in connection therewith.

- (o) Such other conditions as may be required by the Minister having regard to the special circumstances of the case.

CONNECTIONS PRIOR TO BY-LAW.

80. (1) In any case in which the Department has, before the date of the coming into operation of this by-law, granted to any person permission to discharge trade waste into any drain or into any sewer of the Minister, or in any case in which any person has, before the date of the coming into operation of this by-law, been discharging trade waste into any drain or into any sewer of the Minister without the express permission of the Department, if after the said date, such person continues so to discharge such trade waste, the Department, if it thinks fit and notwithstanding anything contained in clause 1 of this by-law may, by notice in writing, direct such person wholly to cease from discharging such trade waste as aforesaid.

(2) Every such notice shall specify a day, not less than eight weeks from the date thereof, as the day on and after which such person is directed to cease from discharging such trade waste.

(3) If such person fails to comply with such direction he shall be guilty of an offence against this by-law.

(4) The foregoing provisions of this by-law shall not operate to prevent the Department from granting further permission to such person pursuant to the provisions of By-law 79.

STEAM EXHAUST.

81. No steam exhaust, blow-off, or drip pipe shall be connected with any drain or any soil, waste, or combined waste pipe.

SUB-SOIL WATER.

82. (1) Upon written application the Minister may grant permission in writing to any person to discharge sub-soil water into any drain or into any sewer of the Minister.

(2) Every such permission shall be subject to such terms and conditions as may be imposed in such permit.

FITTINGS, ETC., TO BE ABOVE FLOOD LEVEL.

82A. (1) No inlets or openings shall be placed, or, if already placed, shall be permitted to remain placed in such positions that any extraneous water, due to rise of subsoil water level, or from any river, bay, gully or creek, or any other source, whether in flood or otherwise, may gain access to the Minister's sewers.

(2) Without in any way limiting the generality of paragraph (1) of this regulation in areas liable to be flooded or affected by rise of subsoil water level, no person shall place in position for use any fitting, fixture, or apparatus having an inlet or opening into any drain or into any sewer of the Minister unless the inlet or opening is above a level fixed by the Minister for the particular district or locality; such level providing a safe margin above the highest known subsoil water level or flood level.

INSPECTION—TESTS—MAINTENANCE.

83. **Inspection:**—All materials, pipes, bends, junctions, fittings, fixtures, and apparatus shall be inspected by the responsible officer of the Department to ensure compliance with the by-law and approved plans.

84. **Tests:**—The responsible officer of the Department shall require the application of the water or smoke test or such other tests as he may order or approve.

85. **Water Test:**—

(1) The water test shall be applied to the drainage and/or plumbing systems and their fittings in their entirety or in sections, and shall be applied by hermetically sealing all openings below the top of the section to be

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tested. The system shall then be filled with water to the highest point of the section, or, if considered necessary, to such additional height as the responsible officer may order, and every joint, fitting and pipe carefully examined for leaks.

- (2) In testing stoneware or concrete drains a loss allowance at the rate of two and a half per cent. per hour of the capacity of the drain under test and at five feet head shall be permitted.

86. Smoke Test:—The smoke test shall be applied by forcing into the system thick smoke to a pressure of one inch of water by means of a smoke test apparatus, closing all openings at which smoke appears and keep up the pressure for five minutes after last opening is closed. Every joint or pipe shall then be carefully examined for leaks.

87. Equipment:—The equipment, material, power and labour necessary for the inspection and tests shall be furnished by the licensed plumber.

88. Defective Work:—Any materials, pipes, bends, junctions, fittings, fixtures, and apparatus found to be defective shall be removed and replaced by sound ones, and all defective joints made tight and every part of the work shall be made to conform to the by-law and shall be subject to the approval of the Department or its responsible officer.

89. Maintenance by Licensed Plumber, etc.:—Every person holding a license from the Department, who shall execute any works in connection with sewerage, drainage and/or sanitary plumbing shall, when so directed by the Department, make good at his own expense, any defect found within twelve months of date of completion of any such work due, in the opinion of the Department, to faulty workmanship.

90. Maintenance by Occupier:—Every silt trap, grease trap, oil trap or neutraliser, and such other appliance as the Department may direct, shall be maintained by the owner or occupier at his own expense and shall be cleaned at such intervals as may be necessary to ensure that such trap or appliance operates in an efficient and hygienic manner.

MATERIALS AND WORKMANSHIP.

91. Materials:—All materials, pipes, bends, junctions, fittings, fixtures, and apparatus shall be of the best of their respective kinds, sound and free from defects, and shall be approved by the Department.

92. Testing:—

- (a) All materials, pipes, bends, junctions, fittings, fixtures, and apparatus shall be submitted for examination and/or test, and shall not be placed in position until passed and/or stamped by the Department. Such testing of materials shall be paid for by the person submitting same, whether passed or rejected, and shall be done at such time and place and at such rates as may, from time to time, be ordered or fixed by the Department.
- (b) Every application for such approval of any such fitting, fixture, or apparatus for use in connection with the Minister's Sewerage System shall be made in writing and shall be accompanied by a sample and/or, if ordered or approved, by approved drawings showing full details of the said fittings, fixture, or apparatus.
- (c) Every such fitting, fixture, or apparatus so approved shall, if it be a condition of such approval, be tested, stamped, marked, or authorised by the Department, in accordance with the conditions of the said approval.

(d) A charge, which may be varied from time to time shall be made by the Department for testing and/or branding all pipes, fittings, or fixtures used in connection with sewerage installations.

93. **Workmanship:**—All work shall be executed in a thorough and workmanlike manner to the satisfaction of the Department.

94. **Protection of Workmen, etc.**—Adequate precautions shall be adopted, by the person carrying out the work, to prevent injury to workmen, property, or the public, and the Department shall not be responsible for any injury arising from the inadequacy of such precautions.

95. **Concrete:**—Concrete, unless otherwise ordered, shall consist of one part Portland cement, two parts clean sharp sand and four parts hard metal, shingle or gravel not exceeding one and one-half inches gauge and shall be thoroughly mixed with clean water to such consistence as ordered or approved by the responsible officer of the Department.

96. **Cement Mortar:**—Cement mortar, unless otherwise ordered, shall consist of one part Portland cement, and two parts clean sharp sand properly mixed with an approved proportion of clean water.

97. **Use of Concrete:**—Concrete shall be used in any of the following cases:—

1. Gully basins as specified in By-laws 127 and 128.
2. Around the top of educt vent and induct vent pipe sockets.
3. Around interceptor trap covers and tops of disconnector or other shafts.
4. Under and around bends rising vertically off oblique branches, and under bases of all drainage traps.
5. Around drains where such drains are, in the opinion of the Inspector, liable to be affected by tree roots.
6. Drains under buildings as provided in By-law 121.
7. Around drains having insufficient cover as provided for in By-law 119.
8. Floors under plumbing fixtures, where specified.

98. **Cement Rendering:**—Wherever any concrete work is exposed the surface shall be rendered in cement mortar.

DRAINAGE—GENERAL.

99. **Separate or Combined Drains:**—

- (a) Every house shall be separately drained unless a combined drain is ordered or approved by the Department.
- (b) Owners desiring to have the drainage of their properties combined shall sign a request for a combined drain, and if approved by the Department they shall complete the prescribed agreement as required by the Department and comply with any other provision that the Department may require from time to time.

100. **Size of Drains:**—Every drain shall be of adequate size for the drainage of the property to be served in accordance with the requirements of By-law 159, with a minimum diameter of four (4) inches.

101. **Materials:**—All drain pipes, bends, junctions and fittings used shall be of glazed stoneware, concrete, cast iron or other approved material, provided that the responsible officer of the Department may prohibit the use of any of the materials aforesaid where the circumstances or conditions are considered unfavourable by him.

102. **Cast-Iron Pipes:**—Cast-iron drainage pipes (where laid underground) and their fittings shall comply with the standard approved by the Department for cast-iron water pipes and their fittings of similar diameters, or with such other standard as the Department may order or approve.

103. **Interceptor Traps:**—Where shown on plan supplied by the Department, an interceptor trap shall be fixed in the drain laid from any property to the sewer. Such trap shall be fixed as near as practicable to the boundary, and wherever practicable shall be within the boundaries of the property. If ordered, an approved inspection chamber shall be provided for the trap.

104. **Inspection Chambers.**—All drains shall wherever shown on plan, join in an inspection chamber at least three feet long by two feet wide, fitted with a closed cover. The portions of the drains crossing the floor of the inspection chamber shall be connected in a straight line or by curved junctions in the floor of the chamber.

105. **Inspection Openings.**—

- (a) Every line of drain shall be provided with an approved inspection opening at each junction not provided with an inspection chamber, at each change of direction, at each fitting, and in no case at greater than 60 feet intervals, and in paved areas a loose slab shall be provided vertically over the inspection opening.
- (b) The area of an inspection opening shall be not less than the area of the drain for a line of drain six feet long or under; or where the distance between inspection openings is six feet or under; but for lines over six feet, the opening shall be not less than 12 inches long by the diameter of pipes.

106. **Gratings.**—

- (a) Every inlet to a drain other than from a water closet shall be effectively protected by approved gratings of ample area.
- (b) The aggregate area of the apertures in any grating covering a ventilation opening shall not be less than the sectional area of the pipe or drain ventilated by such grating.
- (c) Every opening for ventilation shall at all times be kept by the occupier perfectly free from obstruction.

107. **Drain openings not in use.**—

- (a) The ends of all drains not immediately connected with the plumbing fixtures shall be securely closed with watertight imperishable materials.
- (b) If such drains be of stoneware or concrete, a stoneware, cast iron or other approved disc may be cemented in; if of wrought iron a plug may be screwed on the end; if of cast iron, a cast iron plug may be caulked in with lead.

108. **Inserting Junctions:**—

- (a) Where it becomes necessary to insert a junction in an existing line of drain, a suitable length of drain shall be removed, and the junction, with an inspection opening on either side dropped back into position, and the line tested in the usual manner.
- (b) Junctions in existing metal pipes shall not be made unless an approved closure pipe is used in each case.

BASEMENT AND CELLAR DRAINAGE.

FIXTURES.

109. (1) No sink, trap, water-closet, urinal, or other fixture or apparatus shall be laid or fitted in any cellar or basement or on any floor below ground level unless the following conditions are complied with:—

- (a) The consent, in writing, of the Department shall be first obtained, and shall be subject to revocation at any time as hereinafter provided.
 - (b) The owner shall submit such information as may be required by the Minister and shall undertake, in writing, on an approved form, to accept all liability for damage that may occur, and shall also give to the Department any indemnity in reference thereto that the Department may require.
 - (c) The ventilation of such cellar or basement shall be in accordance with By-laws 210 to 213 inclusive; and
 - (d) Such other conditions as may be required by the Minister, having regard to the special circumstances of the case.
- (2) If on any subsequent inspection—
- (a) the light or ventilation is found not to be in accordance with these By-laws; or
 - (b) the fixtures and their surroundings are not being kept, in the opinion of the Minister, in a sanitary condition; or
 - (c) the purpose for which such cellar, basement or floor below ground level is used is found to have been changed,

then the said consent may be revoked by the Minister, and upon and after the expiration of 14 days from the date of such revocation—if the defect has not been remedied—such closet, urinal, or other fixture shall be disconnected from the Minister's sewers.

110. **Risk of Back Flow:**—Where such cellar, basement, or floor below ground level is at such a level as may, in the opinion of the Minister, involve risk of back flow in the event of the sewer becoming overcharged, the sewage from all fixtures therein shall be raised by ejector, siphon, or other approved mechanical appliance to such height as ordered, and discharged into the sewer as and where directed.

111. **Seepage Drains:**—In no case shall seepage drains from cellars, basement, or any floor below ground level, be discharged into a sewer without the consent of the Department. Where such discharge is permitted, the seepage shall be raised by ejector, siphon or other approved mechanical appliance to such height as ordered and discharged into the sewer as and where directed.

POLLUTED AREAS.

CONNECTION.

112. The Minister may by notice in writing require any owner or occupier of any land to which section 58 of the Act applies to connect with the sewer of the Minister in accordance with these by-laws any stables, cowsheds, dairies, market-places, abattoirs, areas for washing vehicles, or other polluted areas upon such land.

CONDITIONS GOVERNING CONNECTION.

113. No such connection shall be made unless the following conditions have been complied with:—

- (a) The place to be connected, if of an area greater than 20 square yards, shall be so roofed as to prevent the entry of rainwater from it to the sewers, and in no case shall rainwater be permitted to discharge on to such place from adjoining surfaces.

- (b) The property to be connected shall be paved with approved bricks on edge or bluestone pitchers, both set in cement mortar, or with concrete or other approved materials, and graded to the satisfaction of the Inspector.
- (c) The drain from any such place shall be provided with an approved silt trap with a removable grating.

LAYING DRAINS, ETC.

PIPE TRENCHES.

114. (a) The trench for the drain from any property shall be so dug as to meet the Minister's sewer at the position provided, or to be provided, for the connection, in accordance with the drainage plan.

(b) The material from the trench shall be so placed as to cause the least possible obstruction and inconvenience to the public, and proper barriers and lights shall be maintained by the licensed plumber where necessary, to guard against accident during the progress of the work.

(c) In refilling the trench, selected filling shall first be deposited around and over the pipe to a depth of 12 inches and carefully consolidated, after which the remainder of the trench shall be filled in, in layers, and rammed or flooded as ordered or approved by the Inspector.

(d) No stone shall be used in refilling until earth or gravel has been placed over the pipe to a depth of 12 inches, or more if directed.

(e) On no account shall any water, sand, earth, or other prohibited discharge be allowed to enter the sewer during the progress of the work.

(f) On completion of refilling the surface shall be restored as nearly as possible to the same condition as it was before operations were commenced, unless the owner, in writing, otherwise requires.

POSITION AND LINE.

115. Every drain shall be laid and every fitting or apparatus connected therewith shall be fitted in the position shown on drainage plan or as directed by the Inspector. As far as possible, all drains shall be laid in straight lines; where changes of direction occur they shall be made:—

- (a) by oblique junction;
- (b) by suitably curved pipes, with inspection opening; or
- (c) by a suitably curved pipe with an inspection opening on each straight pipe next adjoining the curve; or
- (d) in inspection chambers.

116. **Oblique Junctions:**—Where any drain joins another drain or sewer the junction shall be made obliquely at any angle not greater than 45 degrees with the direction of flow of such drain or sewer.

117. **Connection to Sewer:**—The disc stopper at the point of connection to the sewer shall be carefully removed so as not to injure the socket or allow debris or other matter to get into the sewer.

118. **Gradients:**—(1) All drains shall be laid on an even grade and, except by permission of the Minister, or where shown on drainage plans, such gradient shall, in no case, be less than the following:—

4-inch diameter	....	....	....	....	1 in 40
6-inch diameter	....	....	....	....	1 in 60
9-inch diameter	....	....	....	....	1 in 90

(2) Where the grades of drains are steeper than 1 in 15, concrete Anchor blocks shall be placed at intervals of not more than 30 feet. The block shall have a minimum width of 12 inches along the pipe,

and of such thickness that there shall be three inches of concrete above and below the pipe and shall extend at least 9 inches into the virgin ground at each side of the trench.

(3) Where the drains are laid at a grade less than provided for in paragraph 1, approved provision shall be made for regular and efficient flushing where ordered by the Minister.

DEPTH OF DRAINS.

119. Drains of stoneware or concrete pipes, unless bedded on and encased in concrete of not less than four inches thickness over any part of the drain, shall be laid at a depth to the top of the socket of the pipe, of not less than the following:—

- (a) In public thoroughfares, rights-of-way, or other places subject to vehicular traffic, two feet.
- (b) In private property not subject to vehicular traffic, one foot.

