

13 GEO. VI. No. 55, 1949. *Sewerage, Water Supply, Etc., Act.*

In every such case the period of the authority as aforesaid of the nominee of the Local Authority and of any extension thereof may be such period longer than three months as the said Commission with the prior approval by Order in Council of the Governor in Council thinks reasonable in the circumstances."

An Act to Provide Standard By-laws for Local Authorities in relation to Sewerage and Water Supply and to Make Provision for the Preparation of Standard By-laws in relation to Gasfitting; to Provide for the Constitution of a Board for the Examination and Licensing of Plumbers and Drainers and, upon the Preparation of Standard By-laws in relation to Gasfitting, of Gasfitters; and for these objects to Amend "The Local Government Acts, 1936 to 1949," and "The Health Acts, 1937 to 1948," each in certain particulars.

13 GEO. VI
No. 55.
THE
SEWERAGE,
WATER
SUPPLY, AND
GASFITTING
ACT OF 1949.

[ASSENTED TO 8TH DECEMBER, 1949.]

BE it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Assembly of Queensland in Parliament assembled, and by the authority of the same, as follows:—

PART I.—PRELIMINARY.

PART I.—
PRELIMINARY.

1 This Act may be cited as "*The Sewerage, Water Supply, and Gasfitting Act of 1949.*" Short title.

***2.** Except as herein otherwise provided, this Act shall come into operation on a date to be fixed by the Governor in Council by Proclamation published in the *Gazette* (which date is referred to in this Act as the commencement of this Act). Commence-
ment of Act.

* Commenced 1st January, 1950. (Proclamation published *Gazette*, 24th December, 1949, p. 2650.)

Any reference in a provision of this Act to the commencement or coming into operation of a Schedule to this Act means the date upon which that Schedule comes into operation, and on and from which the provisions thereof have force and effect.

Parts of Act.

3. This Act is divided into Parts, as follows :—

PART I.—PRELIMINARY ;

PART II.—STANDARD BY-LAWS IN RELATION TO SEWERAGE, WATER SUPPLY, AND GASFITTING ;

PART III.—CONSTITUTION OF THE PLUMBERS, DRAINERS, AND GASFITTERS EXAMINATION AND LICENSING BOARD ;

PART IV.—GENERAL ;

PART V.—AMENDMENTS OF **“THE LOCAL GOVERNMENT ACTS, 1936 TO 1949”* ;

PART VI.—AMENDMENTS OF †*“THE HEALTH ACTS, 1937 TO 1948.”*

Interpreta-
tion.

4. In this Act, unless the context otherwise indicates or requires, the following terms shall have the meanings respectively assigned to them, that is to say :—

Area.

“Area ”—An Area within the meaning assigned to that term by **“The Local Government Acts, 1936 to 1949”* (including the Area of the City of Brisbane) ;

Board.

“ Board ”—The Board constituted under Part III. of this Act ;

By-law.

“ By-law ”—A By-law made by a Local Authority under the provisions of **“The Local Government Acts, 1936 to 1949”* (including a By-law made under the provisions of ‡*“The Metropolitan Water Supply and Sewerage Acts, 1909 to 1949”*), and an Ordinance made by the Brisbane City Council under the provisions of ‡*“The Metropolitan Water Supply and Sewerage Acts, 1909 to 1949,”* and/or §*“The City of Brisbane Acts, 1924 to 1949”* ;

* 1 G. 6 No. 1 and amending Acts.

† 1 G. 6 No. 31 and amending Acts.

‡ 9 E. 7 No. 12 and amending Acts.

§ 15 G. 5 No. 32 and amending Acts.

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- “ Gas Company ”—A Gas Company within the meaning assigned to that term by **“ The Gas Acts, 1916 to 1946 ”* ; Gas Company.
- “ Interim License ”—An Interim Plumber’s License, Interim Country Plumber’s License, Interim Water Plumber’s License, Interim Drainer’s License, or Interim Gasfitter’s License, as the case may be, granted under Part III. of this Act and in force at any material time ; Interim License.
- “ License ”—A Plumber’s License, Country Plumber’s License, Water Plumber’s License, Drainer’s License, or Gasfitter’s License, as the case may be, granted under Part III. of this Act and in force at any material time ; License.
- “ Local Authority ”—A Local Authority within the meaning assigned to that term by †*“ The Local Government Acts, 1936 to 1949 ”* (including the Brisbane City Council constituted pursuant to the provisions of ‡*“ The City of Brisbane Acts, 1924 to 1949 ”*) ; Local Authority
- “ Minister ”—The Secretary for Public Works or other Minister of the Crown for the time being charged with the administration of this Act ; Minister.
- “ Prescribed ”—Prescribed by this Act ; Prescribed.
- “ Regulations ”—Regulations made under the authority of this Act ; Regulations.
- “ Shire ”—A Shire constituted under †*“ The Local Government Acts, 1936 to 1949 ”* ; Shire.
- “ Standard By-laws ”—The Standard Sewerage By-laws or the Standard Water Supply By-laws under Part II. of this Act set forth at any material time in the First and Second Schedules to this Act respectively, or, on and after the making of an Order in Council in pursuance of the provisions of subsection three of section six of this Act and the Standard By-laws.

* 7 G. 5 No. 11 and amending Acts.

† 1 G. 6. No. 1 and amending Acts .

‡ 15 G. 5 No. 32 and amending Acts.

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coming into operation of the Fourth Schedule to this Act, the Standard Gasfitting By-laws set forth at any material time in the Fourth Schedule to this Act, as the case may be ;

Standard
Gasfitting
By-laws.

“Standard Gasfitting By-laws ”—On and after the making of an Order in Council in pursuance of the provisions of subsection three of section six of this Act and the coming into operation of the Fourth Schedule to this Act, the standard Gasfitting By-laws set forth at any material time in that Fourth Schedule ;

Standard
Sewerage
By-laws.

“Standard Sewerage By-laws ”—The Standard Sewerage By-laws under Part II. of this Act set forth at any material time in the First Schedule to this Act ;

Standard
Water
Supply
By-laws.

“Standard Water Supply By-laws ”—The Standard Water Supply By-laws under Part II. of this Act set forth at any material time in the Second Schedule to this Act ;

This Act

“This Act ” — This Act, including all Proclamations, Orders in Council, regulations, and Standard By-laws made hereunder ;

Town.

“Town ”—A town within the meaning assigned to that term by **“The Local Government Acts, 1936 to 1949.”*

PART II.—
STANDARD
BY-LAWS IN
RELATION TO
SEWERAGE,
WATER
SUPPLY, AND
GASFITTING.PART II.—STANDARD BY-LAWS IN RELATION TO
SEWERAGE, WATER SUPPLY, AND GASFITTING.

Standard
Sewerage
By-laws.
Schedule I.

5. (1.) The Standard Sewerage By-laws are set forth in the First Schedule to this Act (hereinafter in this Act referred to as the First Schedule).

Standard
Water
Supply
By-laws.
Schedule II.

(2.) The Standard Water Supply By-laws are set forth in the Second Schedule to this Act (hereinafter in this Act referred to as the Second Schedule).

Commence-
ment of
Standard
Sewerage
and
Standard
Water
Supply
By-laws.

(3.) The First Schedule and the Second Schedule shall come into operation and shall have force and effect on and from a date to be fixed by the Governor in Council by Proclamation published in the *Gazette*.

* 1 G. 6 No. 1 and amending Acts.

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Application
of Standard
By-laws.

6. (1.) On and from the coming into operation of the First Schedule and the Second Schedule the Standard Sewerage By-laws and the Standard Water Supply By-laws set forth in the First Schedule and the Second Schedule respectively shall have force and effect in all Areas and in relation to any Area shall be and be deemed to be part of the By-laws of the Local Authority of the Area and shall be administered in the Area by the Local Authority.

(2.) When a By-law of a Local Authority is inconsistent with a Standard By-law, the latter shall prevail and the former shall, to the extent of the inconsistency, be invalid.

Where a By-law is made invalid to the extent of any inconsistency by reason of the preceding provision of this subsection, such By-law shall be deemed to be repealed to the extent of such inconsistency on the coming into operation of the Standard By-laws with which it is inconsistent, and **“The Acts Shortening Acts”* shall apply as if that repeal were the repeal of an Act.

(3.) The Governor in Council may by Order in Council published in the *Gazette* add a Fourth Schedule to this Act (hereinafter in this Act referred to as the Fourth Schedule), which Schedule shall set forth the Standard Gasfitting By-laws.

The Fourth Schedule shall come into operation and such Standard Gasfitting By-laws shall have force and effect from the date of such publication, or if a later date is specified in such Order in Council, from that later date.

The Standard Gasfitting By-laws for the time being set forth in the Fourth Schedule shall be and be deemed to be part of the requirements of any Gas Company and such Gas Company shall observe and cause to be observed the requirements of the Standard Gasfitting By-laws in the locality in which it is supplying gas.

(4.) The Governor in Council may from time to time by Order in Council amend the First Schedule or the Second Schedule (or, if a Fourth Schedule is added to this Act in pursuance of the provisions of subsection three of section six of this Act, that Fourth Schedule)

* 31 V. No. 6 and amending Acts.

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STANDARD
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by adding to, repealing, varying, or modifying any By-law therein set forth or by inserting therein or adding thereto any other By-law, whether in substitution for or in addition to any By-law therein set forth, and the said Schedule as so amended shall thereupon become for the time being a Schedule to this Act and shall have the same force and effect as that Schedule had prior to such amendment :

Provided that the power under this subsection to make any amendment of any such Schedule shall include power to make that amendment so that it shall be limited in its application to any particular Area or locality or otherwise as to time, place, or circumstance as is prescribed.

Application
of Acts
Shortening
Acts.

(5.) Where any such Schedule is so amended **“ The Acts Shortening Acts ”* shall apply as if such amendment were made by an Act.

PART III.—
CONSTITUTION
OF THE
PLUMBERS,
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BOARD.

Constitution
of the Board

7. (1.) For the purposes of this Act there shall be constituted a Board to be called “ The Plumbers and Drainers Examination and Licensing Board ” :

Provided that upon the making of the first appointment of the member of the Board as being representative of the Gas Companies the Board shall continue in operation under the changed name of “ The Plumbers, Drainers, and Gasfitters Examination and Licensing Board,” and the change of name shall not affect any rights or obligations of the said Board nor render defective any legal proceedings by or against the said Board, and any legal proceedings that have been commenced by or against such Board in its former name may be continued by or against it in its new name, and the members and officers of the Board in office or employed upon such change of name shall, subject to this Act, continue in their respective offices or employment accordingly.

* 31 V. No. 6 and amending Acts.

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Moreover, any reference in any Act or instrument issued under any Act or other writing whatsoever to such Board by its old name shall be read and construed as if the new name of the Board appeared therein and shall operate and take effect accordingly.

The Board may be constituted at any time after the commencement of this Act.

(2.) Subject to the provisions of this subsection, the Board shall consist of six members, as follows:— Members.

- (i.) A representative of the Department of Local Government nominated in that behalf by the Minister ;
- (ii.) A representative of the Department of Public Instruction nominated in that behalf by the Secretary for Public Instruction ;
- (iii.) A representative of the Department of Health and Home Affairs nominated in that behalf by the Secretary for Health and Home Affairs ;
- (iv.) A representative of Local Authorities nominated in that behalf by the Executive Committee of the Local Authorities Association of Queensland ;
- (v.) A representative of the Master Plumbers' Association of Queensland nominated in that behalf by that Association ; and
- (vi.) A representative of the Plumbers and Gasfitters' Employees' Union of Australia, Queensland Branch, nominated in that behalf by that Branch of that Union :

Provided that the Governor in Council may, by the Order in Council made in pursuance of the provisions of subsection three of section six of this Act or subsequently by notification in the *Gazette*, appoint to the Board an additional member as representative of the Gas Companies, nominated in that behalf by such Companies in the manner prescribed, and such representative shall, as from the date of the making of such appointment, be a member of the Board.

Subject to the foregoing provisions of this subsection, each member of the Board shall be appointed by the Governor in Council by notification in the *Gazette*, and shall be appointed for such time as the Governor in Council shall deem fit and proper, but so that the provisions of this subsection (including this paragraph) shall apply so as not to limit the power of the Governor in Council to appoint temporarily another person in the place of any deceased, sick, or absent member or to fill any vacancy in the office of such member.

Vacancies.

(3.) If at any time any person has not been nominated in accordance with this Act for appointment as a member of the Board or no appointment as a member of the Board is made by reason of any person so nominated signifying to the Minister his refusal to act as a member of the Board, or in the event of any vacancy occurring otherwise at any time from any cause whatsoever in the office of a member of the Board, the Governor in Council may appoint, for such time as the Governor in Council shall deem fit and proper, any person to be a member of the Board to represent the interest in the representation of which such nomination or appointment is not made or such vacancy otherwise occurs.

The validity of any proceeding of the Board shall not be affected by any vacancy amongst the members thereof or by any defect in the appointment of or disqualification of a member (including a temporary member) thereof.

Chairman.

(4.) The Governor in Council may from time to time appoint a member of the Board to be the Chairman of the Board.

If at any meeting of the Board there is no Chairman, whether by reason of no appointment as Chairman having been made or a vacancy otherwise arising in the office of Chairman or the absence of the Chairman, the members present shall elect one of their number to be Chairman of the meeting.

Meetings.

(5.) Subject to this Act, meetings of the Board shall be called, and the Board shall meet at such times and places and shall conduct its business in such manner as may be prescribed, or otherwise as it may from time to time determine.

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At all meetings of the Board any four members of the Board shall form a quorum.

(6.) The Board, with the approval of the Minister, shall appoint a Secretary.

The Secretary shall have such powers and shall perform such duties pertaining to the business of the Board as are from time to time conferred and imposed upon him under this Act, or otherwise as may be directed by the Board.

8. The Board shall have and may exercise and discharge the powers, authorities, duties, and functions conferred and imposed upon the Board by or under this Act.

Functions of
the Board.

9. The Board shall have power to grant licenses of the following classes :—

Classes of
licenses.

- (i.) A Plumber's License ;
- (ii.) A Country Plumber's License ;
- (iii.) A Water Plumber's License ;
- (iv.) A Drainer's License ; and
- (v.) On and after the coming into operation of the Fourth Schedule—a Gasfitter's License.

10. (1.) Subject to this Act, any person who proves to the satisfaction of the Board that he was the holder at the commencement of this Act of a license as plumber issued by a Local Authority and subsisting under the By-laws of such Local Authority then in force (whether such license be a first or second class plumber's license) shall be entitled to be the holder of a Plumber's License under this Act.

Licenses
without
examina-
tion—
Plumber's
License.

(2.) Subject to this Act, any person who proves to the satisfaction of the Board that he was the holder at the commencement of this Act of a license as water supply plumber issued by a Local Authority and subsisting under the By-laws of such Local Authority then in force shall be entitled to be the holder of a Water Plumber's License under this Act.

Water
Plumber's
License.

(3.) Subject to this Act, any person who proves to the satisfaction of the Board that he was the holder at the commencement of this Act of a license as drainer

Drainer's
License.

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issued by a Local Authority and subsisting under the By-laws of such Local Authority then in force shall be entitled to be the holder of a Drainer's License under this Act.

Gasfitter's
License.

(4.) Upon the coming into operation of the Fourth Schedule, then, subject to this Act, any person who proves to the satisfaction of the Board that he was the holder, at the coming into operation of the Fourth Schedule, of a license as gasfitter issued by a Gas Company shall be entitled to be the holder of a Gasfitter's License under this Act.

Licenses
with
examina-
tion—
Plumber's
License.

11. (1.) Subject to this Act, any person shall be entitled to be granted a Plumber's License if he proves to the satisfaction of the Board that he has had at least five years' practical plumbing experience, and that—

- (i.) He has satisfied the examination requirements of a trade course for plumbers as outlined in any Technical College Syllabus for the State of Queensland applicable to that person ; or
- (ii.) He has passed the examinations conducted by the Board for the Plumber's License in accordance with the curriculum provided in the Third Schedule to this Act ; or
- (iii.) He is the holder of a subsisting certificate of competency as plumber from any of the following authorities :—
 - (a) The Sanitary Plumbers Examination Board of Victoria ; or
 - (b) The New South Wales Examination Board for Plumbers, Gasfitters, and Drainers ; or
 - (c) The Western Australian Plumbers Examination Board ; or
 - (d) The New Zealand Plumbers Examination Board ; or
 - (e) The London Cities and Guilds ; or
 - (f) Such other authorities as the Governor in Council has approved for the time being by Order in Council made on the recommendation of the Board.

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Country
Plumber's
License.

(2.) Subject to this Act, any person shall be entitled to be granted a Country Plumber's License if he proves to the satisfaction of the Board that he has had at least three years' practical plumbing experience, and that—

- (i.) He has satisfied the examination requirements of the third year of a trade course for plumbers as outlined in any Technical College Syllabus for the State of Queensland applicable to that person ; or
- (ii.) He has passed the examinations conducted by the Board for the Country Plumber's License in accordance with the curriculum provided in the Third Schedule to this Act ; or
- (iii.) He is the holder of a subsisting certificate of competency as Sewer Plumber from the New South Wales Examination Board for Plumbers, Gasfitters, and Drainers ; or
- (iv.) He is the holder of such other equivalent qualifications as the Governor in Council has approved for the time being by Order in Council made on the recommendation of the Board.

(3.) Subject to this Act, any person shall be entitled to be granted a Water Plumber's License if he proves to the satisfaction of the Board that he has had at least three years' practical plumbing experience, and that—

Water
Plumber's
License.

- (i.) He has satisfied the examination requirements of the second year of a trade course for plumbers as outlined in any Technical College Syllabus for the State of Queensland applicable to that person ; or
- (ii.) He has passed the examinations conducted by the Board for the Water Plumber's License in accordance with the curriculum provided in the Third Schedule to this Act ; or
- (iii.) He is the holder of a subsisting certificate of competency as Water Plumber from the New South Wales Examination Board for Plumbers, Gasfitters, and Drainers ; or

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- (iv.) He is the holder of such other equivalent qualifications as the Governor in Council has approved for the time being by Order in Council made on the recommendation of the Board.

Drainer's
License.

(4.) Subject to this Act, any person shall be entitled to be granted a Drainer's License if he proves to the satisfaction of the Board that he has had at least one year's practical drainage experience, and that—

- (i.) He has satisfied the examination requirements of a trade course for drainers as outlined in any Technical College Syllabus for the State of Queensland applicable to that person ; or
- (ii.) He has passed the examinations conducted by the Board for the Drainer's License in accordance with the curriculum provided in the Third Schedule to this Act ; or
- (iii.) He is the holder of a subsisting certificate of competency as Drainer from the New South Wales Examination Board for Plumbers, Gasfitters, and Drainers ; or
- (iv.) He is the holder of such other equivalent qualifications as the Governor in Council has approved for the time being by Order in Council made on the recommendation of the Board.

Gasfitter's
License.

(5.) Subject to this Act, any person shall be entitled to be granted a Gasfitter's License if he proves to the satisfaction of the Board that he has had at least three years' practical gasfitting experience, and that—

- (i.) He has satisfied the examination requirements of a trade course for gasfitters as outlined in any Technical College Syllabus for the State of Queensland applicable to that person ; or
- (ii.) He has passed the examinations conducted by the Board for the Gasfitter's License in accordance with the curriculum provided in the Third Schedule to this Act ; or

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- (iii.) He is the holder of a subsisting certificate of competency as Gasfitter from the New South Wales Examination Board for Plumbers, Gasfitters, and Drainers ; or
- (iv.) He is the holder of such other equivalent qualifications as the Governor in Council has approved for the time being by Order in Council made on the recommendation of the Board.

(6.) Notwithstanding anything in this Act contained, if the Board is satisfied that any person is by reason of experience and/or examination gained or passed in Queensland or elsewhere qualified in its opinion to hold a Plumber's License, a Country Plumber's License, a Water Plumber's License, a Drainer's License, or a Gasfitter's License, and that it would be a hardship not to grant any such License, it may grant to such persons such License as in the circumstances it thinks just and proper.

(7.) The Board may exempt from any subject or subjects of any examination conducted by it under this Act any person who produces evidence satisfactory to the Board of having passed the equivalent examination or examinations of any authority referred to in this section, or of any Technical College, in such subject or subjects.