No person, being the owner or occupier of any land through which any drain runs shall alter the surface over or in the vicinity of any drain so as to deprive it of the minimum depth of cover specified by the preceding paragraph, or to affect the stability of its foundation, unless he shall encase the drain as may be approved of by the Minister.

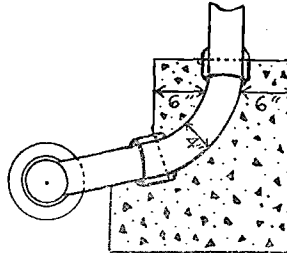
Notice, in writing, shall be given to the Minister before the work is proceeded with.

LAYING DRAINS.

120. (1) All pipes shall be laid to such lines and grades as may be shown on the approved plans or as may be directed by the Inspector, and except where otherwise ordered by the Inspector, holes shall be cut in the bottom of the pipe trench to receive the sockets of the pipes, and all the pipes shall be carefully bedded with the barrel on the solid ground.

(2) In the case of clay or rock bottomed trenches, or where directed by the Inspector, the pipes shall be bedded up to the horizontal diameter on sand or other approved material, so that there shall be at least three inches of the bedding material below the barrel of the pipe, at any point.

(3) Bends rising vertically shall be protected as shown in sketch.



(4) In water charged ground or where the foundation is bad the drain shall be formed of cast-iron, stoneware, or concrete pipes as directed by the Inspector, but in all cases such pipes shall be supported on pile and keel foundations, the keel to be six inches by two inches jarrah and the piles four inches by four inches jarrah at not more than three feet centre, and driven to a depth ordered by the Inspector.

(5) In cases where it is considered that the drains are likely to be damaged by fibrous roots, the pipes, if stoneware or concrete, shall be bedded on and encased in four inches of concrete over any part of the drain, but in vertical shafts concrete or stoneware pipes shall not be used if the height from the under side of bend exceeds four feet, and in such cases cast iron pipes shall be used.

121. Drains Under Buildings:—

- (1) Every drain shall be so constructed as not to pass under any building, except in any case where any other mode of construction is impracticable; and if in any case a

By-law 120
amended by
G.G.
15/11/40,
p. 2063.

Sub By-law
(2) amended
by G.G.
15/11/40,
p. 2063.

drain shall be so constructed as to pass under any building, such drain shall be laid in direct line for the whole distance beneath such building, and of such depth that there shall be a distance equal at least to a full diameter thereof between the top of such drain at its highest point and the surface of the ground under such building.

- (2) The drain pipe in any such case shall be of cast iron and joined with lead as is usual with water pipes as required for water supply purposes, or of stoneware or concrete bedded in and surrounded with concrete at least six inches thick. All drains carried through walls shall have a space of three inches left over the pipe.
- (3) Stoneware or concrete pipes brought up inside a building for the purpose of connecting a water closet, slop hopper, etc., shall be surrounded with four inches of concrete, but the height of such pipes to be brought up from the drain shall not exceed four feet, and if the height exceeds four feet cast iron pipes shall be used.

JOINTS—DRAINAGE.

122.—**Stoneware and Concrete Pipes:**—Joints of stoneware and concrete pipes shall be filled in solidly with cement mortar or with other approved material, neatly splayed off to an angle of 45 degrees. After each joint is made the interior of the joint shall be wiped clear of surplus mortar.

123. **Cast-Iron Pipes:**—All joints in cast-iron pipes must be stemmed with approved gaskets and so filled and caulked with lead or other approved materials so as to make them gas and water-tight. Joints between cast iron and stoneware or concrete pipes shall be made as for those between stoneware or concrete pipes.

124. **Trapping of Inlets:**—

- (1) Every inlet to any drain other than inlets provided for ventilation in accordance with the By-law, shall be provided with an approved trap.
- (2) No inlets to any drain connecting directly with a sewer shall be constructed within a building, other than such inlets necessary for the apparatus of any water closet, urinal, slop hopper, or other approved fixtures, unless in the case of the Combined Pipe System.

125. **Water Seal:**—Every drainage trap shall have a water seal of 2 inches in depth.

126. **Provision of Yard Gullies:**—

- (1) A yard gully shall be provided where practicable in the yard of every property, as near as practicable to the kitchen or back door, with a tap placed over it at a height of not less than two feet, unless other approved provision is made for taking household liquid wastes.
- (2) No yard gully shall be situated within a building or outbuilding or under any roof or covered way.
- (3) In cases where it is impracticable to instal a yard gully, a slop hopper or cleaner's sink shall be provided on each floor of the building.

127. **Details of Yard Gullies and Silt Trap Basins:**—

- (1) Yard gullies may be fitted with stoneware basin tops, spigot and faucet and grating, the basin top being in one piece with the trap jointed thereto and surrounded with concrete.
- (2) The basin top may be constructed in concrete, which shall surround the gully and extend from six inches below the surface to three inches above surface level.

- (3) The inside diameter of the basin top shall be 16 inches, the outside 24 inches diameter, and the depth from top of basin to grating shall be six inches.
- (4) The wastes shall discharge in all cases below the grating.

128. Kerbing to Yard Gullies, etc.:—

- (1) Stoneware yard gully basins and the tops of silt traps provided with stoneware basins shall be so surrounded with an approved impervious kerbing of concrete or other approved material as to prevent the access of surface water to the drains, and if directed, the wall at the rear of a gully or silt trap, if of brick or stone, shall be cement rendered to the height of the top over same, and, if of wood, the wall shall be provided with an approved galvanised sheet iron apron.
- (2) Rainwater pipes shall not be connected to or discharged into any gully or fixture connected with the Minister's sewers.
- (3) Gullies or pits for the disposal of road drainage, or for the disposal of storm water from any roof, yard or vacant land shall not be connected with any sewer or drain under the control of the Minister.

129. Sealed Disconnecter Traps:—When approved by the Chief Inspector, sealed disconnecter traps may be affixed inside or outside a building or outbuilding, but in such cases breather pipes or fresh air inlets equal in area to the waste pipe or pipes discharging into the trap shall be taken to such height as directed, and, where the trap is inside, shall be led to the outside of the building or outbuilding. The material for such breather pipes shall be the same as for vent pipes. Inspection openings to such traps shall be sealed with screwed plugs, or as otherwise approved by the Chief Inspector.

130. Provision of Grease, Petrol, and Oil Traps:—Wastes from the following fixtures and areas shall first discharge into an approved apparatus for retaining objectionable matter, that is to say:

- (a) Every fixture or area from which petrol, benzine, or other inflammable or explosive substance, or grease, oil or greasy or oily matter, is likely to be discharged or conveyed into waste, combined waste, or soil pipes or into drains;
- (b) Every sink in all food-packing houses, butchers' shops, lard rendering establishments, hotels, restaurants, boarding houses, and such other places as the Minister may direct; and
- (c) Such other fixtures, areas, or apparatus as the Minister may direct.

131. Construction of Grease Traps:—

- (1) Grease traps shall be fixed outside buildings or outbuildings wherever practicable.
- (2) External grease traps shall be constructed of glazed stoneware, brick in cement, or other approved material.
- (3) Internal grease traps shall be constructed of copper or other approved material, and, if directed, fixed upon a tray.
- (4) The outlet from any grease trap shall be connected to a disconnecter trap.

132. Grease Trap Ventilation:—Every internal grease trap, and all external grease traps which are within 20 feet of any door, window, or other opening into a building, shall have approved independent provision made for inlet and outlet ventilation as provided for waste pipes in By-law 147.

133. Size of Grease Trap:

- (1) The dimensions of grease trap to be provided shall be such as to ensure the retention of all grease entering such trap.

- (2) The minimum size for grease traps serving kitchen sinks and/or mechanical dishwashers shall be as follows:—
- (a) The capacity of the grease trap below the level of the invert of the outlet shall be not less than the total capacity of the sinks and/or dishwashers served, and in accordance with the Department's type drawings.
 - (b) The height from the top of the outlet of grease trap to the vent take off shall not be less than four inches.
 - (c) The difference in level between invert of inlet and invert of outlet shall be not less than one inch.
- (3) The capacity of a sink shall be measured to the overflow level, or, in the event of there being no overflow, to the top of the sink.
- (4) The capacity of a dishwasher shall be taken as the capacity of the sump or water container.

134. Outlet Pipes from Grease Traps:—

The outlet pipe from any grease trap shall be at least one size larger than the size of pipe which has a cross sectional area equivalent to the total area of incoming waste pipes and except by special permission no outlet pipe shall be less than $2\frac{1}{2}$ inches in diameter.

135. Construction of Petrol and Oil Traps:—

- (1) Petrol and oil traps shall be constructed in accordance with the Department's type drawings.
- (2) Every such trap shall be connected to a disconnecter trap and shall be provided with independent ventilation in accordance with the provisions of By-law 132 for grease trap ventilation.

136. Construction of Silt Traps:—Silt traps shall be constructed in accordance with the Department's type drawings.

VENTILATION.

137. Vents on Main House Drain:—

- (1) The main drain shall be ventilated at its upper end by a pipe ventilator erected vertically and such ventilator may be a soil or combined waste vent pipe.
- (2) If the drain is provided with an interceptor trap there shall be in addition a ventilator pipe connected to the interceptor trap shaft, and in such cases there shall, wherever practicable, be a difference in height of not less than six feet between the tops of the vents at the upper and lower end of the drain, respectively.
- (3) A ventilating pipe shall also be provided on the sewer side of the interceptor trap.

138. Vents on Branch Drains:—Branch drains need not be vented if the drainage traps are within fifteen feet from the main house drain measured along the line of pipes including the drop, if any, from the centre line of the main drain to the centre line of the outlet side of the water seal.

139. Size of Drainage Vents:—Drainage vent pipes shall be of not less than four inch diameter in the case of educt vents and not less than three inch diameter in the case of induct vents, with the provision that, where more than one educt vent is provided, the vent on the longest line of drain shall be of not less than four-inch diameter and all others not less than three-inch. Every such vent pipe shall be provided with approved educt or induct cowl.

140. **Materials, etc., for Drainage Vents:—**

- (1) Drainage vent pipes, situated wholly outside buildings or outbuildings, shall be of cast iron, galvanised wrought iron, galvanised sheet iron, or other approved material above ground, and of stoneware or other approved material beneath the surface of the ground.
- (2) Galvanised sheet iron vent pipes shall not be of less gauge than 20 for three-inch and four-inch diameter pipes and 18 for six-inch diameter pipes, but where, in the opinion of the Inspector, they are liable to injury, the first six feet above the ground shall be of cast iron or other approved material.
- (3) Drainage vent pipes, inside a building or outbuilding, shall, unless otherwise approved, be of cast iron of soil pipe strength, or of galvanised wrought iron, copper or brass as specified in By-law 65.
- (4) All galvanised sheet iron vent pipes shall be double galvanised, with longitudinal joints grooved, welded or riveted, and circumferential joints riveted and soldered.

141. **Vent Supports:—**

- (a) Unattached posts shall be of not less than four inches by four inches (4in. x 4in.), rough dressed jarrah, properly strutted with four-inch by two-inch (4in. x 2in.) struts and sole pieces.

The struts and sole pieces shall be bolted to post, and post shall be let into the ground to a depth of one quarter ($\frac{1}{4}$) its length.

The struts shall extend from sole pieces to one-third ($\frac{1}{3}$) of the length of the post above ground at an angle to post of twenty-five (25) degrees.

- (b) Vent post attached to buildings shall be of not less than four-inch by four-inch (4in. x 4in.) dressed jarrah, properly secured to top and bottom plates of building, with half-inch ($\frac{1}{2}$ in.) bolts of required length.

142. **Materials for Soil, Waste and Combined Waste Vents:—**

- (1) Vent pipes for soil, waste or combined waste pipes shall be cast iron, galvanised wrought iron, lead, solid drawn copper or brass, except that, where the vent pipe is entirely outside a building, grooved sheet copper or grooved welded, or riveted double galvanised sheet iron vent pipes may be used, but sheet copper or sheet galvanised iron vent pipes shall not be used at a level lower than 2 feet above the level of the highest fixture served thereby.
- (2) Lead vent pipes shall be of not less than seven pound lead for use with water closets, urinals, or slop sinks and of not less than six pound lead for use with other fixtures.
- (3) Solid drawn copper or brass vent pipes shall comply with the requirement of By-law 174 for waste, combined waste or soil pipes.
- (4) External vent pipes of sheet copper or galvanised sheet iron shall be of a gauge not less than the following:—

1½-inch, 2-inch, and 2½-inch diameter	22 gauge
3-inch and 4-inch diameter	20 gauge
6-inch diameter	18 gauge
- (5) Galvanised sheet iron vents shall be coated in the inside with approved bituminous coating and painted on the outside to colour required by owner.

143. **Vents in Outbuildings:—**Galvanised sheet iron vent pipes may be used inside external water closets, stables or open outbuildings but, where liable to damage, shall be protected as directed by Inspector.

144. **Soil Vent Pipes:**—In all cases the upward extension from the soil or combined waste pipe for ventilation shall pass in as direct a manner as possible above, and, if necessary, through the roof.

145. **Length of Unvented Waste Pipes:**—Except as provided in By-laws 163, 246, and 247, waste pipes need not be ventilated unless they exceed 10 feet in length, provided that:—

- (a) there is only one fixture attached to the waste pipe, and
- (b) the water seal of the trap is not reduced by siphonage or other cause.

146. **Anti-Siphonage Vents.**—

- (1) Loss of water seal in trap shall be prevented by proper ventilation in accordance with the requirements of By-law 160.
- (2) Such anti-siphonage vents from fixtures shall be carried up in accordance with By-law 147, or joined to the branch or main vent above the level of the fixture, unless special permission to the contrary is granted.
- (3) These vent pipes shall connect to the waste, combined waste or soil pipe on the opposite side of the water seal to the fixture at a point not more than 2 feet, from the crown of the trap, provided that the seal of the trap is not affected.
- (4) If the vent is connected in close proximity to the crown of the trap, it must be so arranged that no fouling shall occur by the discharge from the fixture.
- (5) No other fixture shall be connected to the soil, combined waste or waste pipe at any point between the anti-siphonage pipe and the trap which it serves.

147. **Height of Vents:**—

- (1) Every vent pipe extending upwards from a soil, drain or combined waste pipe shall be carried not less than 6 feet higher than any door, window, or other opening into a building, within a distance of 30 feet thereof, and except as otherwise provided in By-law 149, every educt vent shall be carried at least 18 feet above ground level and 6 feet above the level of the eaves or coping.
- (2) Every vent pipe extending upwards from a waste pipe shall be carried 4 feet above any door, window, or other opening into a building, within 20 feet thereof, and in any case at least two feet above the level of the eaves or coping.
- (3) Subject to the foregoing, any vent pipe which extends into a gable of a building shall be carried at least two feet above the point of intersection with the roof.
- (4) Where necessary, in the opinion of the Minister, vents shall be carried to such additional heights as may be required to effectually prevent the escape of foul air into any building within the vicinity.
- (5) Vent pipes shall, where necessary, be provided with sufficient clips or stays to support them effectively.

148. **Chimneys and Cavity Walls.**—No chimney or cavity walls shall be used as a ventilator to any drain, soil, combined waste or waste pipe.

149. **Vents near Chimneys:**—

- (1) Vents shall, as far as possible, be kept away from chimneys and ventilating air shafts.
- (2) Where a ventilator pipe terminates 10 feet or more from a chimney opening or ventilating air shaft, the requirement of By-law 147, shall apply, but where the distance is less than 10 feet the vent pipe shall, provided it is at least 18 feet long, terminate not less than 2 feet below or 6 feet above the top of such chimney or air shaft.

150. Vent Pipe Grades:—

- (1) All vertical line of vent pipe shall connect, full size, at their bases with a soil, waste, combined waste or drain pipe, and shall extend in undiminished size above the roof or be connected to the soil, waste, combined waste or vent stack, in compliance with the requirements of By-law 160 on a grade of not less than one in forty.
- (2) All offsets shall be at a grade of not less than 45 degrees to the horizontal.
- (3) Vent pipes shall not be used as waste or soil pipes.

151. Combining of Vents:—Vent pipes may be branched into a soil or waste pipe, above the level of the highest fixture; provided that in the case of the Separate Pipe System, soil vents are branched into soil pipes and waste vents into waste pipes only.

152. Galvanised Sheet Iron Vent Branches:—Where a junction is made to a galvanised iron, soil, or waste vent pipe the method of joining shall be by means of an approved welded joint, and in accordance with the Department's standard drawings.

153. Pipe Clips, etc.:—

- (1) There shall be at least one pipe hook or clip to each six feet length of vent pipe.
- (2) For cast iron or wrought iron pipe, approved coated wrought iron clips, and for copper, brass or galvanised sheet iron pipe, 1½-inch by 14-gauge band clips of the same material as the pipe, shall be provided or approved pipe hooks shall be provided.
- (3) Wherever it is necessary to fix pipes clear of the wall, approved extension clips shall be used.
- (4) Clips, in the case of cast iron pipes, shall be placed tight up against the bead or underside of the collar.

154. Attachment to Walls:—

- (1) Where a galvanised sheet iron pipe, with or without offset, is carried up above the brick wall of a building or outbuilding, it shall be secured by a galvanised wrought iron clip, leaded into the wall near the top, or by other approved means.
- (2) All band iron clips of vent pipes to brick walls shall be fastened with nuts and bolts, leaded in, or for cavity walls by means of T-headed bolts passed through the brick joints and turned at right angles to the joints, or by other approved means.

155. Supporting of Vents:—Wherever a vent pipe, with offset, exceeds nine feet in length above the offset, it shall be stayed, as directed, with ½-inch galvanised wrought iron piping, provided that an unsupported length of 15 feet, above the highest clip of straight vent pipe, without offset, shall be permitted.

156. Vents Adjoining High Buildings:—

- (1) In any case in which a building is erected next to an existing building of less elevation and any windows of the new building are located within 30 feet of any existing vent stack on the lower building, the owner of such new building shall defray the cost of such alterations to the vents of the previously existing building as necessary to conform with By-law 147.
- (2) The owner of the lower or existing building shall make such alterations upon the receipt of money, or security therefor sufficient for the purpose, from the owner of the new or higher building, or shall permit at the request of the owner of the new or higher building the making of such alteration by the owner of such new or higher building.

157. **Down and Relief Venting:—**

- (a) **Down Venting:—**In special cases, which must be approved, by the Chief Inspector, vent pipes may be installed on the "down venting" principle. That is, the vent pipe from the fixture trap may be taken below level of the fixture and under the floor to an external wall or into pipe duct and then carried up in accordance with the requirement of By-law 160. An approved fitting shall be provided at the lowest point of such vent for the purpose of draining off any water of condensation collected therein.
- (b) **Relief Venting:—**Relief vents on soil and waste pipes shall be provided where shown on plan and comply with By-law 160.

CAPACITIES OF SOIL, WASTE AND VENT PIPES.**FIXTURE UNITS.**

158. For the purpose of determining the size of any waste, soil or vent pipe, the following equivalent fixture units shall be adopted, unless otherwise directed:—

Fixture.	Nominal Outlet Diameter. inches.	Fixture Units.
One lavatory basin	1½	1
For each lavatory basin over 20 served by such pipe	—	½ for each basin
One kitchen sink (up to 6in. depth to overflow)	2	3
One bath (with or without overhead shower)	1½	4
	2	6
One wash trough set with common trap	2	5
One urinal or group of urinals draining to a common trap ...	2	3
One slop hopper	3	4
One shower compartment	2	3
One water closet	4	5
Groups of fixtures contained in one apartment—		
Bath and lavatory basin	—	6
Bath, lavatory basin and shower	—	6
Bath, lavatory basin, shower and water closet	—	6
Bidet	1½	1
Bedpan and bottle slop sink ...	3	4
Glass and teapot washers	1½	1
Foot baths	½	2
Dishwashers	2	6
Cleaner's and caretaker's sinks ...	2	3

For fixtures, other than those shown, the equivalent fixture units to be adopted shall be determined by the Minister.

159. Sizes of Soil, Waste, Combined Waste and Drain Pipes:—
The sizes of soil, waste, combined waste and drain pipes, computed in accordance with the method set out in Schedule "B" shall be not less than the sizes, determined on the basis of the total number of fixture units drained, or likely to be drained, in accordance with the following table:—

Diameter of Pipe.	Permissible Maximum number of Fixture Units.				
	Grade not less than—				Vertical Stacks.
	*Minimum Permissible Grade.	1 in 40.†	1 in 12.‡	1 in 4.§	
inches.					
1½	6	...	6	8	9
2	9	...	12	17	24
2½	14	...	20	28	36
3	20	...	30	40	50
4	100	100	150	210	260
6	420	490	820	1,150	1,400

* See By-law 177. † Corresponds to 88½° Fittings.

‡ Corresponds to 85° Fittings. § Corresponds to 75° Fittings.

Provided that—

- (a) waste, combined waste, soil and drain pipes shall not be diminished in the direction of flow;
- (b) the diameter of trap, waste, combined waste, or soil pipe receiving the discharge from any fixture shall in no case be less than the nominal outlet diameter of such fixture, nor shall any soil pipe be less than three inches in diameter;
- (c) not more than two closet pans shall discharge into any 3-inch graded soil pipe;
- (d) for the purpose of this section, offsets in vertical stacks may be treated as though vertical, provided the length of offset does not exceed five feet measured horizontally;
- (e) where 45-degree fittings are used throughout for connections to any stack the "permissible maximum number of fixture units for vertical stacks" in the table may be increased by 50 per cent;
- (f) no more than one-half of the total permissible number of fixture units for a vertical stack, in accordance with the table, shall be connected to such stack in any 8-foot length thereof;
- (g) soil, combined waste and waste pipes shall be as direct and free from bends as practicable; where bends are unavoidable, approved provision shall, if necessary, be made to safeguard fixtures connected immediately above or below such bends.

160. Sizes of Vents:—

- (1) **Length of Vent:—**For the purposes of this By-law, the length of any vent shall be defined as follows:—
 - (a) Length of main vent shall be the height of the building, in storeys, above the floor on which are situated the lowest fixtures served by such vent.
 - (b) Length of Branch Vent shall be the height of the building in storeys, above the floor on which are situated the lowest fixtures served by such vent, plus an additional storey for each 12 feet, or part of 12 feet, in the length of the branch vent, measured horizontally from the main vent to the fixtures in question.

(2) **Main and Branch Vents**:—The sizes of main and branch vents, computed in accordance with the method set out in Schedule B, shall not be less than the sizes determined from—

- (a) the size of soil, combined waste, and waste pipe or stack to be vented;
- (b) the total number of fixture units served by the main vent, or by that portion of the branch vent under consideration; and
- (c) the length of vent; in accordance with following table:—

Minimum permissible sizes of Main or Branch Vents (inches).

Diameter of Soil or Waste Pipe. (Inches)	Total No. of Fixture Units Served.	Total Length of Vent in Storeys:—										
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10 and over.	
1½	Up to—	8	1½	1½	1½	1½	1½					
		14	1½	1½	1½	1½	1½					
2	Up to—	12	1½	1½	1½	1½	2	2	2			
		18	1½	1½	1½	2	2	2	2			
		24	1½	1½	1½	2	2	2	2			
		36	1½	1½	1½	2	2	2	2			
2½	Up to—	6	1½	1½	1½	1½	2	2	2½	2½	2½	
		12	1½	1½	1½	1½	2	2	2½	2½	2½	
		24	1½	1½	1½	1½	2	2	2½	2½	2½	
		36	1½	1½	1½	2	2	2	2½	2½	2½	
		54	1½	1½	1½	2	2	2	2½	2½	2½	
3	Up to—	12	1½	1½	2	2	2	2	2	2½	2½	
		18	1½	2	2	2	2	2½	2½	2½	2½	
		24	2	2	2	2½	2½	2½	2½	2½	2½	
		30	2	2	2	2½	2½	2½	2½	2½	2½	
		42	2	2	2	2½	2½	2½	2½	2½	2½	
		60	2	2	2	2½	2½	2½	2½	2½	2½	
		75	2	2½	2½	2½	2½	2½	2½	2½	2½	
4	Up to—	12	2	2	2	2½	2½	2½	2½	2½	2½	
		24	2	2	2	2½	2½	2½	2½	2½	2½	
		36	2	2	2	2½	2½	2½	2½	2½	2½	
		48	2½	2½	2½	2½	2½	2½	2½	2½	2½	
		72	2½	2½	2½	2½	2½	2½	2½	2½	2½	
		120	2½	2½	2½	2½	2½	2½	2½	2½	2½	
		180	2½	2½	2½	2½	2½	2½	2½	2½	2½	
		300	2½	2½	2½	2½	2½	2½	2½	2½	2½	
		390	3	3	3	3	3	3	3	3	3	
		6	Up to—	600	4	4	4	4	5	5	5	5	5
1,300	4	5		5	5	5	5	5	6	6		
2,100	4	5		5	5	5	6	6	6	6		

Provided that:—

- (i) no vent shall be less than 1½ inches in diameter, and in no case shall a main or branch vent have a diameter less than one-half that of the soil, or waste pipe which it serves;
- (ii) for 2-inch and 2½-inch waste pipes the main or branch vent shall have a diameter of not less than 1½ inches;
- (iii) no branch vent need be larger in diameter than the soil, or waste pipes which it serves.

- (3) **Individual Anti-Siphonage Vents:**—The sizes of individual anti-siphonage vents shall be not less than the sizes determined from the diameter of the fixture trap served, in accordance with the following table:—

Diameter of Fixture Trap.	Minimum permissible size of Anti-Siphonage Vent.	Diameter of Fixture Trap.	Minimum permissible size of Anti-Siphonage Vent.
inches.	inches.	inches.	inches.
1½	1½	2½	2
2	1½	3	2
		4	2

PLUMBING—GENERAL.

161. **Waste Pipes:**—Separate waste pipes shall be provided for each of the following classes of polluted water, viz.:—

- (a) Dirty water from baths, sinks, lavatory basins, and wash troughs and other waters containing a small proportion of soap and/or dirt.
- (b) Greasy water from kitchen and scullery sinks or other fixtures, in such cases where grease traps are ordered or required.

162. **Soil Pipes:**—Except as provided in By-law 163, soil pipes shall be provided for soil water from closets and other waters containing faecal matter and for urinal waters from slop hoppers and urinals, and, where directed, for discharges from operating theatres and mortuaries.

163. **Combined Pipe System:**—The Minister may, if he thinks fit, approve of the adoption of the combined pipe system for plumbing installations, subject to the following conditions and such other conditions as he may think necessary in any particular case:—

- (a) An interceptor or boundary trap shall be provided in the house drain as per By-law 103.
- (b) All fixture traps shall be vented as per By-law 160.
- (c) In order to prevent fouling of traps as much as possible by the discharge from water closets, slop hoppers and urinals, in the event of a blockage in the combined waste pipe—the waste pipe from baths and shower compartments or other fixtures, as determined, shall be branched into the combined waste stack.

164. **Connections to Drain:**—

- (1) All waste pipes shall discharge under the grating of a yard gully or into a disconnector trap.
- (2) All soil pipes, including those for urinals and slop hoppers must be connected direct to the drain.

165. **Flashings, etc.:**—Unless otherwise directed all troughs, sinks and other plumbing fixtures which are placed less than three inches from any wall except those provided with wall skirtings of not less than three inches in height, as part of the fixture shall be flashed with 4lb. lead, 24-gauge copper, bronze, brass, nickel silver or monel metal or other approved material. All such flashings shall be turned up the walls at least three inches, properly secured and made watertight or cover flashed and made watertight except where the walls are tiled, when the flashing shall be carried up at least one-quarter inch behind the tiles.

Baths and other plumbing fixtures having turned up flanges for use against tiled walls in lieu of sheet metal flashing shall be rigidly and properly supported in approved manner to prevent settlement, and the flange shall lap at least one-quarter (¼) inch behind the tiles or other approved wall surface, which shall be brought hard down on the surface of the fixture.

166. **Internal Cocks:**—Cocks delivering water shall not be fixed internally unless a sink, lavatory basin or other approved fixture, or a properly drained impervious floor, is provided underneath.

167. **Sheet Metal Bends and Offsets:**—All sheet metal bends and offsets, for flush and vent pipes, shall be bent or pressed. Mitred elbows will not be permitted.

168. **Pipes through Roof:**—In all cases where a vent, waste, combined waste or soil pipe passes through any roof a suitable collar worked out of four-pound sheet lead shall be soldered or otherwise fixed to the pipe and also the roof in such a manner as shall make the roof perfectly watertight.

SOIL, COMBINED WASTE AND WASTE PIPES.

169. **General:**—All lines of soil, combined waste and waste pipes shall be as direct as possible.

170. **Materials:**—**Soil, Combined Waste and Waste Pipes:**—Except by permission of the Minister no material shall be used for soil pipes, other than cast-iron, seven-pound lead, brass, stoneware, concrete or ceramic ware, and for waste pipes, other than wrought iron, cast iron, six-pound lead, brass, copper, stoneware, concrete or ceramic ware.

171. **Wrought Iron Pipes:**—All wrought iron pipes shall be of approved standard weight and quality as set out in By-law 65, clause 5 and galvanised to the approval of the Minister.

172. Cast-Iron Pipes and Fittings:—

(1) All cast-iron pipes and fittings shall be in accordance with the Department's standard drawings and shall be sound, free from holes and cracks, and coated with approved bituminous composition or lined with glass enamel or other approved material.

(2) Cast-iron pipes and their fittings, where laid in the ground, shall comply with the standard approved by the Department for cast-iron water pipes and their fittings, of similar diameter, or with such other standard as the Department may order or approve. Cast-iron pipes for use in other situations shall have a minimum thickness of $\frac{1}{4}$ -inch, measured, in the case of lined pipes, without the lining, and their fittings shall correspond with them in weight and quality. All junctions shall be curved; right angled junctions shall not be made or permitted.

173. **Brass Fittings for Waste, Combined Waste, and Vent Pipes:**—Brass fittings shall be in accordance with the Australian standard specification, or to the Departmental standard drawings.

174. **Copper and Brass Pipes:**—Copper or brass pipes for soil, combined waste, and waste pipes shall be of seamless, solid drawn tube, connected in accordance with the provisions of By-law 191, and shall be of a diameter and thickness not less than those given in the table following:—

Nominal Internal Diameter	Minimum permissible Actual Internal Diameter	Minimum permissible Wall Thickness (S.W.G.)		British Standard Pipe Thread for Screwed Connections
		Screwed Connections	Brazed or Compression Joints	
Inches	Inches			Inches
$1\frac{1}{2}$	$1\frac{1}{16}$	12	16	$1\frac{1}{2}$
$1\frac{1}{2}$	$1\frac{3}{16}$	12	16	$1\frac{1}{2}$
2	$1\frac{1}{8}$	11	16	2
$2\frac{1}{2}$	$2\frac{1}{16}$	11	14	$2\frac{1}{2}$
3	$2\frac{3}{16}$	10	14	3
	$3\frac{1}{8}$	8	12	4

175. **Use of Lead Pipes:**—Lead pipes shall not be used where liable to be damaged.