12. (1.) Any person desiring a License under this Act shall make application to the Board for such License. Application for license.

(2.) Every such application shall be in or to the effect of the prescribed form and shall furnish the particulars indicated in the form, and if any fee is prescribed for such application, shall be accompanied by the amount of the fee so prescribed.

(3.) The applicant shall, if so directed by the Board, attend in person before the Board.

(4.) Where an application for a License is refused any fee lodged with such application shall be refunded to the applicant.

13. The curriculum of examinations conducted by the Board for the purposes of this Act is set forth in the Third Schedule to this Act. Curriculum of examinations. Schedule III.

The Governor in Council may, from time to time, by Order in Council made upon the recommendation of the Board, amend the Third Schedule to this Act by adding to, repealing, varying, or modifying any provision therein set forth or by inserting therein or adding thereto any other provision whether in substitution for or in addition to any provision therein set forth, and the said Schedule as so amended shall thereupon become for the time being a Schedule to this Act and shall have force and effect accordingly.

Interim
License.

14. Notwithstanding anything contained in this Act the Board may grant to any person who has made application for a License, an Interim License for a period (not exceeding six months at any one time) pending such person satisfying the Board that he is entitled to the granting of a License :

Provided that before granting such Interim License, the Board shall require the applicant to present himself for a trade test and/or such other tests as the Board may require.

Scope of
licenses—
Plumber's
License.

15. (1.) The holder of a Plumber's License or Interim Plumber's License shall be entitled to perform any plumbing work governed by the provisions of the Standard Water Supply By-laws, the Standard Sewerage By-laws, and, on the coming into force of the Standard Gasfitting By-laws, the Standard Gasfitting By-laws.

Country
Plumber's
License.

(2.) The holder of a Country Plumber's License or Interim Country Plumber's License shall be entitled to perform any plumbing work governed by the provisions of the Standard Water Supply By-laws and, subject as hereinafter in this subsection provided, governed by the provisions of the Appendix to the Standard Sewerage By-laws :

Provided that the holder of a Country Plumber's License or Interim Country Plumber's License shall not be entitled to perform any plumbing work governed by the provisions of the Appendix to the Standard Sewerage By-laws within the Area of the City of Brisbane, or within the Area of any Town which has undertaken the provision of sewerage as a function pursuant to the provisions of section thirty-six of **"The Local Government Acts, 1936 to 1949,"* or in the case of a Shire within the sewered area thereof.

* 1 G. 6 No. 1 and amending Acts.

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(3.) The holder of a Water Plumber's License or Interim Water Plumber's License shall be entitled to perform any plumbing work governed by the provisions of the Standard Water Supply By-laws, and, with respect to work governed by the provisions of the Standard Sewerage By-laws, any plumbing work relating to the provision of water supply to the fittings and fixtures therein mentioned.

Water
Plumber's
License.

(4.) The holder of a Drainer's License or Interim Drainer's License shall be entitled to perform any drainage work governed by the provisions of the Standard Sewerage By-laws.

Drainer's
License.

(5.) The holder of a Gasfitter's License or Interim Gasfitter's License shall be entitled to perform any work governed by the provisions of the Standard Gasfitting By-laws.

Gasfitter's
License.

16. From and after the coming into operation of the First Schedule and the Second Schedule, a person shall not at any time perform any work governed by the provisions of—

Offences by
persons not
holding
appropriate
licenses, &c

(i.) The Standard Sewerage By-laws ; or

(ii.) The Standard Water Supply By-laws,

unless at that time he is the holder of a License or Interim License which entitles him under this Act to perform that work.

From and after the coming into operation of the Fourth Schedule, a person shall not at any time perform any work governed by the provisions of the Standard Gasfitting By-laws unless at that time he is the holder of a License or Interim License which entitles him under this Act to perform that work :

Provided that the provisions of this section shall not apply to a person executing any work consisting merely of the excavation and/or backfilling of trenches or any other work of an unskilled nature :

Provided further that nothing in this section contained shall apply to an apprentice, as defined by **"The Apprentices and Minors Acts, 1929 to 1948,"* who

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performs any work under the direct supervision of a person holding a License or Interim License which entitles such lastmentioned person under this Act to perform that work.

A person guilty of an offence against any provision of this section shall be liable to a penalty not exceeding twenty pounds.

Cancellation
and
suspension
of Licenses.

17. If the Board considers that the holder of any License or Interim License—

- (i.) Has been guilty of an offence against any provision of the Standard By-laws ; or
- (ii.) Has failed to comply with the reasonable instruction issued by an engineer or an inspector of a Local Authority or Gas Company in pursuance of the Standard By-laws ; or
- (iii.) Is guilty of gross misconduct or negligence in the conduct of work performed by him by virtue of his License or Interim License,

the Board may call upon that holder to show cause why his License or Interim License should not be cancelled or suspended, and, after inquiry, investigation, or hearing, the Board may by order—

- (a) Reprimand or caution him ; or
- (b) Suspend his License or Interim License for such period as it thinks fit ; or
- (c) Cancel such License or Interim License.

The Board shall, in conducting such inquiry, investigation, or hearing, have all the powers, authorities, and protection of a Commission under **“ The Official Inquiries Evidence Acts, 1910 to 1929.”*

While an order of suspension of a License or Interim License remains in force the person concerned shall be deemed not to hold a License or Interim License as such, but forthwith on the expiry of such order his rights and privileges as a holder of a License or, as the case may be, Interim License shall be revived as from the date of such expiry.

* 1 G. 5 No. 26 and amending Act.

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AND
GASFITTERS
EXAMINATION
AND
LICENSING
BOARD.

Any person whose License or Interim License has been so cancelled or suspended may, within one month of the Board's decision being conveyed to him, appeal to the Minister.

The Minister, on such appeal, may hear and determine the matter, or he may, before determining the matter, refer such matter to any one or more persons for the purpose of his or their inquiring into and investigating such matter and furnishing to him a report thereon.

The Minister or the person or persons to whom the matter of the appeal is referred as aforesaid shall have the same powers, authorities and protection as the Board has in conducting an inquiry, investigation or hearing under the provisions of this section.

After hearing the matter, or upon the receipt of the said report, the Minister may, in his absolute discretion, dismiss or allow the appeal or substitute therefor such other decision as he thinks just and proper in the circumstances.

The decision of the Minister shall be final and binding on the Board and the appellant, and shall be deemed to be the final decision of the Board.

PART IV.—GENERAL.

PART IV.—
GENERAL.

18. (1.) Any person who contravenes or fails to comply with any provision of this Act shall be guilty of an offence. Offences.

(2.) Any person guilty of an offence against this Act shall be liable, if no specific penalty is provided for that offence, to a penalty not exceeding fifty pounds.

(3.) All offences against this Act may be prosecuted in a summary way under **"The Justices Acts, 1886 to 1949."*

19. (1.) The Governor in Council may, from time to time, make regulations providing for all or any purposes, whether general or to meet particular cases, Regulations.

* 50 V. No. 17 and amending Acts.

that may be necessary or convenient for the administration of this Act or that may be necessary or expedient to carry out the objects and purposes of this Act, and, where there may be in this Act no provision or no sufficient provision in respect of any matter or thing necessary or expedient to give effect to this Act, providing for and supplying such omission or insufficiency.

(2.) Without limiting the generality of the provisions of subsection one of this section regulations may provide for all or any of the following, that is to say:—

- (i.) Prescribing all matters or things which by this Act are required or permitted to be prescribed ;
- (ii.) Prescribing, regulating, and controlling the meetings, business, and procedure of the Board ;
- (iii.) Prescribing the times and places of examinations, the form in which applications for examination shall be made, the appointment of examiners, and all other matters relating to the conduct and holding of examinations by the Board ;
- (iv.) Prescribing, regulating, and controlling the keeping of a register of licenses granted under this Act and the making of entries therein, and the form of and manner of giving, furnishing, granting, or keeping notices, applications, Licenses, Interim Licenses, registers, and other documents in pursuance of this Act ;
- (v.) Prescribing, regulating, and controlling the granting, renewal, refusal to grant or renew, transfer, surrender, cancellation, or suspension of Licenses or Interim Licenses and appeals against the cancellation or suspension of Licenses ;
- (vi.) The mode and onus of proof of matters required to be proved under and for the purposes of this Act and for facilitating such proof ;

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- (vii.) Forms under this Act and the respective purposes for which such forms shall be used ;
 - (viii.) Prescribing fees payable for any License or Interim License, or a duplicate copy thereof, or for or upon the doing of any act or thing prescribed or carried out or required to be carried out under or pursuant to this Act ; prescribing the manner, time, place, and the person by and to whom fees due and payable under this Act shall be paid ;
 - (ix.) Providing for a penalty not exceeding twenty pounds for an offence against any regulation ;
 - (x.) Generally for carrying this Act into effect.
- (3.) Regulations may be made on the passing of this Act.

20. (1.) All Proclamations, Orders in Council, and regulations made or purporting to have been made under this Act shall be published in the *Gazette*, and thereupon shall be judicially noticed, and such publication shall be conclusive evidence of the matters contained therein.

Proclama-
tions, Orders
in Council,
and
regulations.

(2.) All such Proclamations, Orders in Council, and regulations shall be laid before the Legislative Assembly within fourteen days after such publication if it is then sitting for the despatch of business, or, if not, then within fourteen days after the date when the Legislative Assembly next sits for the despatch of business.

If the Legislative Assembly passes a resolution disallowing any such Proclamation, Order in Council, or regulation, of which resolution notice has been given at any time within fourteen sitting days of such House after such Proclamation, Order in Council, or regulation has been laid before it, such Proclamation, Order in Council, or regulation shall thereupon cease to have effect, but without prejudice to the validity of anything done in the meantime.

For the purpose of this section, the term "sitting days" shall mean days on which the House actually sits for the despatch of business.

PART V.—
AMENDMENTS
OF “THE
LOCAL
GOVERNMENT
ACTS, 1936 TO
1949.”

Sewerage, Water Supply, Etc., Act. 13 GEO. VI. No. 55.

Construction
of Part V.

PART V.—AMENDMENTS OF * “THE LOCAL GOVERNMENT ACTS, 1936 TO 1949.”

21. (1.) This Part of this Act shall be read as one with * “*The Local Government Acts, 1936 to 1949.*”

Collective
title.

(2.) * “*The Local Government Acts, 1936 to 1949,*” and this Part of this Act shall be cited collectively as “*The Local Government Acts, 1936 to 1949.*”

Amendments
of s. 3 of
1 Geo. VI.
No. 1.

22. Section three of * “*The Local Government Acts, 1936 to 1949,*” is amended as follows :—

(i.) The definition of the term “Drain” in the said section is repealed.

(ii.) The definition of the term “Sewerage” in the said section is repealed and the following definition is inserted in lieu thereof, namely :—

Sewerage.

“ “Sewerage”—Any sewer, manhole, ventilator, structure, engine, pump, machinery, outfall, or other work for or in connection with sewerage connection to premises but not including sewerage apparatus or any house drain, soil or waste pipe : and for the purposes of this definition the terms “sewer,” “house drain,” “soil pipe,” and “waste pipe” shall have the meanings assigned to them by “The Standard Sewerage By-laws” made pursuant to the provisions of † “*The Sewerage, Water Supply, and Gasfitting Act of 1949*” ; and the term “sewage” shall have the meaning assigned to it by “The Standard Sewerage By-laws” made pursuant to the provisions of † “*The Sewerage, Water Supply, and Gasfitting Act of 1949*” ; and the term “sewerage apparatus” shall mean any fixture or fitting as defined by “The Standard Sewerage By-laws” made pursuant to the provisions of † “*The Sewerage, Water Supply, and Gasfitting Act of 1949*” ;”

(iii.) The following definition is inserted in the said section after the definition of the term “Shire,” namely :—

Storm-
water drain.

“ “Storm-water drain”—Any drain for the carrying off of storm water, being water other than sewage ;”

* 1 G. 6 No. 1 and amending Acts.

† This Act.

1949. *Sewerage, Water Supply, Etc., Act.*

PART V.—
AMENDMENTS
OF “THE
LOCAL
GOVERNMENT
ACTS, 1936 TO
1949.”

23. Section thirty of **“The Local Government Acts, 1936 to 1949,”* is amended by repealing therein the word “drainage” where such word follows the words “prevention and suppression of infectious and other diseases, sewerage,” and inserting, in lieu of such repealed word, the words “storm-water drainage”.

Amendment
of s. 30 of
1 Geo. VI.
No. 1.

24. Paragraph (a) of subsection nine of section thirty-six of **“The Local Government Acts, 1936 to 1949,”* is amended by repealing therein the words “one hundred and ten degrees of Fahrenheit” and inserting, in lieu of such repealed words, the words “one hundred degrees of Fahrenheit or such higher temperature as may be authorised by the Local Authority having regard to the special circumstances of any particular case”.

Amendment
of s. 36 (9)
(a) of 1 Geo.
VI. No. 1.

25. Section thirty-seven of **“The Local Government Acts, 1936 to 1949,”* the head note and marginal notes thereto are amended by inserting before the words “drainage” and “drains” wherever either of those words occur in such section, head note, or marginal notes the words “storm water”.

Amendments
of s. 37 of
1 Geo. VI.
No. 1.

PART VI.—AMENDMENTS OF †*“THE HEALTH ACTS, 1937 TO 1948.”*

PART VI.—
AMENDMENTS
OF “THE
HEALTH ACTS,
1937 TO 1948.”

26. (1.) This Part of this Act shall be read as one with †*“The Health Acts, 1937 to 1948.”*

Construction
of Part VI.

(2.) †*“The Health Acts, 1937 to 1948,”* and this Part of this Act shall be cited collectively as *“The Health Acts, 1937 to 1949.”*

Collective
title.

27. Section five of †*“The Health Acts, 1937 to 1948,”* is amended as follows :—

Amendments
of s. 5 of
1 Geo. VI.
No. 31.

(i.) The definition of the term “Drain” in the said section is repealed.

(ii.) The following definition is inserted in the said section after the definition of the term “State,” namely :—

“ “Storm-water drain”—Any drain for the carrying off of storm water, being water other than sewage ; ”

Storm-
water drain.

* 1 G. 6 No. 1 and amending Acts.

† 1 G. 6 No. 31 and amending Acts.

PART VI.—
AMENDMENTS
OF "THE
HEALTH ACTS,
1937 TO 1948."

Sewerage, Water Supply, Etc., Act.

13 GEO. VI. No. 55,

Amendments
of s. 10 of
1 Geo. VI.
No. 31 and
marginal
note thereto.

28. Subsection one of section ten of *"*The Health Acts, 1937 to 1948,*" and the marginal note to that section are amended by repealing the word "drainage" wherever such word occurs therein and by inserting, in lieu of such repealed word, the words "storm-water drainage"; also by repealing the word "drain" where such word occurs in subparagraphs (c) and (d) of paragraph (i.) of the said subsection and by inserting, in lieu of such repealed word, the words "storm-water drain".

Amendment
of s. 33 of
1 Geo. VI.
No. 31.

29. Section thirty-three of *"*The Health Acts, 1937 to 1948,*" is amended by repealing the word "drains" where it occurs in subparagraph (vi.) of the said section and by inserting, in lieu of such repealed word, the words "storm-water drains".

Amendment
of s. 93 of
1 Geo. VI.
No. 31,
headnote
and marginal
note thereto.

30. The head note to Division XIII. of Part III. of *"*The Health Acts, 1937 to 1948,*" section ninety-three of those Acts and the marginal note to that section are amended by repealing the word "drains" wherever it appears therein and by inserting, in lieu of such repealed word, the words "storm-water drains".

Amendments
of s. 94 of
1 Geo. VI.
No. 31 and
marginal
note thereto.

31. Section ninety-four of *"*The Health Acts, 1937 to 1948,*" and the marginal note thereto are amended as follows:—

(i.) Subsection one of the said section is amended by repealing the word "drain" where it twice occurs therein and by inserting, in lieu of such repealed word, the words "storm-water drain".

(ii.) Subsection five of the said section is amended by repealing the word "drainage" appearing therein and by inserting, in lieu of such repealed word, the words "storm-water drainage"; also by repealing the word "drain" appearing therein and by inserting, in lieu of such repealed word, the words "storm-water drain".

(iii.) The marginal note to the said section is amended by repealing the word "drains" appearing therein and by inserting, in lieu of such repealed word, the words "storm-water drains".

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PART VI.—
AMENDMENTS
OF "THE
HEALTH ACTS,
1937 TO 1948,"

32. Subsection one of section 129A of **"The Health Acts, 1937 to 1948,"* is amended by inserting after the first paragraph of the said subsection—namely, that paragraph ending with the words "alloy containing lead"—a further paragraph, as follows:—

Amendment
of s. 129A (1)
of 1 Geo. VI.
No. 31.

"Provided that nothing herein shall prevent the use of sheet lead in soil and waste pipes and safes in the manner prescribed by "The Standard Sewerage By-laws" under †*"The Sewerage, Water Supply, and Gasfitting Act of 1949."*

SCHEDULE I.

STANDARD SEWERAGE BY-LAWS.

PART I.—PRELIMINARY.

List of Contents.

1. These By-laws are divided into Parts and Divisions, as follows:—

PART I.—PRELIMINARY :

1. List of Contents ;
2. Definitions ;

PART II.—ADMINISTRATIVE REQUIREMENTS :

Division 1—General—

3. Sewer Provided by Council ;
4. House Drainage and Plumbing provided by Council ;
5. Owner to Provide House Drainage and Plumbing ;
6. Authority to Execute House Drainage and Plumbing ;
7. Notification by Council ;

Division 2—Consents and Approvals—

8. Application for Approval to connect to Sewer ;
9. Provision of House Drainage and Plumbing by Council ;
10. Extra Provision where Council provides Plumbing and House Drainage ;
11. Misrepresentation ;
12. Notice of Approval of Application ;
13. Alterations to Approved Plan ;
14. Power to Revoke ;

Division 3—Penalties—

15. General Penalty ;

Division 4—Fees—

16. House Drainage Plans ;
17. Inspections ;

SCHEDULE I
[Section 5
(1).]

* 1 G. 6 No. 31 and amending Acts.

† This Act.

Division 5—Notice to Connect—

- 18. Notice to Connect to Sewer, &c. ;

Division 6—Plumbers' and Drainers' Licenses—

- 19. Only Licensed Persons to Perform Work ;
- 20. Unlicensed Persons not to be Employed ;
- 21. Scope of Licenses ;
- 22. Duties of Licensed Persons ;

PART III.—GENERAL REQUIREMENTS :

Division 7—General—

- 23. Type of Drainage System Adopted (Double or Single Pipe) ;
- 24. Notice of Intention to Build or Alter ;
- 25. Applications ;
- 26. Precautions ;
- 27. Notification of Completion of Work ;
- 28. Observance of By-laws ;
- 29. Instructions Contrary to By-laws ;
- 30. Obstruction ;
- 31. Danger of Disease ;

Division 8—Use of Sewers—

- 32. Permissible Discharges ;
- 33. Prohibited Discharges ;

Division 9—Trade Wastes—

- 34. Conditions of Discharge ;

Division 10—Materials and Workmanship—

- 35. Standard of Materials ;
- 36. Other Designs of Fittings and Fixtures ;
- 37. Existing House Drainage and Plumbing ;
- 38. Concrete ;
- 39. Cement Mortar ;

Division 11—Inspections—Tests—

- 40. Only Approved and Stamped Materials to be used ;
- 41. Inspection and Testing ;

Division 12—Maintenance and Defective Work—

- 42. Maintenance by Council ;
- 43. Maintenance by Contractor ;
- 44. Cleaning, Repairs, and Renewals ;
- 45. Defective House Drainage and Plumbing ;
- 46. Chokages in Combined House Drains ;
- 47. Responsibility of Owner ;
- 48. Responsibility of Occupier ;

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Division 13—Minimum Requirements—

49. Minimum Number of Fixtures Required for Certain Premises ;
50. Water-Closet Pans and Baths in Separate Apartments ;

PART IV.—HOUSE DRAINAGE :