176. Lead Pipes:—

- (1) Lead pipes shall be supported by tacks or lugs wiped on in pairs to the pipes.
- (2) Such tacks shall be not more than the following distance apart from centre to centre:—
- 4in. Vertical pipe 2ft. 6in. centres.
4in. Horizontal pipes 2ft. centres.
- (3) For pipe less than four inches diameter the distance between the centres of tacks or lugs shall be not more than three feet and two feet three inches respectively.
- (4) The dimensions of the tacks or lugs shall be as follows:—

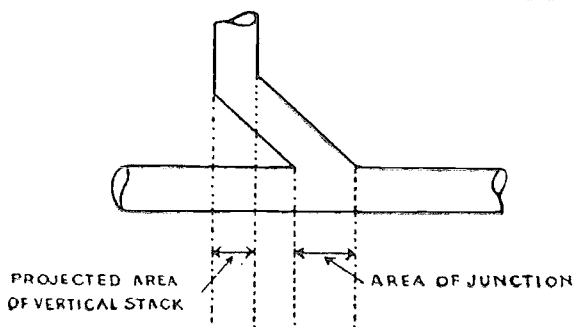
Diameter of Pipe.			
4 inches	....	8 inches	by $\frac{1}{4}$ -inch.
3 "	....	6 "	" " $\frac{3}{16}$ -inch.
2 "	....	4 "	" " $\frac{1}{8}$ -inch.
$1\frac{1}{2}$ "	....	3 "	" " $\frac{1}{8}$ -inch.

177. Minimum Permissible Gradients:—The following are the minimum gradients to be adopted for soil or waste pipes:—

Diameter of Pipe	Minimum Gradient	Diameter of Pipe	Minimum Gradient
Inches		Inches	
....	....	3	1 in 30
$1\frac{1}{2}$	1 in 15	4	1 in 40
2	1 in 20	6	1 in 60
$2\frac{1}{2}$	1 in 25	....	....

178. Junctions:—

- (1) Where a waste stack is branched into a graded waste, the branch fittings shall have an angle of not less than 45 degrees to the graded pipe and the length of the branch of the fitting shall be such that the vertical projection of the attached stack will be wholly outside the area of the junction with the graded pipe.



- (2) Where a soil stack is branched into a graded soil pipe or drain it shall enter same on the horizontal at an angle of 45 degrees.

179. Sealing of Pipes:—Wherever a fixture is abolished, the soil, combined waste, waste, vent and water supply pipes to such fixture shall be removed, or, if allowed by the Department to remain, the end of the pipes shall be sealed with a screwed plug. Cast iron pipe may have the end securely closed with a wiped joint; stoneware pipe may have a stoneware disc cemented in.

180. Pipe Clips, etc.:—There shall be at least one pipe hook or clip to each six feet length of soil, combined waste, or waste pipe, in accordance with the provisions of By-laws 153 and 154 for vent pipes.

181. Concealment of Pipes:—

- (1) All soil, combined waste, waste, and main vent pipes and traps shall be reasonably accessible at all times for inspection and convenience of repairing.
- (2) In hospitals and similar institutions, all soil, waste, combined waste and main vent pipes, where practicable, shall be fixed on the outside of external walls or in pipe ducts having a minimum width of two feet, and minimum area of nine square feet (measured clear of all pipes or other obstructions), and shall be so arranged as to facilitate inspection and maintenance at all times. Such pipe ducts shall be provided with access doors so placed as to permit ready inspection of every straight line of waste, combined waste, soil, or main vent pipe.
- (3) In buildings other than hospitals or similar institutions, if soil, waste, combined waste, or main vent pipes are concealed within pipe ducts or recesses in walls, such pipe duct or recess shall be provided with approved means of access, or, have at least one of its sides constructed of woodwork, brickwork in lime mortar, or other approved material, so constructed and fixed as to be capable of being removed independently of, and without damage to, any other part of the structure and provided with inspection opening so placed as to allow of ready inspection and cleaning of every straight line of soil, combined waste, waste or main vent pipe.
- (4) Branch and anti-siphonage vent pipes may be concealed in hollow walls, or may be built in lime mortar in wall chases, provided the pipes and fittings are made of brass or copper in accordance with the requirements of By-law 174 for soil, waste, and combined waste pipes.
- (5) All inspection or access openings to concealed pipes shall be finished throughout with smooth surfaces, and shall be of such size and shape as to permit the entrance of cleaning tools, as required, to the pipe.
- (6) For the purpose of this By-law a straight line of soil, combined waste, waste or main vent pipe shall be taken to include any offset or deviation from the straight line of not more than 45 degrees and not more than three feet in length.

182. Concealed Standing Wastes:—Concealed standing wastes shall not be permitted.

183. Painting:—Except by permission of the Inspector, no painting shall be done on any part of the plumbing installation until after the work has been inspected and approved by the Inspector.

184. Provision for Inspection and Cleaning:—Inspection and cleaning eyes shall be provided on all soil, combined waste and waste pipes in such positions as will provide access for proper inspection and cleaning of the entire length of the pipe.

185. Inspection Openings on Soil Pipes, etc.:—In all cases where the vertical stack of soil or combined waste pipe provided for closets six feet or more above ground level, measured from floor level of water closet to ground level at foot of stack, an inspection opening, eight inches in length and of sufficient width to take a four-inch testing plug and having a cover fixed to a flange with non-corrodible bolts or studs, shall be provided near the foot of the stack.

186. Washers for Inspection Openings:—Inspection opening to soil, combined waste and waste pipes shall be provided with insertion cloth, or other approved washers.

187. Joints—Plumbing:—

Stoneware, Concrete or Cast-Iron Pipes:—Joints of stoneware, concrete or cast-iron pipes shall be made in accordance with the requirements of By-laws 122 and 123 or by other approved methods.

188. Lead Pipe:—All joints in lead pipe shall be plumber's wiped joints.

189. Wrought Iron Pipe:—The screwed ends and sockets of wrought iron pipes shall be so formed, and the threads so cut, that the ends of the pipes shall butt against each other when screwed home in the sockets; bends, junctions, and similar fittings shall be similarly formed and screwed, so that when the pipe ends are screwed home, the bore will be continuously uniform and without breaks or pockets. The burr shall be neatly filed off on the inner edge of all pipe ends. All screwed joints shall be made with approved jointing material.

190. Wrought Iron Pipe to Lead Pipe:—All joints between wrought iron and lead pipes shall be made by means of brass unions screwed to iron and wiped to lead.

191. Brass or Copper Pipes:—Joints on brass or copper pipes shall be made by means of brazing to the satisfaction of the Minister or in accordance with the Australian standard specification for "Compression joints and copper alloy screwed fittings for standard copper tubes," or by other approved means.

192. Lead Pipe to Cast-Iron Pipe:—The connection of lead pipes or traps to cast-iron pipes shall be made by means of brass sleeves; the brass sleeve shall be lined with and connected to the lead pipe or trap by means of a wiped joint and connected to the cast-iron by inserting the sleeve in socket thereof and making the joint in the same way as in cast-iron pipe.

193. Sheet-Iron Pipe to Cast Iron Pipe:—All connections of gavanised sheet iron to cast-iron pipes shall be made with molten lead, lightly but tightly caulked into the cast-iron socket.

194. Sheet-Iron Pipe to Wrought-Iron Pipe:—Galvanised sheet-iron pipes shall be connected to wrought-iron pipes by means of brass unions or thimbles soldered to the sheet-iron and screwed to the wrought-iron.

195. Sheet-Iron Pipe to Lead Pipe:—Connections of sheet-iron pipes to lead pipes shall be made by means of brass thimbles wiped to the lead pipe and soldered to the sheet-iron pipe.

196. Welded Joints:—Welded joints may be permitted provided the method of welding and a sample of the work is submitted to the Minister for his approval.

197. Connection of Closet Pan or Slop Hopper Traps to Soil Pipe or Drain:—Connection of an external closet pan or slop hopper to a drain or soil pipe shall be made by means of a bituminous jointing material, consisting of a mixture of approved bitumen and finely graded inert mineral filler in equal proportions, filled in solidly into faucet of soil drain pipe and neatly splayed off at an angle of 45 degrees, or by other approved method. In the case of internal closet pan or slop hopper traps the joint shall be of metallic-ceramic type, but in approved position the closet pan or slop hopper trap may connect direct to the cast-iron and a cement joint used, similar to that for stoneware or concrete as provided in By-law 122.

198. Cistern Flush Pipe to Closet Pan:—

- (1) The flush pipe from cistern shall be connected to the water closet pan by an approved lead cap piece of not less than 4 lb. lead, packed with red lead or other approved material, or connection may be made by other approved method.

- (2) The cap piece shall be jointed to galvanised sheet-iron, copper, brass, or drawn steel pipe by means of a soldered joint and to lead flush pipe by wiped or soldered joint.
- (3) The connection of the flush pipe to cistern shall be by means of a brass union, wiped to lead pipe or soldered to sheet-iron pipe or by other approved method.
- (4) Copper or brass pipe shall be connected to cistern by means of a brass ring with nut, brazed to pipe or by other approved means.

199. Vent Pipe to External Closet Pan:—

- (1) Vent pipes shall be connected to the vent horn of the water closet trap by an approved lead cap piece with red lead packing or by other approved methods.
- (2) The cap piece shall be jointed to copper or brass pipe by means of a soldered joint and to lead pipe by a soldered or wiped joint.
- (3) In the case of an internal closet pan the joint shall be of the metallic-ceramic type or approved equivalent.

200. Outlet Fittings to Fixtures:—

- (1) Connections between outlet fittings and such fixtures as baths, sinks, basins, troughs, etc., when the latter are constructed of cast-iron, plate-iron, ceramic ware, or concrete shall be made with locknuts.
- (2) The outlet fitting shall in all cases be connected to the waste pipe by means of a union.
- (3) When approved fixtures are made of sheet metal lighter than 20-gauge soldered connections may be used in lieu of locknuts.

201. Waste Pipes to Troughs:—Connections of waste pipes to washtroughs shall be made as provided hereunder:—

- (a) Cement troughs, unless otherwise permitted, shall have approved outlet fittings cast-in during manufacture of trough.
- (b) Sheet metal troughs shall be connected to the waste pipe in compliance with the requirements of By-law 200.
- (c) For wooden troughs, lead, copper, or brass waste pipes shall be connected in compliance with By-law 200, or shall have flanges connected to the waste pipes in accordance with the provisions of the By-law, and fastened to the underside of the trough with copper tacks, and the waste pipe shall then be turned over inside the trough, and the plug casting bedded over it with red lead putty and screwed to the trough with brass wood-screws.
- (d) Where wrought iron or other screwed pipes are used, the plug shall be connected to the trough by means of a locknut in lieu of flange.

FIXTURE TRAPS.

202. Fixtures to be Trapped:—

- (1) Every fixture shall be effectively trapped unless otherwise permitted, in writing, by the Minister.
- (2) Separate traps shall be provided for each fixture, except lavatory basins or sinks which may be connected in pairs, provided that they are situated in detached outbuildings, open verandahs, in well ventilated sanitary blocks, and provided that the length of the waste pipe between the two fixtures shall not exceed three feet.

203. **Position of Traps:**—The traps in each case shall be placed, unless otherwise directed, as near the outlet of fittings as possible.

204. **Form of Trap:**—The "P" form of trap shall be used in preference to the "S" form where, in the opinion of the Inspector, it is equally suitable for the situation.

205. **Materials:**—Traps for fixtures, other than closet pans, slop hoppers or urinals, shall be of copper, brass or lead. All lead traps shall be of the weights specified in By-law 170 for lead pipes.

206. **Depth of Water Seal:**—Every trap shall have a water seal of two inches.

207. **Gratings:**—Non-corrodible outlet gratings, of approved design and material, shall be provided for all urinals and slop hoppers, and for all fixtures not discharging faecal matter.

WATER CLOSETS, SLOP HOPPERS, URINALS AND FLUSHING APPARATUS.

208. **Provision of Water Closets:**—

- (1) At least one water closet, approved by the Department shall be provided for each house, building, or land required by notice from the Department to be connected with the Minister's sewer, and for each flat as defined in Clause 2 of this By-law.
- (2) In every licensed victualler's property, restaurant, boarding house, lodging house, school, shop, factory, office, public building, or building used for public entertainment water closet and urinal accommodation shall be provided in accordance with the requirements of the Health Acts and/or Factories and Shops Acts of this State, or of any regulations made thereunder; provided that, in any property, other than a house or flat which is not provided for in any of the Acts aforesaid, separate water closet accommodation shall be provided for males and females, one water closet for each 10 or portion of 10 persons for whom water closet accommodation is required.
- (3) Water closets and urinals shall be so placed, either within or outside the building, as to ensure the due observance of decency and to be easily accessible to the occupiers of such building.
- (4) After the date fixed by notice from the Department to the owner of any house, building, or land, requiring him to connect the same with the Minister's sewer, or after such further time as shall be allowed by the Department for the purpose of such connection, no privy closet, other than a water closet approved by the Department shall be used in such house or building or upon such land.

209. **Airlocks for Water Closets:**—

- (a) Except as provided in clause (b) no water closet, within a building shall be entered directly from any room used for human habitation or for the manufacture, preparation or storage of food for human consumption, or used as a factory, workshop or work place. In cases where such closet would otherwise be directly entered an ante-chamber or airlock shall be provided for any such room, having a floor area of not less than 20 square feet and lighted and ventilated in accordance with the provisions of By-law 211. A hall, passage, lobby or staircase may be considered as an airlock, provided it has a floor area of not less than 20 square feet and complies with the requirements of By-law 211.

- (b) The airlock may be omitted when a water closet within any building is entered from a bedroom provided that By-law 210 is complied with in regard to lighting but the ventilation shall be so arranged that a current of air is in circulation through the water closet independently of the room from which it opens off and the door of the closet shall be fitted with an approved self-closing device.
- (c) No airlocks shall be required where ventilation in accordance with By-law 213 is provided to closets and/or urinals.

210. Lighting and Ventilation of Water Closets:—Except as provided in By-law 212, every water closet apartment within a building shall comply with the following conditions, viz.:—

- (a) One of its sides shall be an external wall of such building, abutting on to a street or lane, or an open space within the property having a width of not less than four feet and an area of not less than the following:—
- | | | | | |
|---|-------|------|------|---------------|
| For first storey above floor level of open space | ..... | .... | .... | 36 sq. feet. |
| For second storey above floor level of open space | ..... | .... | .... | 72 sq. feet. |
| For all other storeys above floor level of open space | ..... | .... | .... | 100 sq. feet. |
- (b) Each water closet shall be provided with a window in such external wall, having a clear light area of not less than 2 square feet per closet pan and capable of being opened.
- (c) Each water closet shall be provided with direct ventilation to the open air from a point near the ceiling level. Such ventilation shall be provided by a vent or vents, carried as direct to the open air as is practicable and boxed throughout, and having a minimum clear area at any point of not less than 24 square inches per closet pan.
- (d) Glazed louvres may be used in lieu of windows and ventilators, subject to their providing a clear light area of not less than two square feet per closet pan and a clear ventilation area of not less than 24 square inches per closet pan. The position of a louvre shall be as laid down in Clause (c).