Division 14—General Provisions—

51. Separate and Combined House Drains ;
52. Size of House Drain ;
53. Materials ;
54. Inspection Chambers ;
55. Inspection Openings ;
56. Drain Openings not in Use ;
57. Replacing or Inserting Pipes ;
58. Use of Concrete ;
59. Areas Subject to Flooding ;
60. Polluted Areas ;

Division 15—Basements and Cellars—

61. Fixtures ;
62. Risk of Backflow ;
63. Seepage Drains ;

Division 16—Traps—Drainage—

64. Classes of Drainage Traps ;
65. Location of Drainage Traps ;
66. Seal of Drainage Traps ;
67. Gratings for Drainage Traps ;
68. Kerbing for Drainage Traps ;
69. Discharge into Drainage Traps ;

Division 17—Grease, Petrol, and Oil Traps—

70. Location of Grease, Petrol, and Oil Traps ;
71. Capacity of Grease, Petrol, and Oil Traps ;
72. Outlet of Grease, Petrol, and Oil Traps ;
73. Ventilation of Grease, Petrol, and Oil Traps ;
74. Cleaning of Grease, Petrol, and Oil Traps ;

Division 18—Laying House Drains—

75. Trenches ;
76. Position and Line of House Drains ;
77. Depth of House Drains ;
78. Gradients of House Drains ;
79. Connection to Sewer ;
80. Laying House Drains ;
81. Junctions on House Drains ;

Division 19—Drainage Joints—

- 82. Stoneware and Concrete Pipe ;
- 83. Stoneware, &c., to Cast Iron or Galvanised Sheet Iron Pipe ;
- 84. Cast Iron Pipe ;

PART V.—PLUMBING :

Division 20—General—

- 85. Separate Discharge Pipe ;
- 86. Fixtures not to Abut against Walls ;
- 87. Flashings of Fixtures ;
- 88. Gratings ;
- 89. Disconnected Fixtures ;
- 90. Painting ;

Division 21—Soil and Waste Pipes—

- 91. Pipes in Direct Line ;
- 92. Materials ;
- 93. Lead Pipe ;
- 94. Support of Lead Pipe ;
- 95. Wrought Iron and Steel Pipe ;
- 96. Cast Iron Pipe ;
- 97. Copper and Brass Pipe ;
- 98. Incorrodible Metal Alloy Sanitary Fittings ;
- 99. Minimum Gradients ;
- 100. Minimum Sizes ;
- 101. Waste Pipes not to be Laid Underground ;
- 102. Cleaning Eyes ;
- 103. Inspection Openings ;
- 104. Concealment of Pipes ;
- 105. Pipe Junctions ;

Division 22—Plumbing Joints—

- 106. Stoneware, Cement, or Cast Iron Pipe ;
- 107. Lead Pipe ;
- 108. Wrought Iron and Steel Pipe ;
- 109. Wrought Iron or Steel Pipe to Lead Pipe ;
- 110. Wrought Iron or Steel Pipe to Brass Fittings ;
- 111. Brass or Copper Pipe ;
- 112. Lead Pipe to Cast Iron Pipe ;
- 113. Lead Pipe to Stoneware or Concrete Pipe ;
- 114. Galvanised Sheet Iron Pipe to Cast Iron Pipe ;
- 115. Galvanised Sheet Iron Pipe to Wrought Iron or Steel Pipe ;
- 116. Galvanised Sheet Iron Pipe to Lead Pipe ;

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- 117. Water-Closet Pan or Slop Sink Outlet to Stoneware Pipe ;
- 118. Water-Closet Pan or Slop Sink Outlet to Lead Pipe ;
- 119. Cistern Flush Pipe to Water Closet Pan ;
- 120. Cistern Flush Pipe to Flushing Cistern ;
- 121. Anti-syphon Vent Pipe to Water Closet Pan ;
- 122. Outlet Fittings (wastes) to Fixtures ;
- 123. Outlet Fittings (wastes) to Washtubs ;

Division 23—Fixture Traps—

- 124. Fixtures to be Trapped ;
- 125. Omission of Fixture Traps ;
- 126. Position of Traps ;
- 127. Materials for Traps ;
- 128. Seal of Traps ;
- 129. Type of Trap ;
- 130. Access for Cleaning of Traps ;

Division 24—Water Closets—

- 131. Dimensions of Water Closets ;
- 132. Construction of Water Closets ;
- 133. Air Locks for Water Closets ;
- 134. Ventilation and Lighting of Water Closets, Urinal Apartments, and Airlocks ;
- 135. Alterations to Existing Water Closets ;

Division 25—Water-Closet Pans—

- 136. Water-Closet Pans ;
- 137. Juvenile Water-Closet Pans ;
- 138. Fixing of Water-Closet Pans ;
- 139. Water-Closet Pan Seats ;
- 140. Vent Horn on Water-Closet Pans ;
- 141. Water-Closet Pan Trap Anti-siphonage ;

Division 26—Flushing Apparatus—

- 142. General ;
- 143. Flushing Cisterns ;
- 144. Flush Pipe from Flushing Cisterns ;
- 145. Other Approved Flushing Apparatus ;

Division 27—Storage Tanks—

- 146. Storage Tanks General ;
- 147. Size of Water Pipes Connected to Flushing Cisterns ;

Division 28—Supply Tanks—

- 148. Supply Tanks General ;
- 149. Size of Water Pipes Connected to Flush Valves ;

Division 29—Urinals—

- 150. Urinals General ;
- 151. Urinal Apartments ;
- 152. Type of Urinal ;
- 153. Connection of Urinals ;
- 154. Flushing Apparatus for Urinals ;
- 155. Flush Pipes for Urinals ;
- 156. Water Service for Urinals ;

Division 30—Slop Sinks—

- 157. Slop Sinks ;

Division 31—Sinks, Baths, Showers, Basins, and Washtubs—

- 158. Sinks ;
- 159. Baths and Showers ;
- 160. Basins ;
- 161. Washtubs ;

Division 32—Safes and Overflows—

- 162. Safes—Where Required ;
- 163. Dimensions ;
- 164. Safe Overflows ;
- 165. Discharge from Overflows ;
- 166. Regrading Existing Floors ;

Division 33—Single Pipe System—

- 167. General ;

PART VI.—VENTILATION :

Division 34—Drainage Vents—

- 168. Vents on Main House Drain ;
- 169. Vents on Branch House Drains ;
- 170. Size of Drainage Vents ;
- 171. Materials for Drainage Vents ;
- 172. Induct Vents ;
- 173. Ground Vents ;

Division 35—Plumbing Vents—

- 174. Size of Waste Vents ;
- 175. Materials for Soil and Waste Vents ;
- 176. Soil Vent Pipes ;
- 177. Anti-siphonage Vents ;
- 178. Combining of Vents ;
- 179. Length of Unvented Waste Pipes ;

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Division 36—General Provisions—

- 180. Height of Vent Pipes ;
- 181. Pipes Through Roofs ;
- 182. Chimneys ;
- 183. Vents near Chimneys ;
- 184. Vents Adjoining High Buildings
- 185. Vent Pipe Grades ;
- 186. Attachment to Walls ;
- 187. Supporting Vents ;
- 188. Vent Pipe Clips ;
- 189. Vents in Outbuildings ;
- 190. Sheet Metal Bends and Offsets ;
- 191. Mechanical Ventilation ;

PART VII.—PIPE CAPACITIES :

Division 37—Capacities of Soil, Waste, Drain, and Vent Pipes—

- 192. Fixture Units ;
- 193. Sizes of Soil, Waste, and Drain Pipes ;
- 194. Sizes of Vents ;
- 195. Method of Computing the Sizes of Soil, Waste, Combined Waste and Vent Pipes ;

PART VIII.—WATER SUPPLY :

Division 38—Water Supply for Sewerage Purposes—

- 196. Supply to Fixtures and Fittings ;
- 197. Separation of Water between Fixture and Supply Pipe ;
- 198. Control of Water in Supply Pipe ;
- 199. Water Supply Pipe to Storage Tank and/or Supply Tank ;
- 200. Maintenance of Water Supply Pipes and Fittings ;

APPENDIX.

Septic Tanks.

- 1. Authority to Instal ;
- 2. Application for Approval ;
- 3. Breach of Condition of Permit ;
- 4. Installation without Permission ;
- 5. Change in Circumstances ;
- 6. Work to be in Accordance with the Requirements of the Sewerage By-laws ;
- 7. Only Licensed Persons to do Work ;
- 8. Licensed Persons only to be Employed ;
- 9. Maintenance ;
- 10. Construction of Tank ;

11. Capacity of Tank ;
12. Effluent—Discharge and Treatment ;
13. Design, &c., to be Approved ;
14. Filter Requirements ;
15. Further Structural and other Requirements ;
16. Prohibiting Entry of Certain Matters into Tank ;
17. Disposal of Contents of Tank ;
18. Interfering with Tanks ;
19. Damaged and Defective Tanks not to be Used ;
20. Owner to Maintain Tank, Filter, &c., in Proper Order ;
21. Duty of Occupier,

Schedule A.

Methylene Blue Test for Putrescibility of Sewage Effluents.

Definitions.

2. In these By-laws, unless the context otherwise indicates, the following terms shall have the meanings respectively assigned to them, that is to say :—

“ The Act ”—In respect of the City of Brisbane the term shall mean * “ *The Metropolitan Water Supply and Sewerage Acts, 1909 to 1949,* ” and † “ *The City of Brisbane Acts, 1924 to 1949,* ” and, in respect of Areas constituted under ‡ “ *The Local Government Acts, 1936 to 1949,* ” such last-recited Acts ;

“ Actual cost ”—The actual expense, whether for wages, materials, fittings, fixtures, apparatus, or otherwise, together with any fees or overhead charges, incurred by the Council in or in connection with the execution of house drainage and plumbing on any premises or place ;

“ Anti-siphonage vent ” or “ back vent ”—Any pipe from any individual trap or from any fixture having for its purpose the prevention of the loss of water seal in such trap or fixture ;

“ Approved ”—Approved by the engineer or the inspector or an authorised officer of the Council, either generally or for any particular purpose ;

“ Authorised ”—Authorised by the Act or by these By-laws or by the Council ;

“ Board ”—The Plumbers, Drainers, and Gasfitters Examination and Licensing Board constituted under § “ *The Sewerage, Water Supply, and Gasfitting Act of 1949* ” ;

“ Building ”—Any fixed structure which is either wholly or in part enclosed by walls and is roofed ;

“ Combined house drain ”—Any house drain which is used for conveying sewage away from two or more adjacent premises which are not-situated within the same curtilage ;

* 9 E. 7 No. 12 and amending Acts.

† 15 G. 5 No. 32 and amending Acts.

‡ 1 G. 6 No. 1 and amending Acts.

§ This Act.

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- “Council”—In respect of Areas constituted under **“The Local Government Acts, 1936 to 1949,”* the Council of such City, Town, or Shire, as the case may be: In respect of the City of Brisbane, Brisbane City Council constituted under †*“The City of Brisbane Acts, 1924 to 1949”*;
- “Diameter,” “bore,” or “size”—The nominal diameter of any pipe. Unless otherwise specified the terms refer to the internal diameter;
- “Dwelling-house”—A building used wholly for human habitation: The term shall not include boarding-houses, tenement buildings, flat buildings, hostels, hotels, convents, schools, clubs, colleges, churches, halls, dwelling and farm, dwelling and nursery, dwelling and dairy, dwelling and stables, warehouses, shops, combined shop and dwelling, or any other premises of a similar nature;
- “Educt vent”—An opening or pipe for the exit of air from and the induction of draught in a soil pipe, waste pipe, house drain, septic tank, or filter;
- “Engineer”—The Council’s engineer or an engineer engaged or employed by the Council as engineer for sewerage: The term shall include an engineer appointed and authorised by the Council in an acting capacity for the time being as engineer for sewerage;
- “External water closet”—Any water closet which is not an internal water closet;
- “Fittings”—All apparatus or appliances, together with their necessary appurtenances and connections, for use in connection with the house drainage or plumbing system of any property, with the exception of fixtures and straight piping;
- “Fixtures”—All water closet pans, baths, basins, sinks, wash-tubs, urinals, slop sinks, and dental cuspidors, together with their necessary appurtenances and connections, which may be connected to the house drainage or plumbing system of any premises and which are intended for the collection or retention of any wastes or waste waters for ultimate discharge into the sewerage system;
- “Flat”—A suite of rooms being part of any premises which suite is let or is intended or adapted for occupation as living and/or sleeping accommodation, and which has its own bathroom, kitchen, and water closet;
- “House drain”—Any conduit situated within the curtilage of any premises provided to receive the discharge of all soil and waste pipes from such premises only, and convey such discharge to a sewer, septic tank, or other place of treatment or disposal;
- “Induct vent”—An opening or pipe for the admission of air to a soil pipe, waste pipe, house drain, septic tank, or filter;

* 1 G. 6 No. 1 and amending Acts.

† 15 G. 5 No. 32 and amending Acts.

- “Inspector”—A person appointed and authorised by the Council to inspect and approve the installation of any house drainage and plumbing work executed under the Act and these By-laws : The term shall include an inspector appointed and authorised by the Council in an acting capacity for the time being as an inspector for the purposes of these By-laws ;
- “Internal water closet”—Any water closet which is situated inside a building, and which has access thereto from inside such building : The term shall include any water closet situated on any enclosed veranda of any building ;
- “Land”—Includes any buildings therein ;
- “Licensed person”—A person holding a license granted by the Board as Plumber, Country Plumber, Water Plumber, or Drainer, as the case may be ;
- “Occupier”—The person in actual occupation of any land, or if there is no person in actual occupation, the person entitled to the possession thereof ;
- “Outbuilding”—Any building not used as a workshop, dwelling-house, place of business, place of amusement, or place of human habitation or for the storage of food intended for human consumption ;
- “Owner”—The person other than His Majesty who, for the time being, is entitled to receive the rent of any land, or who, if the same were let to a tenant at a rack rent, would be entitled to receive the rent thereof : The term includes any lessee from the Crown, and any superintendent, overseer, or manager for such lessee ;
- “Parcel of land”—Every part of an area of land which is separately held by any owner, or any part of an area of land which the Council determines shall be treated as a separate parcel of land for the purposes of these By-laws ;
- “Plumbing”—The fixtures, fittings, and piping installed to receive and convey the sewage of a building to the house drain, including the water supply and ventilation required : The term is also used to denote the work of installing such fixtures, fittings, and piping ;
- “Premises”—Includes messuages, buildings, lands, easements, and tenements of any tenure ;
- “Prescribed”—Prescribed by **The Local Government Acts, 1936 to 1949*,” or by †*The Metropolitan Water Supply and Sewerage Acts, 1909 to 1949*,” as the case may be, or by these By-laws ;
- “Septic tank”—A covered one-story chamber or tank for the reception and treatment of sewage by anaerobic bacterial action, and excludes for the purpose of this By-law any filter or other auxiliary works for the further treatment of sewage, or for the disposal of the effluents : The term does not include an Imhoff, Dortmund, or other similar type tank ;

* 1 G. 6 No. 1 and amending Acts.

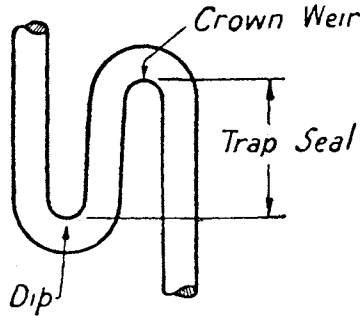
† 9 E. 7 No. 12 and amending Acts.

1949. *Sewerage, Water Supply, Etc., Act.*

- “ Sewage ”—The used water supply of a community : The term includes fæcal matter, urine, household slops, and polluted waters ;
- “ Sewer ”—Any conduit for the carrying off of sewage from any premises which is not a house drain, soil or waste pipe ;
- “ Sewerage ”—Any sewer, manhole, ventilator, structure, engine, pump, machinery, outfall, or other work for or in connection with sewerage connection to premises but not including sewerage apparatus or any house drain, soil or waste pipe ;
- “ Single-pipe system ”—That type of plumbing installation in which disconnector traps are omitted in connecting waste pipes to the house drain, and both soil and waste pipes are connected direct to the house drain or are combined as a single pipe taking both soil and waste discharges, and in which a common system of venting is used for all classes of pipe ;
- “ Slop sink ” or “ slop hopper ”—Any fixture, other than a water-closet pan or urinal, used for the discharge of soil waters and provided with flushing apparatus ;
- “ Soil pipe ”—Any pipe which conveys the sewage away from any water closet, slop sink, or urinal to a house drain, combined house drain, sewer, or septic tank ;
- “ Soil vent pipe ”—Any soil pipe extended to a prescribed height for the purpose of ventilation ;
- “ Stack ”—Any vertical line of soil, waste, or vent pipe with any junctions or offsets ;
- “ Storage tank ”—A tank installed for the purpose of storing water for any purposes in accordance with these By-laws in any premises where the water pressure is below twenty pounds per square inch or where directed ;
- “ Supply tank ”—A tank installed in any premises for the purpose of providing the necessary water for the operation of flush valves or such like fittings or apparatus ;
- “ Tenement ”—A room or rooms used for living and/or sleeping, being part of any premises let for hire or reward in one hiring, the occupants of which are not provided with board : The term does not include a flat ;
- “ Trade wastes ”—The sewage resulting from any manufacturing process from any trade, factory, or business : The term does not include sewage from any fixture ;
- “ Trap ”—A fitting which retains water to form an effective water seal, and used for the purpose of preventing the passage of air or gases, or for intercepting air, or gases, or silt, or grease, or acid, or oil, or for any other such like approved purpose : The term includes “ interceptor,” “ boundary,” “ disconnector,” “ gully,” “ grease,” “ acid,” “ oil,” or any other such like traps ;

“Trap seal”—The vertical distance between the dip and the crown weir of a trap as shown in Figure 1 :—

Figure 1.



- “Urinal”—A fixture used for the reception of urine only, and provided with an approved flushing apparatus ;
- “Waste pipe”—Any pipe which conveys the sewage from any fixture, except water closets, slop sinks, and urinals, to a house drain, combined house drain, or sewer ;
- “Waste vent”—Any vent pipe provided to ventilate a waste pipe or pipes ;
- “Water closet”—A room or like enclosed space provided solely with a water-closet pan or pans and flushing apparatus ;
- “Water-closet compartment”—A division of a water closet provided with a water-closet pan and flushing apparatus : The term includes “cubicle” ;
- “Water-closet pan”—A fixture for the reception of fæcal matter and urine, and provided with an effective trap seal: The term does not include a slop sink or urinal ;

PART II.—ADMINISTRATIVE REQUIREMENTS.

DIVISION I.—GENERAL.

Sewer Provided by Council.

3. The Council shall, without charge to the owner, provide a sewer up to the boundary of or within any premises within its declared area for the purpose of carrying away all sewage from such premises except as may be provided in By-law 51.

The position of such sewer at the boundary as aforesaid shall be fixed by the engineer.

House Drainage and Plumbing Provided by Council.

4. The Council may, as part of its sewerage, undertake without charge to the owner to provide and fix house drains and such fittings and fixtures as the Council may by resolution agree to provide which are required for any premises within its area for the purpose of carrying away all sewage from such premises.

1949. *Sewerage, Water Supply, Etc., Act.*

Owner to Provide House Drainage and Plumbing.

5. Where the Council provides a sewer up to or within the boundary of any premises but does not provide and fix house drainage and plumbing, the owner of such premises shall provide all the necessary house drains and plumbing as may be required and approved for the carrying away of all sewage from such premises, and shall connect such house drains to the sewer at the position fixed by the engineer.

Authority to Execute House Drainage and Plumbing.

6. No person shall execute any house drainage and/or plumbing on any premises except in accordance with a plan approved by the Council and until authority has been first obtained in writing from the Council.

Notification by Council.

7. The Council shall by written notice notify the owner of any premises that the Council has made provision for carrying off the sewage from such premises.

DIVISION 2.—CONSENTS AND APPROVALS.

Application for Approval to Connect to Sewer.

8. Where the Council does not undertake to provide and fix house drainage and plumbing as part of its sewerage the owner of any premises on which are situated any building or buildings shall, within one month after receipt of a written notice from the Council in accordance with By-law 7, or within such further time as the Council may either before or after the expiration of such one month allow, make application to the Council in writing for permission to provide such house drainage and plumbing as the Council may deem necessary for carrying off sewage from such premises.