211. Lighting and Ventilation of Airlocks:—

- (1) Each airlock shall be:—
- (a) provided with a window on an external wall, having a clear area of not less than 2 square feet for each 100 square feet, or part of 100 square feet, of floor area of airlock; or
 - (b) separately lighted by electricity and provided with a switch within the airlock.
- (2) Every airlock shall be provided with direct ventilation to the open air from a point near ceiling level. Such ventilation shall be provided by a vent, or vents, carried as direct to the open air as is practicable, and boxed throughout, and having a minimum clear area at any point of not less than 24 square inches for every 100 square feet or part of 100 square feet of floor area of airlock.

ALTERNATIVE METHODS OF LIGHTING AND VENTILATING.

212. Water Closets and Airlocks:—

(1) Subject to the approval in writing of the Minister first being obtained, water closets and airlocks in buildings, other than hospitals and similar institutions, may be ventilated by one of the following methods, instead of by the method set out in By-laws 210 and 211, viz.:—

- (a) (i) In buildings up to four storeys in height (measured from the floor of the lowest water closet to be so ventilated) the water closet apartments and airlocks may abut on to a ventilating shaft, open to the sky and carried to such height as may be necessary to prevent the deflection of wind currents down the shaft by neighbouring structures. No rooms, other than water closets, airlocks, bathrooms, urinals, and slop hopper apartments may open on to such shaft.

The area of such ventilating shafts, and the maximum number of water closets, urinals, or slop hoppers to be served by any one such shaft, shall be in accordance with the following table:—

Height of Ventilating Shaft in Storeys.	Minimum Area of Ventilating Shaft.	Maximum permissible number of Closet Pans or Urinals on any Vent Shaft.								
1 or 2	sq. ft. 16	4								
3 or 4	<table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: right;">sq. ft.</td> </tr> <tr> <td>1st and 2nd storeys</td> <td style="text-align: right;">16</td> </tr> <tr> <td>3rd storey</td> <td style="text-align: right;">20</td> </tr> <tr> <td>Top storey....</td> <td style="text-align: right;">24</td> </tr> </table>		sq. ft.	1st and 2nd storeys	16	3rd storey	20	Top storey....	24	10
	sq. ft.									
1st and 2nd storeys	16									
3rd storey	20									
Top storey....	24									

No dimension of such ventilating shaft shall be less than four feet.

- (ii) In buildings in which such ventilating shaft is three or four storeys in height, a ventilating duct, having a clear area of not less than two square feet, shall be carried from the bottom of the ventilating shaft to an external wall and shall be boxed throughout.
- (iii) Every water closet or airlock which abuts a ventilating shaft as aforementioned shall have a window, capable of being opened to such shaft, with an effective glass area at least equal to one-fifth of the floor area of the apartment with a minimum of four square feet, and in addition shall be provided with ventilating openings to the ventilating shaft having a total clear area at any point of not less than 50 square inches per closet pan.

- (iv) Where water closets are situated in a basement or cellar, in addition to the above-mentioned requirements, there shall be provided a ventilating duct, carried through the roof, and fitted with an approved cowl designed either to give a positive up draught or down draught in the duct, at the option of the owner. Such ventilating duct and cowl shall be capable of changing the air in each water closet or airlock served by it, at least six times per hour, when subject to a wind velocity of four miles per hour, the inside and outside temperatures being equal. Ventilating duct shall be 24 square inches for each closet pan served by the said duct.
- (b) The water closet may be ventilated by a mechanical system of exhaust ventilation in compliance with the requirements of By-law 213.
- (2) Every water closet permitted by the Department to be ventilated in accordance with this By-law shall be separately lighted by electricity and provided with a separate switch within the compartment.

213. Mechanical Ventilation of Water Closets:—

- (1) Every system of mechanical ventilation shall be approved by the Minister, and be capable of changing the air contents of the water closets served at least six times per hour.
- (2) In every such case, the ventilating fan, and the power unit operating same, shall be in duplicate, unless the main air shaft shall, in the opinion of the Minister be designed to act as an efficient natural vent in the event of the mechanical equipment failing.
- (3) Upon completion, the owner or his representative shall carry out such tests of the ventilating system as the Department may deem necessary.
- (4) Such mechanical system shall be operated continuously and maintained in good working order and condition, under the direction of a properly qualified person.
- (5) Any such mechanical system shall be open to inspection by the officers of the Department at all reasonable times, and shall be subject to such tests as the Department shall, from time to time, direct.
- (6) Subject to the requirements of By-law 181, air shafts may be used, also, as pipe shafts.
- (7) The failure, for a period longer than 48 hours, of any such ventilating system to operate efficiently, or to fulfil the requirements of this By-law, shall be an offence against these By-laws.

214. Floors, Walls, etc., for Water Closets and Slop Hoppers:—

- (1) In water closet or slop hopper apartments within a building, unless the floors are constructed of concrete of not less than four inches thickness, or of other approved impervious material, graded as directed, safes of lead, or of other approved impervious material, in accordance with the requirements of By-laws 256, 257 and 259 shall be provided.
- (2) In wooden water closets the bottom plates and plinths shall be of approved hardwood and the frame shall be securely fastened to the floor and made rigid, without attachment to fences.

- (3) The floor of every external water closet shall be constructed of concrete or other approved impervious material not less than four inches thick, and shall have a slope of one-half inch to each foot towards the door.
- (4) Closets for different sexes shall not adjoin each other, unless separated by a wall of brick, stone, or concrete of approved thickness, such wall may be the wall of one closet or common to both.
- (5) The door of every external closet or urinal shall be properly screened, at least six feet high, and reaching to the ground; and if required a screen shall be fixed to prevent the closet or urinal being visible from over-looking windows.
- (6) Any closet for the use of females shall have a separate entrance behind such screen, and such entrance shall not be within 12 feet, from the entrance of any closet intended for the use of males.

215. Fixing Closet Pan:—

- (1) On concrete floors, or floors of tiles set in concrete, the closet pan shall be securely fixed with brass screws to approved lead dowels set in the floor or by other approved means. Where pans are fixed on wooden floors such floors shall be covered with lead or approved composition.
- (2) The base of the pan shall be secured with brass screws to a raised block covered with lead or composition finishing $1\frac{1}{4}$ inches above floor level and the block shall not extend beyond the base of the pan.

216. Closet Pans:—Closet pans shall be of approved non-absorbent material and constructed in accordance with the Department's standard drawings and specifications or as otherwise approved under the hand of the Minister.

217. Closet Pan Seats:—

- (1) Where a seat is provided it shall be of approved construction and material, fitted with non-corrosive hinges and screws, and secured to pan in an approved manner.
- (2) Seats with holes of such size and shape as to cause fouling of pan shall not be used.

218. Flushing Apparatus:—

- (1) Approved apparatus shall be provided for the effective application of water to the closet pan, and for the efficient flushing and cleansing of the pan, and the removal therefrom of any solid or liquid matter which may, from time to time, be deposited therein.
- (2) Such apparatus shall have a flushing capacity of two gallons except as provided in clause (3) By-law 219 and shall be so constructed, fitted, and placed as to supply water for use in the pan without any direct connection from the pan to any water service pipe upon the property.

219. Flushing Cisterns:—

- (1) Flushing cisterns shall be fixed at such height as will effectually flush the pan, but, except by special permission no cistern shall be fixed at a less height measured from top of seat to bottom of cistern, than 5 feet where $1\frac{1}{4}$ -inch flush pipe is used or 4 feet when $1\frac{1}{2}$ -inch or a $1\frac{3}{8}$ -inch flush pipe is used.
- (2) There shall be a distance of at least 9 inches between top of cistern and ceiling of closet.

By-law 219
amended by
G.G. 22/3/46,
p. 295.

- (3) Low level flushing cisterns shall be permitted provided that the flush is not more than 2½ gallons, and the suite has been passed by the Department as a complete unit.
- (4) Bearers for cement flushing cisterns with storage capacity; with a span of over three feet six inches, four inch by three inch dressed jarrah shall be used; or with a span of three feet six inches or less, four inch by two inch may be used.
- (5) Cisterns fixed on iron brackets shall be provided with four inch by one inch dressed jarrah cleats with chamfered edges.
- (6) Cistern brackets shall be approved galvanised iron or black iron painted and secured to wall and cleats with quarter-inch bolts of required length.
- (7) Water supply pipes to cisterns shall be adequate to fill any cistern at the rate of not less than one gallon per minute when one other tap on the service is turned full on.

220. Flush Pipes:—

- (1) Flush pipes to closet pans shall be of brass, copper, six-lb. lead or drawn galvanised steel, of not less than 22 gauge, or other approved material, and shall have a minimum diameter of 1¼ inches.
- (2) When liable to injury by the closet pan seat, flush pipes shall be fitted with an approved buffer and buffer block.

221. Flushing Apparatus other than Cisterns:—Flush valves shall be of a type approved by the Minister and in each case shall be provided with a fullway stop cock fixed in such position as to be easily accessible.

222. Storage Tanks:—

- (1) Provision for the storage of water for flushing purposes shall be made in schools, hotels, hospitals, public institutions and other buildings when directed and whenever flushing valves are installed.
- (2) The storage tank shall have a capacity of not less than 10 gallons for each water closet, slop hopper or urinal stall and any other approved fixture required to be flushed, with a minimum of 50 gallons when directed by the Minister.
- (3) Where the capacity of a tank exceeds 50 gallons it shall be fitted with a fullway valve on the main feed to valves.
- (4) Flush valves installed in private residences and self-contained flats shall be provided with independent storage tanks.
- (5) In no case shall plumbing fixtures be served with water from a storage tank supplying a hot water system, unless the supply is taken off at a point in the cistern where it will not lessen the storage capacity required for the plumbing fixtures.
- (6) Unless otherwise approved by the Inspector, the storage tanks shall be placed on the roof over a flat or gutter, or in an accessible place between the ceiling and the roof, in which latter case a safe of galvanised iron, lead, or other approved impervious material, with at least a 1½ inch overflow, shall be fixed under the storage tank.
- (7) Every storage tank shall be provided with an approved cover.

- (8) The head of water measured vertically from the top water level of storage tank to the level of the point of discharge into a cistern shall be not less than ten feet, but the head in the case of discharge into a flush valve shall be such that the flush valve will operate to the test required by the Minister.
- (9) The water supply pipes from storage tanks to cisterns shall be not less than the following diameters:—
- | | | | |
|-----------------------|------|------|--------------------------------|
| For 1 or 2 cisterns | .... | .... | $\frac{3}{4}$ -inch diameter. |
| For 3 to 6 cisterns | .... | .... | 1-inch diameter. |
| For 7 to 25 cisterns | .... | .... | $1\frac{1}{2}$ -inch diameter. |
| For 26 to 50 cisterns | .... | .... | 2-inch diameter. |
- (10) Where more than 50 cisterns are supplied, or where more than 10 cisterns are subject to a head of less than 20 feet, measured vertically from the top water level of the storage tank to the level of the point of discharge into the cistern, the case shall be submitted to the Minister for decision.
- (11) Where the head of water supply from the storage tank to the flushing cistern is less than 20 feet, a low pressure ball valve shall be provided to the cistern.
- (12) The water supply pipes from storage tanks to flush valves shall not be less than the sizes determined from—
- (a) The available head measured vertically, in storeys, from the level of the first flush valve served by the portion of supply pipe under consideration to the normal water level of the storage tank; and
 - (b) the total number of flush valves served by that portion of the supply pipe under consideration; in accordance with the following table:—

Available Head in Storeys.	Diameter of portion of Supply Pipe under consideration.	Maximum permissible number of Flush Valves served by portion of Supply Pipe under Consideration.	
		Galvanised Wrought-iron Pipe.	Copper or Brass Pipe.
1	$1\frac{1}{2}$	1	2
	2	10	15
	$2\frac{1}{2}$	30	50
	3	100	150
2	$1\frac{1}{2}$	2	3
	2	15	30
	$2\frac{1}{2}$	50	150
	3	100	150
3	$1\frac{1}{2}$	2	4
	2	25	50
	$2\frac{1}{2}$	100	150
4 or more	$1\frac{1}{2}$	2	6
	2	40	100
	$2\frac{1}{2}$	100	150

- (13) Where the flush valves to be supplied exceed the maximum number above stated, or where more than 20 flush valves are subject to an available head of less than 20 feet, the case shall be submitted to the Minister for special investigation. The overflow from a storage tank shall be not less than $1\frac{1}{2}$ inches in diameter.

223. Venting Closet Pans, Slop Hoppers, and Urinals:—

- (1) Unless otherwise directed or permitted, every closet pan, slop hopper, or urinal which is not connected directly to a drain, shall discharge into a soil ventilator pipe or combined waste ventilation pipe except in the case where there are no other fixtures connected to the soil pipe or combined waste pipe in which case discharge will be permitted into a soil pipe or combined waste pipe without extension as a ventilator pipe, provided the fixture is ventilated by an anti-siphonage vent in accordance with the requirement of By-laws 146 and 160.
- (2) Except as hereinafter provided every internal closet pan, slop hopper or urinal and every external closet pan, slop hopper, or urinal, the outlet of which is over 10 feet from vented drain, or if siphonage occurs, shall be ventilated by an anti-siphonage vent in accordance with By-laws 146 and 160: Provided that the installation of an anti-siphonage vent shall be optional if—
 - (a) The outlet of fixture is within 2 feet 6 inches of soil vent pipe or combined waste pipe.
 - (b) No closet pan, slop hopper, bath, wash-troughs or group of other fixtures of total discharge rate exceeding eight fixture units is connected to such soil pipe or combined waste stack at a higher level; and
 - (c) No siphonage occurs.

224. Grouped External Closets:—Where there are two or more external water closet pans grouped and connected directly to a drain, the drain shall be separately ventilated for every group of not more than three pans with vents in accordance with the requirements of By-law 160, for branch vents, or each closet pan may be ventilated by means of an anti-siphonage vent in accordance with the requirements of By-laws 146 and 160.

225. Urinals—General:—Every restaurant, boarding house, lodging house, school, shop, factory, office, public building, or building used for public entertainment and any premises licensed under the Licensing Act, 1911, shall be provided with urinal accommodation in accordance with the requirements of the Health Acts and/or Factories and Shops Acts of this State and of any regulation made thereunder.

226. Internal Urinals:—The position, approaches, arrangement of lighting, ventilation, etc., for internal urinals shall comply as nearly as possible with the provisions as to internal water closets, but the ventilation shall be such that at least 50 square inches clear opening for each stall shall be provided.

227. Details of Construction, etc.:—

- (1) Unless otherwise approved by the Minister only round-backed stall type urinals of approved design, and constructed of approved impervious materials, shall be used.
- (2) The soil pipe shall be of lead, pottedy-ware, or glass enamelled or coated cast-iron, or other approved material, and shall be kept as short and free from bends as practicable.

228. Treatment of Floors:—The floor in front of a urinal shall be covered with approved impervious material for a width of not less than 1 foot 6 inches, and graded to drain to urinal.

229. **Impervious Material for Internal Urinals:**—For the purposes of this division the following materials shall be deemed impervious:—

- (a) For urinals:—Glazed fire clay or salt glazed stoneware.
- (b) For floors in front of urinals:—Cement mortar composed of equal parts of cement and sand, glazed tiles set in cement mortar, marble, and slate.

230. **Hose Taps for Urinals:**—Every public urinal shall be provided with a tap suitable for hosing of floors.

231. **External Urinal:**—

- (1) External urinals shall be constructed in an approved position of approved slabs of slate or other impervious material and channels.
- (2) The slabs shall be fixed against a brick or concrete wall in an approved manner, and shall be at a height of at least four feet from the floor.
- (3) All fastenings shall be of brass, and channels shall be of stoneware six inches wide, of semicircular section and graded with an even fall to outlet of half an inch to the foot.
- (4) An outlet shall be provided for each 10 feet of channel or part thereof.
- (5) The floor in front of every urinal shall consist of approved impervious materials for a width of one foot six inches as provided in By-law 228 and shall be graded towards the channel with a fall of one inch to the foot.