Such application shall state—

- (a) The precise location of the premises ;
- (b) The name and address of the owner ; and
- (c) The nature of the business conducted on the premises.

In making such application the owner may—

- (i.) Submit with such application a request in writing to the Council to prepare a plan for the plumbing and house drainage of such premises ; or
- (ii.) Submit with such application a plan to scale for such plumbing and house drainage. The plan shall show the house drainage in plan, and if required by the Council shall be submitted in section and elevation, and in duplicate. The Council may retain a duplicate plan for record purposes.

If any owner of any premises fails to submit a plan for such premises, or has not made a request to the Council as provided by these By-laws, as the case may be, within the time specified in such notice from the Council aforesaid, such owner shall be deemed to have requested the Council to prepare plans of the plumbing and house drainage work on such premises in accordance with these By-laws. The owner of such premises shall pay all fees and/or charges as prescribed for such plans.

Provision of House Drainage and Plumbing by Council.

9. Where the Council provides house drainage and plumbing as part of its sewerage, the Council shall undertake, without charge to the owners of premises, to make provision for the sewerage of premises within three hundred feet of the sewerage, to the extent set out hereunder :—

- (a) *Dwelling-houses*—For each separate dwelling-house intended for separate accommodation as a single private residence, regardless of how many such separate dwelling-houses there may be erected upon any particular parcel of land, the Council shall provide the house drains necessary in the opinion of the Council for carrying off of sewage from the premises, but limited to the house drains requisite to receive the discharge from one water closet pan, one bath, one basin, one kitchen sink, and one set of two washtubs from each separate dwelling-house ; and the Council shall also provide and instal in each dwelling-house one water-closet pan complete with seat and all necessary plumbing and flushing apparatus, and shall provide and instal the necessary waste pipes and fittings required to connect one bath, one basin, one kitchen sink, and one set of two washtubs to the house drains. All of the aforesaid fittings and fixtures shall be of a standard type to be determined by the Council. Any provision required in excess of the above shall be paid for by the owner.
- (b) *Buildings of all other classes*—Each building, subject as hereinafter mentioned, shall have the like provision made by the Council, as in the case of a private dwelling-house. Any further water closet or other sewerage provision required by law, or desired by the owner, shall be provided by the owner at his own cost.

Where two or more buildings, other than dwelling-houses, are erected on a parcel of land, they are to be regarded for the purposes of this By-law as constituting a single building.

- (c) Where one or more separate dwelling-houses and one or more other buildings are erected on a parcel of land provision will be made by the Council for the dwelling-house or dwelling-houses only. Provision for the other buildings must be made by the owner.
- (d) A building used, as to part thereof, as a dwelling-house, and as to another part or other parts for other purposes (such as a shop), is to be regarded as coming under clause (b).
- (e) In cases of dispute, the Council shall determine what provision will be made by it as part of its sewerage.

Extra Provision Where Council Provides House Drainage and Plumbing.

10. (1) Notwithstanding the determination or adoption by the Council of a standard type of water-closet pan or other apparatus to be provided by it in accordance with By-law 9, the owner of any premises may instal or have installed apparatus other than the standard

 1949. *Sewerage, Water Supply, Etc., Act.*

provided that such other apparatus conforms to the requirements of these By-laws. The increased cost of providing and installing such other than standard apparatus shall be borne by the owner of the premises.

(2) Where greater sewerage provision than that which the Council undertakes to make as part of its sewerage system is desired by the owner of any premises, or is required by law to be made for any premises, the cost of such greater provision shall be borne by the owner of the premises.

(3) The Council may, if required by the owner, and at the cost of the owner, undertake the providing and installing of such other than standard apparatus as aforesaid or such greater sewerage provision as aforesaid.

(4) Where, on any premises in which the Council proposes to make provision for house drainage and plumbing as part of its sewerage under the provisions of By-law 9, any work is necessary to be done to bring existing buildings or structures into conformity with the requirements of these By-laws and enable such provision as aforesaid to be made, such work shall be done by the owner of the premises: Provided that if such owner does not do such work within a reasonable time (to be fixed by the Council) after written notice to him to do so, the Council may do the work and recover the cost thereof from the owner, together with interest thereon at the current bank rate from and after the expiration of one calendar month after service upon the owner of a demand for the payment of such cost.

Misrepresentation.

11. No person shall make any wilful misrepresentation in any application, request, plan, or specification for the house drainage and plumbing of any premises.

Notice of Approval of Application.

12. The Council shall, when requested to prepare a plan in accordance with By-law 8 (i.), as soon as conveniently may be, prepare such plan and forward it to the owner.

When a plan is submitted by the owner as provided in By-law 8 (ii.) the Council shall, as soon as conveniently may be, give notice in writing to the owner that—

- (a) The plan as submitted has been approved; or
- (b) The plan as submitted is not approved, and that an amended plan in accordance with these By-laws must be submitted.

Approval shall not be given for the performance of any house drainage or plumbing work except upon condition that any person engaged or employed as a workman in the actual performance of such work is a licensed person entitled to undertake such work, or is an indentured apprentice within the meaning of **The Apprentices and Minors Acts, 1929 to 1948*,* working actually in company with a licensed person entitled to undertake such work.

It shall be deemed to be a condition of every approval granted to an owner or agent that, on a notice being served by the Council that the license of any person employed by him has been suspended or cancelled, he shall forthwith cease to employ such person upon any house drainage or plumbing work connected to, or intended to be connected to, any drain or sewer of the Council, or to any pipe or work connected to any drain or sewer of the Council, and shall not again employ such person upon any such work during the continuance of such suspension or cancellation. Any such owner or agent who shall neglect or fail to comply with this condition shall be liable to a penalty not exceeding ten pounds.

Alterations to Approved Plan.

13. No person shall make any addition, subtraction, alteration, amendment, or modification to any plan for the house drainage and plumbing of any premises which has been approved, except on the written application of the owner and with the approval of the engineer and upon payment of the prescribed fee. Such approval shall be endorsed in writing on the approved plan.

Power to Revoke.

14. Any approval may be revoked at any time if any misrepresentation, addition, subtraction, alteration, amendment, or modification is made in or to any application, request, or plan without the written approval of the engineer.

DIVISION 3.—PENALTIES.

General Penalty.

15. Any person committing a breach of any of these By-laws to which no specific penalty is attached shall be liable to a penalty not exceeding twenty pounds and to a daily penalty not exceeding forty shillings for each day on which such offence is continued after notice by the Council.

DIVISION 4.—FEES.

House Drainage Plans.

16. The Council may by By-law made in pursuance of the provisions of **"The Local Government Acts, 1936 to 1949,"* or, in the case of the Brisbane City Council, by Ordinance made in pursuance of the provisions of †*"The City of Brisbane Acts, 1924 to 1949,"* prescribe fees which shall be paid to the Council by the owner of premises in respect of the following services rendered by the Council—

- (a) Preparation of drainage plan of dwelling-house ;
- (b) Preparation of copy of drainage plan of dwelling-house ;
- (c) Preparation of drainage plan of premises other than dwelling-house ;
- (d) Preparation of copy of drainage plan of premises other than dwelling-house ;
- (e) Scrutiny of drainage plan not prepared by Council—
 - (i.) Dwelling-house,
 - (ii.) Premises other than dwelling-house ;

* 1 G. 6 No. 1 and amending Acts.

† 15 G. 5 No. 32 and amending Acts.

1949. *Sewerage, Water Supply, Etc., Act.*

- (f) Preparation of tracing of group of premises, showing position of sewer and of branches to which the drains of the premises will be connected, and the depths of such branches ;
- (g) Preparation of plan of plumbing work ; and
- (h) Amendment of any drainage plan, whether prepared by the Council or otherwise.

Inspections.

17. The Council may by By-law made in pursuance of the provisions of **"The Local Government Acts, 1936 to 1949,"* or, in the case of the Brisbane City Council, by Ordinance made in pursuance of the provisions of †*"The City of Brisbane Acts, 1924 to 1949,"* prescribe fees which shall be paid to the Council by the owner of premises in respect of the following matters :—

- (a) Inspection and report on fittings and drains (if any) existing prior to connection of premises with Council's sewer ; and
- (b) Inspection of plumbing and drainage work arising out of connection of premises with Council's sewer—
 - (i.) Private dwelling,
 - (ii.) Premises other than private dwelling.

DIVISION 5.—NOTICE TO CONNECT.

Notice to Connect to Sewer, &c.

18. The owner of any premises shall, upon notification in writing from the Council, commence the house drainage and plumbing work on such premises within a time specified in such notice. Such time shall be not less than one month.

The owner of any premises may, within one month of the receipt of such notice aforesaid, request the Council in writing to execute the work of house drainage and plumbing on such premises at the expense of the owner to the extent of the actual cost of such work.

The Council may comply with such request, but before compliance may stipulate that, as a condition precedent to such compliance, the whole or a portion of the estimated cost be prepaid to the Council, or security be given, or some other agreement be made for the due payment by the owner of the actual cost.

If the owner of any premises fails or neglects to comply with such notice aforesaid to commence the house drainage and plumbing on such premises within the time specified the Council may proceed to execute the work at the expense of the owner.

If the Council executes any house drainage and plumbing work on any premises on behalf of an owner in default the Council may, without prejudice to any other right it may possess, add to the actual cost of executing such house drainage and plumbing any fees and/or charges that may be payable under these By-laws, and such fees and/or charges shall be deemed to form part of such expense to be paid by the owner.

* 1 G. 6 No. 1 and amending Acts.

† 15 G. 5 No. 32 and amending Acts.

Sewerage, Water Supply, Etc., Act. 13 GEO. VI. No. 55,

If the owner of any premises on which the Council has executed house drainage and plumbing either on request or in default is unable to pay the cost of such house drainage and plumbing the Council may accept payment therefor in instalments on such terms as may be arranged by the Council, on application by the owner within one month of such owner being notified in writing by the Council of the cost of executing such work on such premises.

The Council may at any time extend the time for such payment on such terms as may be arranged by the Council.

Notwithstanding anything contained in this By-law the owner may at any time pay to the Council such portion as then remains unpaid of such cost and on such terms as may be arranged by the Council.