232. **Flushing Apparatus:**—Flushing cisterns fitted with a chain or other approved apparatus operated by hand, shall be fixed on all urinals unless automatic flushing cisterns are permitted or directed by the Department.

233. **Flushing Cisterns:**—

- (1) The discharge from a urinal flushing apparatus shall be not less than one gallon for each urinal stall, or for every two feet width of slab back urinal.
- (2) The height of a cistern shall, unless otherwise permitted, be at least six feet six inches from the floor to the bottom of the cistern.
- (3) The cistern shall be so fixed that the ball cock is accessible.
- (4) A separate stop-tap shall be provided for each urinal cistern.

234. **Flush Pipes:**—

- (1) Flush pipes for urinals shall be constructed of copper or brass of the following diameters:—
 - For 1 gallon cistern $\frac{3}{4}$ inch internal diameter.
 - For 2 gallons cistern 1 inch internal diameter.
 - For 3 gallons cistern $1\frac{1}{4}$ inch internal diameter.
- (2) Where permission is given to instal cisterns of greater capacity the size of the flush pipe shall be fixed by the Minister.
- (3) (a) If the discharge pipe from the cistern used is $\frac{3}{4}$ inch in diameter, one spreader only shall be permitted.
 (b) If the pipe used is 1-inch in diameter, two spreaders shall be permitted.
 (c) If the pipe used is $1\frac{1}{4}$ inches in diameter, three spreaders shall be permitted.

- (4) Saddle or bridge pieces shall be of approved diameter where same are necessary, and flush pipe clips, bolts, and screws used in fixing flush pipes and cisterns shall be of brass or copper.
- (5) Where wall urinals are permitted the distance between spreaders shall not exceed two feet unless approved by the Chief Inspector.

235. Flush Valves for Urinals:—

- (1) Every urinal flush valve shall be supplied from a storage tank which shall comply with the requirements of By-law 222.
- (2) Urinal flush valves may be supplied from a storage tank serving water closets, or to the supply pipes therefrom, provided that the above storage capacity shall be provided in addition to that required for the water closets.
- (3) A full-way stop-cock shall be provided for each flush valve in such a position as to be easily accessible.

236. Slop Hoppers:—Slop hoppers shall be made in one piece of approved impervious material and provided with approved flushing apparatus of two-gallon capacity similar to that set out for Water Closets in By-laws 218 to 222 inclusive.

237. Ventilation, Light, etc.:—The position, approaches, arrangement of light, and ventilation for slop hopper appointments shall comply, as nearly as practicable, with the requirements for water closets as set out in By-law 209 to 213 inclusive.

238. Bib-Cock over Slop Hopper:—A bib-cock shall be fixed directly over a slop hopper and at least 18 inches above such hopper.

239. Wash Troughs:—Wash troughs shall be of approved pattern and material, securely fixed, and graded to an outlet fitted with brass strainer sunk to the level of the bottom of the trough.

240. Troughs abutting against Brick Wash-coppers:—Wherever the end of a washtrough abuts against the brickwork of a wash-copper, the space between the end of the trough and the brickwork shall be bridged with approved waterproof material and made watertight.

241. Troughs in Buildings with Wooden Floors:—

- (1) Where the distance to ground level from troughs installed in buildings with wooden floors is less than one foot, the stand or concrete pedestals shall be fixed on a concrete or brick base built up from below ground to floor level.
- (2) Wooden stands shall be constructed out of not less than four inches by four inches jarrah for legs and four inches by two inches rails, bolted together in approved manner.
- (3) A water tap shall be fixed over each trough unless otherwise ordered by the responsible officer.

SINKS, BATHS, LAVATORY BASINS AND SHOWER COMPARTMENTS.

242. Fixing Sinks:—

- (1) All sinks and approved combined sinks and draining boards shall be effectively supported and traps and waste pipes shall be left readily accessible for inspection and cleaning.

- (2) Wooden draining boards attached to sinks shall be constructed of suitable timber not less than one and one-quarter inches thick properly fluted and graded into the sink.
- (3) The board shall be bedded on top of the sink with white lead putty and shall not be stopped after fixing or shall be made of approved composition constructed on similar lines to that of wood and fixed in a similar manner.

243. Galvanised Sheet Iron Baths:—Galvanised sheet iron baths shall not be enclosed and the bottom of each bath shall be effectively supported on legs.

244. Shower Compartments:—

- (1) The floors of shower compartments shall be graded to an approved two-inch diameter trapped outlet, and shall be constructed of not less than four inches of concrete, trowelled smooth or covered with tiles set in cement mortar, or of other approved impervious materials, or, if constructed of timber, shall be covered with enamelled cast iron, approved non-corrosive sheet metal, or other approved material, turned up at the edges and flashed in accordance with the requirements of By-law 165.
- (2) The level of the grating on the outlet shall be at least two inches below the level of the floor outside and adjoining the shower compartment, or where a kerb is provided, two inches below the level of the kerb.
- (3) The walls of shower compartments shall be finished with cement mortar rendered to a smooth surface, or covered with tiles set in cement mortar, or shall be lined with approved non-corrosive sheet metal, or other approved impervious material.

245. Showers over Baths:—Showers shall not be fixed over baths unless bath or bathrooms comply with the following conditions:—

- (a) Walls within a radius of three feet from shower to be of an impervious nature.
- (b) Approved impervious floor graded to an outlet provided with approved flap valve.
- (c) A clear space of not less than six inches shall be left around bath if not flashed in accordance with By-law 165; or
- (d) Where bath is provided with an approved shower shield attachment, paragraphs (a), (b) and (c) hereof shall not apply.

246. Venting of Lavatory Basins:—All lavatory basin wastes shall be provided with anti-siphonage vents.

247. Venting of Kitchen Sinks discharging into Grease Traps:—All kitchen sinks discharging into grease traps shall be vented irrespective of the length of waste.

248. Lavatory Basins and Sinks:—

- (1) All basins and sinks shall be of approved type and if provided with an overflow they shall be of the weir pattern.
- (2) Tip-up lavatory basins shall not be permitted unless by special permission of the Minister.
- (3) Basin brackets shall be bolted to wall in approved manner.
- (4) Unless otherwise requested in writing to the Minister pillar taps shall be provided attached to basins.
- (5) Traps, other than lead traps connected direct to a porcelain basin without an expansion joint shall be fixed at owner's risk.

**BED PANS, BOTTLE SLOP SINKS, BIDETS,
DENTAL UNITS, GLASS WASHERS, TEAPOT
WASHERS AND FOOT BATHS.**

249. Bed pans, bottle slop sinks, bidets, dental units, glass washers, teapot washers, foot baths and other fixtures of a similar type shall be submitted for approval before fixing.

250. Bed Pan and Bottle Slop Sinks:—

- (1) Shall be provided with approved flushing apparatus and shall be connected and vented to a soil pipe or drain in a similar manner as for connection of a water closet.
- (2) The lighting, ventilation and approaches of such sinks shall also conform to the requirements specified for internal water closets, as provided in By-law 209 to 213 inclusive.
- (3) The water supply to jets shall not be connected direct from the Minister's supply, but from a storage tank fixed at approved height.
- (4) The service pipe to the jets shall be provided with a spring valve. Where a steam jet is used in such fixtures for sterilising purposes an approved vent pipe shall be taken off the fixture.

251. Bidets:—

- (1) Bidets shall be provided with not less than 1½ inch waste pipe, trapped and vented in a similar manner to lavatory basin.
- (2) The waste supply shall conform to the requirements as specified for bed pan and slop hoppers.

252. Dental Units:—

- (1) Dental units shall be provided with 1½-inch waste pipe, trapped and vented.
- (2) The trap may be placed at floor level provided that the waste pipe between the trap and the fixture is one inch diameter copper or brass and free from bends.
- (3) The water supply to the fixture shall be provided with a stop-cock and check valve which shall be fixed as near to the fixture as possible.
- (4) The water supply pipe serving the dental unit shall not pass through the waste recesses of the unit.

253. Glass and Tea Pot Washers:—

- (1) The waste water from glass and tea pot washers shall discharge into an approved 24-gauge copper or brass funnel which shall be trapped and vented in a similar manner as for baths and troughs.
- (2) The waste pipe attached to the fixture shall terminate one inch above the top of the funnel.
- (3) An independent stop cock shall be provided for each fixture.

254. **Foot Baths:—**Approved foot baths shall be provided with not less than 1½-inch waste pipe trapped and vented, similarly to wash troughs and baths and the dimensions of such baths shall be approved by the Minister.

SAFES AND OVERFLOWS.

255. **Safes—where required:**—Unless the floor is constructed of concrete of not less than 4 inches thickness or of other approved impervious material, graded as directed, safes of lead or other approved impervious material shall be fitted under slop hoppers and water closets, and under baths and wash troughs, where in the opinion of the Minister, there is a likelihood of damage being caused by the bath or troughs overflowing.

256. **Lead Safes under Fixtures:**—

- (1) All lead safes shall be laid with sheet lead weighing not less than 5 lb. per square foot and where the whole floor is not covered with lead, the safe shall extend, in the case of pans and slop sinks, 12 inches beyond the sides and 15 inches beyond the front of the fixture, but in the case of baths and wash troughs the safe shall extend 12 inches beyond the end and two feet beyond the front of the fixture.
- (2) The lead safe shall in all cases extend back to and three inches up the wall, and the roll of safes shall be two and a half inches wide and one inch high, and constructed as directed.
- (3) The safe shall discharge in some conspicuous place.
- (4) This By-law shall not apply to any water closet situated on the ground floor of any house or building, and where in the opinion of the Inspector there is no likelihood of damage being caused by leakage or blockage.

257. **Safe Overflows:**—Unless otherwise permitted, every safe shall be drained by a separate two-inch diameter pipe provided at the inlet with a brass grating and at the outlet into the open air with a flap valve of brass or other approved metal and shall not connect with any waste pipe, soil pipe, drain or sewer.

258. **Cistern Overflows:**—

- (1) Every cistern supplied with water shall have an overflow pipe of adequate size discharging in such a position that it will not cause damage and will act as a warning pipe.
- (2) On ground floors where cisterns are fixed over impervious floors graded to drain outside the room, the overflow may discharge on to such floors provided no damage is likely to arise therefrom.

259. **Discharges from Safe Overflows:**—

- (1) Overflows may discharge into the open air above ground level only when the discharge, in the opinion of the Inspector, will not cause any inconvenience or nuisance.
- (2) In all other cases the pipes shall be brought nearly to the ground surface, or be arranged to discharge where they will not prove a source of annoyance or inconvenience.

260. **Existing Floors Under Fixtures:**—Where necessary, in the opinion of the Minister, every existing floor under a fixture shall be regraded, and a proper discharge pipe with flap valve fixed.

261. **Existing Fixtures and Fittings, etc:**—All existing fixtures, fittings and apparatus not in accordance with these By-laws which in the opinion of the Minister are unsatisfactory shall be removed or replaced by approved fittings.

262. **Supply of Water to Fixtures:**—

- (1) All water closets and other plumbing fixtures shall be provided by the owner with a sufficient supply of water from the Minister's Service unless otherwise directed by the responsible officer, for flushing purposes to keep them at all times in a proper and cleanly condition.

- (2) Every owner of property who desires, or who has been ordered, to provide sanitary appliances for his property and to connect his property with the Minister's sewers, shall provide and have made the necessary connections for the conveyance of water, in accordance with these By-laws and any subsequent amendment thereof.
- (3) The piping shall be of capacity sufficient to supply all sanitary fixtures on the property freely and continuously, and convey to the flushing cistern, flushing tank or other flushing apparatus of each water closet upon the property enough water to fill the same at an average rate or not less than one gallon per minute.
- (4) The owner shall keep the piping of sufficient capacity to fill the flushing cistern, storage tank or other flushing apparatus, at an average rate of not less than one gallon per minute.

263. Fixtures not Connected with Sewer:—No water service pipe shall be laid to supply any plumbing fixture in any property connected to the Minister's sewer unless such fixture is connected with the said sewers; or unless special permission, in writing, has been previously given to lay such service pipe.

264. Storage Tanks:—

- (1) Water supply pipes to storage tanks for internal closets shall be of not less than three-quarter inch diameter, and shall be provided with high pressure ball valves, except where the available pressure from the water supply system is not sufficient to allow of high pressure ball valves being used, and in such case the permission of the Minister to fix low pressure ball valves shall be obtained.
- (2) A stop-cock shall be fixed on the supply pipe to the storage tank.

265. Maintenance and Defective Work:—

- (a) Any soil, waste, combined waste, vent or drain pipe, trap, water closet, urinal, sink or other fixture or fitting which is laid, used, or constructed otherwise than in accordance with these By-laws or which, in the opinion of the Minister, is, or has become, bad or of defective quality, shall, upon notice in writing from the Department to the owner or occupier of the property or in the case of joint drainage to the owners or occupiers of the several properties be removed, altered, or repaired by the owner or occupier, as required by the Minister, and within the time fixed by him, and to the satisfaction and approval of the Inspector, and, in case such owner or occupier fails to comply with the requirements of such notice, he shall be liable to prosecution and a penalty for a breach of this By-law, or for an offence against the Act, as the case may be and/or the Department may, if it thinks fit, remove, alter, or repair the defective fitting, fixture or apparatus and charge the owner or occupier of the property with the cost so incurred, and proceed for recovery of the same in the manner provided by the Act.
- (b) The occupier shall be responsible for cleansing and keeping clean the drain connected to the Minister's sewer and wherever such drain is used as a common drain by more than one occupier, the cost of cleansing and keeping clean shall be equally borne by each of the occupiers of such several properties.

**PART VII.
RATES AND CHARGES.
RATES—HOW PAYABLE.**

266. Rates shall become due and payable in each year in equal moieties in advance on the first day of July and the first day of January. Provided that in all cases where a rate is made after the first day of July in any year the notice of the order for the making and levying of such rate, published in the *Government Gazette* and a newspaper as provided by section 95 of the said Act shall specify the minimum sum payable as rate as aforesaid, and the date or dates when the rates shall be due and payable, and such rate shall be and become due and payable in accordance with the terms of such notice.

ALLOWANCE FOR RATE.¹

267.¹ Subject to the provisions of these By-laws, every ratepayer will be entitled to consume on each separately assessed piece of land of which he is the owner or occupier that quantity of water which, if calculated at the price specified in the Schedule hereto as being that at which water is supplied in return for the rate, would amount to the equivalent of the water rate paid on each property, provided that such water is taken during the period for which the rate is struck.

ALLOWANCE FOR RATES WHERE METER INSTALLED DURING YEAR.

By-law 268
amended by
G.G.
18/12/53,
p. 2506.

268. When, during the currency of the year in respect of which a water rate has been levied, a meter is attached to a pipe on any land supplied with water, the consumer shall pay for the quantity of water taken, as registered by the meter, from the time when the meter was attached, at the prescribed price per 1,000 gallons, so far as the water supplied is in excess of the quantity to which the consumer is entitled in respect of the rate paid by him as provided in By-law 267 of these By-laws.

PAYMENT FOR EXCESS WATER.

269. Every ratepaying consumer taking water in excess of the quantity to which he is entitled in respect of the rates shall pay for the excess in accordance with prices set forth in the Schedule in By-law 278.

FEES FOR ADDITIONAL SERVICES.

By-law 270
amended by
G.G. 31/7/42,
p. 782;
G.G. 4/11/55,
p. 2722

270. In any case where the owner or occupier of any separately rated or non-rated piece of land requires more than one service to be installed for supplying water to such land such additional service or services shall, at the discretion of the Minister, be installed on such occupier or owner paying in advance the cost of installation and a fee of not less than Two pounds per annum, in addition to meter rent, for each additional service. Such owner or occupier shall also bear cost of installing meter and maintaining service and of having it disconnected when it is no longer required. In return for such fee an equivalent quantity of water will be supplied in each year, in the same way as water is supplied in return for water rates. The provisions of this by-law shall not apply to any apparatus referred to in by-law 277(A).

¹ The following by-law was substituted for By-law 267 by G.G. 28/1/1960, but although the new by-law took effect on the date of gazettal it is still subject to disallowance under section 36 of the Interpretation Act, 1918-1957:—

267. (1) Subject to the provisions of these by-laws, every ratepayer is entitled to consume during each consumption year on each separately assessed piece of land of which he is the owner or occupier that quantity of water which, if calculated at the price specified in item (1) of the Schedule in by-law 278 of these by-laws, would amount to the equivalent of the water rate levied in respect of that separately assessed piece of land for the rating year ending the 30th day of June during which that consumption year terminates, provided that such water is taken during that consumption year.

(2) In this by-law "consumption year" means, subject to by-law 288 of these by-laws, the period of twelve months terminating on the day (being in any year a day between the 15th day of January and the 29th day of June next following) fixed by the Minister for reading, for the purpose of ascertaining the water consumed, the meter attached to the water service supplying the separately assessed piece of land.

METER RENTS.

271. Every person supplied with water by measure to other than rated premises, private residences, or non-ratable hospitals, shall pay meter rent in advance according to the following scale:—

Size of Meter.		Annual Rent.
		s.
$\frac{1}{2}$	inch	10
"	"	10
"	"	10
"	"	10
1	"	15
$1\frac{1}{2}$	inches	15
$1\frac{3}{4}$	"	20
2	"	25
3	"	30
4	"	40
Over 4	"	50

DISCONNECTION AND RECONNECTION FEES.

272. In every case in which the supply of water shall have been cut off by reason of non-payment of rates or other charges or by reason of a defective service, or by request of the occupier or owner, or when in the opinion of the Minister or local officer, necessary to prevent waste of water, or for other reasons, a minimum fee of five shillings shall be charged for disconnection, and a similar fee for reconnection; provided that, where the cost exceeds the minimum fee, the actual cost of the disconnection and reconnection, as determined by the Minister, shall be charged, and shall be payable by the owner or occupier for the time being on demand. The service shall not be restored until such fee has been paid.

PRIVATE FIRE SERVICES.

273. Private fire services will be allowed, but every such service shall be sealed, except in cases where the Minister may decide that sealing is unnecessary. For each such service the owner or occupier shall pay in advance the actual cost of installation and a minimum annual fee and meter rent as determined by the Minister in each case, and such owner or occupier shall also bear the cost of maintaining the boundary service and of having it disconnected when it is no longer required. The owner or occupier for the time being shall in addition at his own risk and expense, and subject to the provisions of these By-laws, keep the internal fire service in good order and repair, so that the same shall at all times be in accordance with the By-laws. No water shall be taken from any sealed portion except for extinction of fire. In the event of the seal having been broken in case of fire or by accident or otherwise, the owner or occupier shall give notice forthwith to the Department and pay the cost of re-sealing.

WHEN ACCOUNTS DUE AND PAYABLE.

274. Where water is supplied by measure to the owner or occupier of land, whether rated under the Act or otherwise, payment for same shall become due and payable within fourteen days after due service of the account, unless otherwise agreed upon.

FLUSHING ALLOWANCES.

275. Every consumer of water who received his supply of water through a meter and pays for such supply an amount exceeding the sum which he would be required to pay upon the rating of his premises, shall, out of such excess, be allowed, so far as such excess will admit thereof, a deduction equal to the value of 5,000 gallons of water per annum on account of each water closet on the premises, for which the supply of water for the flushing shall pass through and be recorded by such meter, except in case of factories or premises having a range of privy closets receiving their water flush from one flushing cistern, in each of which cases the allowance or deduction shall be equivalent to the value of 3,000 gallons of water per annum for each privy seat in such range.

**MINIMUM FEES FOR WATER AND SEWERAGE SERVICES TO
NON-RATABLE PROPERTIES.**

276. Annual minimum fees in accordance with the scale prescribed hereunder shall be payable by owner for water and sewerage services to non-rateable properties:—

Water Services.

Classification of Service :	Annual Fee per Boundary Service.		
	£	s.	d.
Sports and recreation grounds, clubs and open cemeteries	4	0	0
Industrial and Trading :			
State Government (including Railways and Tramways)	}	3	0
Local Government (including Pounds)			
Private Trading Concerns (including private hospitals)			
Religious Trading Concerns (including laundries)			
Schools, other than Government			
State Government Institutions (including schools and Uni- versity but not Public Hospitals)	}	2	10
Local Government Institutions			
Public Institutions			
Horse Troughs			
Institutes, Libraries and Halls (other than War Memorial Halls) maintained by committees and used for public re- creation free of charge	}	2	0
Closed Cemeteries			
Domestic :			
Private Residences	}	2	0
Manse and Quarters of Religious bodies			
State Government Residences (including Station-masters' Quarters)			
Churches and Sunday Schools			
Public Standpipes, Drinking Fountains and Taps			
Parks and Reserves (open to public)			
Religious and Charitable Institutions	}	1	0
Public Hospitals			
Public Sanitary Conveniences			
War Memorial Halls			
Commonwealth Properties			

Annual fee for each separately assessable property based on the annual valuation of property and current water rate.

Sewerage Services.

Classification of Service :	Annual Fee per Water Closet.		
	£	s.	d.
Churches and Sunday Schools	1	0	0
Police and other Barracks	}	2	10
Public Hospitals and Quarters			
Convent-Nunneries, Monasteries, Orphanages and Charitable Institutions			
Religious Bodies' Laundries			
Public Sanitary Conveniences			
Private Residences and Services to buildings and lands not otherwise specified			
Commonwealth Properties			

Annual fee for each separately assessable property based on the annual valuation of property and current sewerage rate.

WATER SUPPLIED UNDER AGREEMENT.

276A. (1) Water may be supplied by the Minister under agreement to any company carrying on business on land having a frontage to Cockburn Sound for the purposes of the company delivering the water to a vessel if the vessel is lying at a wharf within Cockburn Sound and it is engaged in loading or unloading cargo for or on behalf of the company.

By-law 276A
inserted by
G.G. 20/4/55,
p. 717;
amended by
G.G. 15/6/56,
p. 1487.

(2) Where the water is delivered to the vessel by or through the company's equipment and the work of delivering the water is carried out by the company's employees, the rate for the water so supplied to the company and delivered to the vessel shall be two shillings and three pence (2s. 3d.) per thousand gallons.

(3) The company shall file with the Department on forms supplied by the Department for the purpose, a return each month showing the amount of all water so delivered by it to vessels.

(4) The company shall—

- (a) arrange for the accurate measurement of the quantity of water so delivered by it to any vessels;
- (b) permit an officer authorised by the Department at all reasonable times to inspect all accounts in connection with the water delivered by the company to a vessel; and inspect the method adopted by the company for measuring the quantity of water so delivered by it.

WATER FOR BUILDING PURPOSES.

277. (a) Where water is required for building purposes, an application shall be lodged, in writing, on the prescribed form, and the charges shall be in accordance with the fees set forth in the schedule of prices of water in By-law 278.

(b) All fees and charges, except charges for water consumed in excess of quantity allowed in return for fee, shall be paid in advance. Charges for excess water referred to shall be payable in accordance with By-laws and Regulations relating to the sale of water by measure.

(c) When applying for a building service the applicant shall produce the plans of the building to be erected for endorsement thereon of fee paid, and shall also, if called upon, produce the specifications and contract.

(d) Charges shall be based on the cost of the building, and where there is no contract, the value of the proposed building shall be fixed by the Minister.

(e) No person shall use any water from an existing service for building purposes, including alterations and additions to existing buildings, without first making application for same, producing building plans and paying the necessary building fee.

(f) If any person shall use water in connection with any work, in addition to that mentioned at the time of applying to the Minister for a building supply, without first paying the necessary additional fees, the whole supply may be cut off at the consumer's expense without prejudice to the Minister's right to proceed for breach of the By-laws.

WATER FOR COOLING PURPOSES.

277A. (a) Any apparatus in which water is used for cooling purposes, including refrigerating equipment or machinery, or any apparatus or system used for the cooling of roofs, or for any form of air conditioning or temperature control, or in connection with any form of hydraulic ejector or hydraulic apparatus for power purposes, shall be deemed to be an apparatus within the meaning of this by-law.

By-law 277A
inserted by
G.G. 31/7/42,
pp. 782-3.

(b) The use of water for any such apparatus shall be subject to the conditions and charges as set out in this by-law.

(c) From and after the commencement of this by-law, no apparatus shall be installed or used, and no apparatus previously installed shall be used in, on, or in connection with any property, land, or tenement unless the Minister shall have first consented thereto in writing.

(d) Applications for consent to instal or use such apparatus shall state the make and type, the minimum and maximum requirements, and any other information the Minister may require.

(e) If water used for or in the operation of any apparatus under full output exceeds the following quantities—

up to 30/6/43	....	....	1½ gallons per minute
from 1/7/43 to 30/6/45	....	....	1 gallon per minute
after 1/7/45	....	....	½ gallon per minute

it shall be re-used, unless consent to run it to waste shall have been obtained in writing from the Minister. If installation is such that the unit cuts in and out, the supply of water for cooling purposes must be automatically shut off when the unit cuts out.

(f) The quantity of water run to waste shall be limited to the quantity specified in the Minister's consent. The water which shall so run to waste shall be recorded by a meter specially affixed for the purpose and shall be paid for at 1s. per 1,000 gallons, in addition to the water rates and any other charge payable in respect of the property, land or tenement, and the applicant shall also be charged the cost of affixing the meter and the prescribed rent of meter.

Should water in excess of the quantity so specified in the Minister's consent be run to waste, every owner or occupier of the property, land, or tenement or other persons supplied by the Minister who shall permit or allow such excess water to be run to waste shall be guilty of an offence against this by-law.

(g) The owner or occupier or other person supplied by the Minister with water as aforesaid shall, at his own expense, make any alteration to the existing water service necessary in order that the subservice can be separately metered, and shall also pay the cost of removing the meter and disconnecting the subservice, if not further required, and during the continuance of the service shall keep or cause to be kept such apparatus, and all pipes in connection therewith, in a proper state of repair.

(h) In any case where the occupier or owner desires to draw the supply direct from the Minister's main through an additional service, such additional service shall, at the discretion of the Minister, be installed upon such occupier or owner depositing in advance the amount of the estimated cost of installation, in addition to the amount of the estimated cost of affixing a meter, and paying on completion of the work the actual costs thereof, whether they amount to more or less than the estimates. He shall also pay meter rent and bear the expense of maintaining the service and of having it disconnected when no longer required.

(i) Any owner, occupier, or other person who is supplied with water by the Minister aforesaid, who shall fail to comply with this by-law, or who shall otherwise commit a breach of its terms shall be deemed to be guilty of an offence hereunder, and shall be liable for each offence to a penalty not exceeding £10 and to a further penalty not exceeding £2 for each day the offence continues after notice thereof from the Minister.

278. Schedule of prices of Water:—

The scale of charges for water supplied within the Metropolitan Water and Sewerage District shall be as set out in the following Schedule, namely:—

By-law 278
amended by
G.G. 5/8/49,
p. 1898;
G.G. 19/6/53,
p. 1237;
G.G. 4/11/55,
p. 2722;
G.G. 29/6/55,
p. 1611; and
G.G. 15/6/56,
p. 1487.

SCHEDULE.**METROPOLITAN WATER AND SEWERAGE DISTRICT.**

	Per 1000 gals.	s. d.
(1) Subject as hereinafter provided, the charge for water supplied in return for water rates or for minimum water fees, and for water taken in excess of the supply in return for water rates or minimum water fees	1	9
(2) Provided that, where water is taken for domestic purposes in excess of the quantity of water allowed for water rates or minimum water fees:—		
(a) If full year's rates or minimum fees, and all arrears of rates and minimum fees and interest from previous years are paid on or prior to the 30th November of the current rating year, the charge for water so taken in excess of the quantity allowed for water rates or minimum fee will be reduced to	1	9
(b) If full year's rates or minimum fees and all arrears of rates and minimum fees and interest from previous years are not so paid, the charge for water taken in excess of the quantity allowed for water rates and minimum water fees will be	2	0
(3) Provided also, that water supplied in excess of the quantity allowed for water rates or minimum water fees in respect of the following services will be charged for at the rates hereinafter stated, namely:—		
(a) Industrial and trading services (other than building services)	1	6
(b) Services to bowling, cricket, golf, and other sports grounds, including school sports grounds (separately supplied), also cemeteries	1	6
(c) Services to parks and reserves open to the public but not used as sports grounds; public sanitary conveniences; religious and charitable institutions (except for trading purposes); public hospitals; and for street maintenance	1	3
(4) Special services of hills water (other than for shipping), subject to the approval of the Minister in each case:—		
Fremantle and Suburbs	2	6
Perth and Suburbs	2	0

Applicants to pay full cost of installing and maintaining service, including installing meter and all annual charges, minimum fees, meter rent, disconnection of service when it is no longer required, etc., as fixed by the Minister.

Para. 5 substituted by G.G. 5/8/49, p. 1898. Again substituted by G.G. 15/6/56, p. 1437.

- (5) Shipping services for water delivered on vessel at wharves, 4s. per 1,000 gallons.

Jetty Men's Services.

	Per man per hour.
	s. d.
Week days, 5 p.m. to midnight	12 0
Midnight to 8 a.m.	18 0
Saturdays, 12.1 a.m. to 8 a.m.	18 0
8 a.m. to 5 p.m.	12 0
5 p.m. to midnight	18 0
Sundays and Proclaimed Holidays	18 0

Para. 6 amended by G.G. 4/11/55, p. 2722.

- (6) Building services (metered or non-metered):—

- (a) Buildings, etc., brick, stone, concrete:

If cost of building, etc.—

£500 and under £1,000, one fourth per cent. on cost of building, etc., with minimum of

20 0

£1,000 and over, one-fourth per cent. on cost of building, etc., up to £1,000 plus one-tenth per cent. on cost over £1,000.

- (b) Buildings, etc., wood and/or iron and asbestos with brick chimneys, or lath and plaster linings:

If cost of building—

£500 and over

20 0

Note.—These charges shall apply to new buildings and to alterations and additions to existing buildings, also to wood and iron buildings without brick or plaster work if service is available before completion of construction of building.

It shall be at the discretion of the Minister as to whether or not in any case a supply of water shall be classed as a supply for building purposes, and as to whether or not the supply shall be measured by meter.

Should the Minister specially meter a service, water shall be allowed in return for building fee at 1s. 9d. per 1,000 gallons, and the applicant shall pay for all water consumed in excess of such allowance at the rate of 1s. 9d. per 1,000 gallons.

In cases where supply is drawn through an existing metered service, water shall be allowed in return for building fee paid at 1s. 9d. per 1,000 gallons.

The cost of installing and maintaining service to boundary of premises, affixing meter and disconnecting service, shall, in addition to fee, be borne in each case by applicant or owner, provided that, if property is rateable and service is to remain as a means of permanent supply, the cost shall be defrayed by Department.

By-law No. 278 (6) shall be read in conjunction with By-law No. 277.

PART VIII.**GENERAL.****DIVISION (1).—WATER AND SEWERAGE SERVICES.****SUPPLY TO RATED PROPERTIES.**

279. Applications for water services to rated properties shall be made on printed form procurable at the Head or Branch Offices, and shall be lodged not less than seven days before the service is required. Full information, as indicated on the prescribed form, shall be supplied, and the full amount of rates and other charges due on the premises to which a service is required shall be paid on or before application and before the work is commenced.

280. Water Services to Non-rateable Properties:—

Applications for water services to non-rateable properties shall be made on printed form procurable at the Head or Branch Offices, and the Minister may provide a supply on payment of the prescribed minimum fees, the cost of extending the water main to the land if the main is not already extended thereto and installing service to boundary of land, and, except in cases of private residences and non-rateable hospitals, meter rent, if service is metered. Applicant shall also bear cost of installing meter and maintaining service and of having it disconnected when no longer required.

It shall be at the discretion of the Minister as to whether or not a meter shall be fixed in each case.

The minimum fee shall take the place of a water rate and the general provisions of these By-laws as applying to rate-paying consumers shall apply to consumers under this By-law.

SEWERAGE SERVICES TO NON-RATEABLE PROPERTIES.

281. Applications for sewerage services to non-rateable properties shall be made on prescribed form procurable at the Head or Branch Offices and the Minister may provide a service on payment of the prescribed minimum fees, the cost of extending the sewer to the land if the sewer is not extended thereto and installing drain to boundary of land. Applicant shall also bear the cost of maintaining drain and of having it sealed when service is no longer required.

The minimum annual fee shall take the place of a sewerage rate and the general provisions of these By-laws shall apply to such services.

SEPARATE SERVICES REQUIRED.

282. Except with the written permission of the Minister not more than one house or tenement shall be supplied from a single water service. The Minister may, in special cases, consent to two or more tenements being supplied from one water service, but in such cases the sub-services shall be so arranged that the supply to each house shall be independent of the supply to the remaining houses and controlled by a stop-cock on such sub-service.

SIZES OF SERVICE PIPES.

283. (1) Where water is supplied solely for domestic purposes to any premises the annual value of which is £250 or less, the service pipe shall not exceed $\frac{3}{4}$ in. in diameter.

(2) Where the Minister is of opinion that a service pipe of a diameter of $\frac{3}{4}$ in. is not sufficient to maintain a reasonable supply of water for domestic purposes to any premises of an annual value exceeding £250, the Minister may, in his absolute discretion supply to those premises a service pipe of a diameter exceeding $\frac{3}{4}$ in.

By-law 283
substituted
by G.G.
13/8/57,
p. 2449.

(3) In this by-law "domestic purposes" includes lawn and garden watering.

MINISTER MAY IMPOSE RESTRICTIONS.

By-law 283A
substituted
by G.G.
18/12/56,
p. 2966.

283A. (1) The Minister may, from time to time as he considers necessary, by notices published at least once in a daily newspaper circulating in the Metropolitan Water, Sewerage and Drainage Area—

- (a) prohibit, regulate, or impose restrictions on, the use or consumption of water by any person or class of person, within the whole or any portion of the area, for any purpose generally or for such purpose or purposes as are specified in the order, or for any period or periods;
- (b) exempt either wholly or partially any portion of the area, any person or class of person, or any place or institution or class of place or class of institution from the operation of the whole or part of the order.

(2) An order so made and published may be cancelled or varied by a subsequent order made by the Minister and published in a daily newspaper circulating in the area.

(3) A person using or consuming water in contravention of an order made and published under this by-law is deemed to commit a breach of this by-law.

(4) For the purposes of this by-law a person who allows water to flow or leak from any pipe or other fittings used for or in connection with the supply of water to or in any premises shall be regarded as a person using water.

DIVISION (2).—METERS.

FIXING OF METERS.

284. (1) Any officer appointed by the Minister for the purpose may fix a meter on any service, and shall determine the size and class of meter in each case.

(2) Meters will be supplied by the Minister and placed above or below the normal surface of the ground at the discretion of the Minister.

REPAIRS AND MAINTENANCE OF METERS.

285. (1) Any person supplied with water through a meter belonging to the Minister shall pay the cost of making good any damage to such meter whilst on his land.

(2) Repairs required shall be done by the Officers of the Minister, and the expense incurred by the Minister in so doing shall, on demand, be paid by the owner or occupier of the land, and if not paid on demand shall be recoverable in the same manner as water rates.

NOTICE OF DAMAGE OR NON-REGISTRATION SHALL BE GIVEN.

286. Any person supplied by the Minister with water through a meter shall, on finding meter damaged, or not registering, immediately give notice of the damage or non-registration to the Local Water Supply Office.

INTERFERENCE WITH METERS.

287. No person shall break or in any way interfere with the seal fixed on the meter through which water is supplied by the Minister, or turn or attempt to turn any screw, bolt, or nut on or

attached to such meter, or use any tool or appliance on any such meter, or introduce or attempt to introduce any body or substance into such meter, or in any way interfere with any portion of such meter, or any pipes or fittings attached thereto.

PERIOD FOR READING.

288. The quantity registered by a meter at any time between ten days before and ten days after any stated date may be taken as the reading of the meter at such date.

AVERAGING CONSUMPTIONS.

289. During the time any meter is undergoing repair or should it cease to properly register the consumption of water, the Minister or any officer appointed by the Minister may, at his option, estimate the quantity of water consumed, by taking an average of the quantity used during any previous period, or by adopting any other basis of adjustment, as the Minister may determine, and the quantity so ascertained shall be paid for by the consumer.

TESTING METERS.

290. If any consumer shall at any time be dissatisfied with any particular reading of a meter, and be desirous of having the meter tested, he shall give written notice thereof to the Minister or his officer within seven days from date of receipt of notice of such reading, and thereupon the said meter shall be tested by passing through it a predetermined quantity of water, and if upon such testing it shall appear to the satisfaction of the Minister or his officer that the meter registered five per cent. or more in excess of the quantity that shall actually pass through it at such testing, then the Minister shall bear the expense of and incidental to such testing and shall also adjust the charge to the said consumer; but if the meter upon such testing shall not register five per cent. or more in excess of the quantity that shall actually pass through it, then the consumer shall pay to the Minister all the expenses of and incidental to such testing: Provided that the expense of every test shall be fixed by the Minister, subject to a minimum charge of five shillings for each test; provided also, that the consumer shall not, unless the Minister decides otherwise, be at liberty to avail himself of the right to test the registration of the meter for any period other than the period of registration next preceding the date of reading in respect of which he shall have given notice as aforesaid.

DIVISION (3)—OFFENCES AND PENALTIES.

MISUSE OF WATER.

291. Any person entitled to a supply of water for domestic purposes only or entitled only to a supply of water for any other specified purpose, shall not use such water for any other purpose except that specified.

WATER NOT TO BE USED ON OTHER PREMISES.

292. No person shall, without the written permission of the Minister, use water supplied by the Minister except on the premises in respect of which application was made for the service from which the water was drawn, or carry away any such water from such premises, or allow any other person to carry any such water away therefrom.

ILLEGAL TAKING OR SELLING OF WATER.

293. No person whether entitled to receive water from the Minister or not shall, without the written permission of the Minister, take, carry away, or allow to be taken or carried away, such water from his premises, or sell the same to any other person.

WASTE OF WATER.

294. No person supplied with water by the Minister, whether by meter or otherwise, shall allow the same to run to waste.

NON-METERED SUPPLY TO BE USED FOR DOMESTIC PURPOSES ONLY.

295. It shall not be lawful for any person to use water for other than domestic purposes, unless such water is measured by a meter, and in the case of a metered supply the Minister or any officer appointed by the Minister may require that water shall not be used for other than domestic purposes.

WATER FOR STREET WATERING.

296. It shall not be lawful for any person or corporation to use any water whatsoever for street watering purposes, unless with the written approval of the Minister first obtained.

GRATUITIES PROHIBITED.

297. Officers, workmen, or agents of the Minister shall not solicit or receive any fee or gratuity whatever.

JUNCTION OR INTERFERENCE WITH PIPES, SEWERS, OR FITTINGS.

298. No person shall make any connection or interfere with any pipe, sewer, or fitting of the Minister or with any water pipes, sewer, or drain communicating therewith, at any other place than shall be approved by the Minister, and the main shall only be tapped by the workmen of the Minister.

OBSTRUCTION OF PIPES, SEWERS, DRAINS, OR FITTINGS.

299:—

- (1) Any person who, without the written consent of the Minister, erects or maintains any building or structure or causes any building or structure to be erected or maintained, or places or keeps any material or thing or causes any material or thing to be placed or kept over any pipe, sewer, drain or fitting which is the property of the Minister, and thereby—
 - (a) trespasses on or causes injuries to such pipe, sewer, drain, or fitting; or
 - (b) prevents or in any way impedes or obstructs the inspection, maintenance, cleansing, repair, management or use, of such pipe, sewer, drain, or fitting,
 shall be guilty of an offence and be punishable on summary conviction by a penalty not exceeding twenty pounds, and in the case of a continuing breach of this By-law the offender shall be liable to a further penalty not exceeding five pounds for each day the offence continues after notice thereof has been given by or on behalf of the Minister to the offender.
- (2) The Minister may cause any building, structure, material, or thing erected, placed, maintained, or kept over any such pipe, sewer, drain, or fitting in contravention of this By-law to be altered, pulled down, removed, or otherwise dealt with as he shall think fit.
- (3) Any person committing any breach of this By-law shall, in addition to any penalty imposed on him, pay any expense incurred by the Minister in consequence of such breach.
- (4) This By-law shall extend and apply to buildings, structures, materials, or things maintained or kept as aforesaid, whether they were erected or placed over the pipe, sewer, drain, or fitting before or after the passing of this By-law.

PENALTIES.

300. Any person committing a breach of any of the provisions of these By-laws, to which no specific penalty is attached, shall be liable on summary conviction to a penalty not exceeding £20 and in addition may be ordered to pay any expense incurred by the Minister in consequence of such breach.

In the case of a continuing breach the offender shall be liable in addition to the fine and payment of expenses to a daily penalty not exceeding £5 for each day the breach continues after notice thereof has been given by or on behalf of the Minister to the offender.

DIVISION (4)—MISCELLANEOUS.**NOTICE OF INTENTION TO BUILD.**

301. The owner or occupier of any land supplied with water who shall erect, or make, or cause to be erected or made any building or addition to an existing building on such land, shall, before the commencement of same, give notice in writing thereof to the Minister.

LOCKING OF TAPS, ETC.

302. The occupier of any premises to which the water has been laid on, or, in the event of there being no occupier, the owner shall cause proper means to be taken, by locks or otherwise, subject to the approval of the Minister, to prevent the use of the water from the main by persons not connected with the said premises.

TURNING OFF WHEN REPAIRING AND TAPPING.

303. The Minister may from time to time, and without giving prior notice to the consumer or consumers affected, when necessary for the purpose of tapping or repairing the main, or otherwise, cut off the supply of water from any part or parts of the District.

REWARD—REPORTING LEAKAGE.

304. The Minister may in his discretion adequately reward any person (not being the person in fault) who shall communicate timely information to the Minister of any leakages or waste of water, whether the same be accidentally, negligently, or wilfully occasioned or suffered, or who shall give such information as shall lead to the conviction of any person or persons who shall steal or cause to be stolen or improperly appropriated the water of the Minister.

AUTHORITY TO ENTER PREMISES.

305. Any officer acting under the Minister's authority may at all reasonable times enter any house or premises connected, or intended to be connected with the water mains or sewers, in order to examine whether the water pipes, drains, and other fittings in such house or premises are in proper order. Any person refusing such admission or in any way hindering such Officer in the execution of his duty shall be guilty of an offence and liable to a penalty as prescribed in By-law 300.

STANDARD DRAWINGS FOR FIXTURES AND FITTINGS.

306. (1) Approved standard drawings of fixtures and fittings will be exhibited at the Department's office.

(2) Due consideration shall be given by the Minister to the claims of any other fittings which may be presented for approval, and, if considered satisfactory, the same may be placed among and become one of the approved standard fittings.

(3) The Minister may, from time to time, amend, alter, or cancel any or all of the standard fittings or type drawings, and replace them by such other approved fittings or drawings.

SCHEDULE A.

NIGHTMAN'S LICENSE.

This is to certify that the Minister for Water Supply, Sewerage, and Drainage has approved of the application of _____ for a License as a nightman for the _____ Catchment Area and hereby licenses the said _____ as a nightman for the said Area, from _____ to _____, subject to the By-laws of the Minister and to the provision of the Health Act, 1911, and any amendments thereof.

Conditions upon which this license is granted:—All gates, doors, etc., shall be closed by nightman upon leaving, and the By-laws of the Minister shall be strictly adhered to.

Dated this _____ day of _____, 19 _____.

SCHEDULE B.

METHOD OF COMPUTING THE SIZES OF SOIL, WASTE, COMBINED WASTE, AND VENT PIPES, IN ACCORDANCE WITH THE REQUIREMENTS OF BY-LAWS 158, 159, AND 160.

FIXTURES.

1. In accordance with By-law 158, classify the various fixtures and determine the maximum number of fixture units to be provided for in each portion of the system under consideration. Cleaners' sinks and floor wastes which are not regularly in use during the period of maximum use of other fixtures need not be included in determining the number of fixture units to be provided for.

SIZES OF GRADED SOIL, WASTE, AND COMBINED WASTE PIPES.

2. (a) By reference to By-law 159, determine, from the maximum number of fixture units served at the point under consideration, the required sizes and grades of the soil, waste, and combined waste pipes in each portion of the system.

(b) Compare the sizes so obtained with the minimum permissible sizes for the particular case and adopt the larger.

SIZES OF VERTICAL SOIL, WASTE, AND COMBINED WASTE STACKS.

3. (a) By reference to By-law 159, determine, from the maximum number of fixture units served at the point under consideration, the required sizes of vertical soil, waste, and combined waste stacks.

(b) Ascertain whether the number of fixture units connected to the stack within any 8-ft. length is within the permissible limits of provision (f) of By-law 159—if not adopt such larger size stack as will comply with this requirement.

(c) Compare sizes so obtained with the minimum permissible sizes for the particular case and adopt the larger sizes, subject to provision (a) of By-law 159.

SIZE OF MAIN VENTS.

4. (a) Determine the approximate vertical length of the main vent in storeys from its connection at its lower end with a soil or waste pipe or drain to the ceiling level of the top floor.

(b) From the table of permissible sizes in By-law 160, determine, for the maximum number of fixture units served by the vent, the required size for a vent of such a length.

(c) Compare the sizes so determined with minimum permissible sizes and adopt the larger.

SIZES OF BRANCH VENTS.

5. (a) Determine the approximate vertical length in storeys of the main vent from the point of connection of the branch vent under consideration to the ceiling level of the top floor.

(b) Determine the horizontal length of the branch vent from its connection with the main vent to the furthestmost end of the portion under consideration.

(c) Allowing one storey for each 12 feet, or part of 12 feet, in horizontal length of branch vent, as determined by rule 5 (b) above, add this length in storeys to the length in storeys by rule 5 (a) above.

(d) Determine the number of fixture units served by the portion of branch vent under consideration.

(e) From the table of permissible sizes in By-law 160, determine the minimum size of vent required for the above number of fixture units and for the total length of vent in storeys as determined by rule 5 (c) above.

(f) Compare the sizes so determined with the minimum permissible sizes and adopt the larger, subject to the provision that no vent need be larger than the soil or waste pipe which it serves.