In the event of any default by the owner of any premises in carrying out any arrangement for the payment of such cost the whole amount then unpaid shall become due, payable, and recoverable with interest at the current bank rate from and after the expiration of one calendar month after service upon the owner of a demand for the payment of such cost.

Such cost recoverable under these By-laws by the Council shall include any compensation other than that for negligence or misfeasance paid by the Council in respect of such house drainage and plumbing.

Any amount payable to the Council in pursuance of this By-law shall, until payment, be and remain a charge upon the land on which the house drainage and plumbing was executed in priority to all mortgages, charges, liens, and encumbrances whatsoever, and notwithstanding any change that may take place in the ownership thereof.

The provisions of this By-law shall apply to the maintenance and/or cleansing of house drainage and plumbing.

DIVISION 6.—PLUMBERS' AND DRAINERS' LICENSES.

Only Licensed Persons to Perform Work.

19. No person shall execute house drainage or plumbing work of any kind on any premises, other than excavation, and/or backfilling of trenches, or any other work of an unskilled nature unless he is a licensed person entitled to undertake such work or is an indentured apprentice within the meaning of **"The Apprentices and Minors Acts, 1929 to 1948,"* working actually in company with a licensed person entitled to undertake such work.

Unlicensed Persons not to be Employed.

20. No person shall employ or contract with any person to execute house drainage or plumbing work of any kind on any premises, other than excavation, refilling of trenches, and the preparation of concrete and other structural materials, unless such person is a licensed person.

Scope of Licenses.

21. (a) The holder of a Plumber's License or Interim Plumber's License shall be entitled to perform any plumbing work required to be performed in pursuance of these By-laws.

* 20 G. 6 No. 37 and amending Acts.

1949. *Sewerage, Water Supply, Etc., Act.*

(b) The holder of a Country Plumber's License or Interim Country Plumber's License shall subject as hereinafter provided be entitled to perform any plumbing work required to be performed in pursuance of the Appendix to these By-laws :

Provided that the holder of a Country Plumber's License or Interim Country Plumber's License shall not be entitled to perform any work required to be performed in pursuance of the Appendix to these By-laws within the Area of the City of Brisbane, or the Area of any Town which has undertaken the provision of sewerage as a function pursuant to section 36 of **"The Local Government Acts, 1936 to 1949,"* or, in the case of a Shire, within the sewered Area thereof.

(c) The holder of a Water Plumber's License or Interim Water Plumber's License shall be entitled to perform any plumbing work required to be performed in pursuance of these By-laws relating to the provision of watersupply to the fittings and fixtures therein mentioned.

(d) The holder of a Drainer's License or Interim Drainer's License shall be entitled to perform any drainage work required to be performed in pursuance of these By-laws.

Duties of Licensed Persons.

22. Every licensed person shall—

- (a) Execute and complete all house drainage or plumbing carried out by him in accordance with the provisions of these By-laws and the approved plan ;
- (b) Execute and complete such house drainage or plumbing in a thorough and tradesmanlike manner and as expeditiously as practicable and leave the site clean and undefaced, all to the satisfaction of the engineer or inspector ;
- (c) Use only tested and approved materials ;
- (d) Obtain written permission where necessary for the execution of such house drainage or plumbing on, over, or through any private property, and streets, parks, reserves, or other public places or premises ;
- (e) Pay any fee prescribed by the Council for opening any street, road, or thoroughfare, or otherwise in connection with such house drainage or plumbing ;
- (f) Restore to the satisfaction of the engineer or inspector any street, road, thoroughfare, and any other property which has been interfered with in connection with such house drainage or plumbing ;
- (g) Take all proper and necessary precautions that no accident or damage or unnecessary inconvenience may be directly or indirectly occasioned in or by the execution of such house drainage or plumbing ;
- (h) When so directed by the engineer or inspector, make good within fourteen days, at his own expense, any defect found within twelve months of the date of the completion of any house drainage or plumbing due in the opinion of the engineer or inspector to faulty workmanship or defective materials ;
- (i) Comply with any instructions given by the engineer or inspector in accordance with these By-laws.

* 1 G. 6 No. 1 and amending Acts.

PART III.—GENERAL REQUIREMENTS.

DIVISION 7.—GENERAL.

Type of Drainage System Adopted (Double or Single Pipe).

23. The standard method of sewerage connection to any premises shall be that known as the double-pipe system in which separate waste pipes are provided for all fixtures of a similar class, as required under By-law 85, and in which disconnector or gully traps are provided on the house drain.

Where approved by the engineer the single-pipe system of sewerage of premises, or a combination of the single-pipe system and the double-pipe system, may be adopted.

The Council may, by notice in writing to the owner of any premises, require the single-pipe system or a combination of the double-pipe system and the single-pipe system to be adopted on any such premises.

Notice of Intention to Build or Alter.

24. No person shall, without the permission of the Council, build a new building, or rebuild any building, or make any alterations to any existing building, or deposit any material which would cover over or interfere with any existing sewerage. Any necessary alterations to such sewerage may be carried out by the Council at the owner's expense.

Applications.

25. Any notice and/or application required to be given or made to the Council by any person under these By-laws shall be made upon the forms provided by the Council on application.

Precautions.

26. Any person in charge of any house drainage or plumbing under construction on any premises shall take all adequate precautions to prevent injury to workmen, property, or the public.

The Council shall not be responsible for any claims for injury or damage caused by neglect to take adequate precautions for any house drainage or plumbing work not executed by the Council.

Notification of Completion of Work.

27. The licensed person in charge of any plumbing or house drainage on any premises shall, within seven days after completion thereof, notify the engineer or inspector of such completion and that final inspection of the work is required. Such inspection shall be made by the inspector as soon as practicable after receipt of the notification. If required by the engineer, the notification shall be a correct statement on the forms provided by the Council for such purpose of all work executed by him.

After final approval by the inspector the Council may and shall if requested issue a certificate that such work has been completed in accordance with these By-laws.

Observance of By-laws.

28. Where any of these By-laws does not expressly provide by whom its requirements, whether relating to plans, specifications, materials, workmanship, manner of construction or installation, or any

1949. *Sewerage, Water Supply, Etc., Act.*

other matter are to be observed, the observance of such requirements shall be the duty of the owner of the premises concerned in any particular case, and of the licensed person concerned in the construction of the plumbing and house drainage of such premises.

If the requirements of any of these By-laws are not observed the owner shall be guilty of an offence.

The owner shall, upon receiving notice in writing from the Council so to do, alter any structure, house drainage, or plumbing which is not in conformity with these By-laws so as to bring it into conformity therewith.

Failure to comply within the time limited by such notice shall render the owner guilty of a further offence, and the Council may cause any work as specified in such notice to be carried out and recover the cost and expense of so doing at any time from the owner of such premises.

Instructions Contrary to By-laws.

29. No person, firm, or company shall give or issue to any person any instructions or directions contrary to these By-laws.

No licensed person shall carry out any instructions or directions from any person, firm, or company which are contrary to these By-laws.

Obstruction.

30. No person shall obstruct or hinder any contractor, or a servant of a contractor, or any authorised officer of the Council in carrying out the requirements of these By-laws.

Danger of Disease.

31. Where on any premises the house drainage, plumbing, or septic tank installation is a nuisance, or injurious, or prejudicial to health, the Council shall, on a certificate to that effect from its Medical Officer of Health, serve a notice on the owner or occupier requiring the abatement of the nuisance within a time specified in the notice, and the execution of such works and the doing of such things as are necessary for that purpose, and such owner shall comply with such order within the time specified.

DIVISION 8.—USE OF SEWERS.

Permissible Discharges.

32. The occupier of any sewered premises shall discharge into the sewers all faecal matters, urine, household slops, liquid wastes from sinks, baths, and all similar fixtures, and all polluted waters from stables, manure bins, washing areas, basement areas, cellars, and such liquid trade wastes as may be approved or authorised, subject in each and every case to such exceptions and conditions as may be imposed or authorised.

Prohibited Discharges.

33. No person shall discharge or cause to be discharged into any house drain or sewer, except under such conditions as may be approved or authorised, any of the following :—

- (a) Any fleshings, wool, hair, dead animal, grease, dust, ashes, rubbish, garbage, offal, vegetable, fruit, rags, oil, silt, mud, gravel, sand, or any like substance ;

- (b) Any petrol, or other inflammable or explosive substance, whether solid, liquid, or gaseous ;
- (c) Any roof, rain, storm, surface, flood, subsoil, or seepage waters ;
- (d) The contents of any nightsoil vehicle, cesspool, privy, or septic tank ;
- (e) Any solid, liquid, gas, steam, or other substance the pH value of which is less than 7 or more than 9.5 and which, in the opinion of the engineer, is injurious or liable to be injurious to any part of the sewerage or dangerous or injurious to the life or health of any of the employees of the Council engaged in any sewerage work ;
- (f) Any liquid which is above the temperature of 100° F or such higher temperature as may be authorised by the Council having regard to the special circumstances of any particular case ;
- (g) Any trade waste not approved or authorised.

DIVISION 9.—TRADE WASTES.

Conditions of Discharge.

34. No person shall discharge or cause to be discharged into any sewer any trade waste unless and until such of the following conditions, as may be authorised or approved by the engineer having regard to any special circumstances in each case, are complied with :—

The owner of any premises shall make application in writing to the Council for permission to discharge any trade waste from any premises into a sewer.

Such application shall be accompanied by a plan and specification of the sewerage to be constructed and the sewerage apparatus to be used in connection with the treatment of the sewage to be discharged from such premises, and shall include such details as are required by the Council concerning—

- (a) Nature of the trade waste ;
- (b) Quantity of trade waste to be discharged and the rate of such discharge ;
- (c) Periods of discharge of trade waste ;
- (d) Proposed method of treatment of the trade waste before entry into the sewer ; and
- (e) Any other information which the Council may deem necessary.

The engineer may determine—

- (i.) The maximum daily quantity of trade waste which may be discharged ;
- (ii.) The maximum permissible rate of discharge of such trade waste ;
- (iii.) The diameter and capacity of the house drain ;
- (iv.) The hours during which such trade waste shall be discharged ;
- (v.) Whether such trade waste shall require treatment before discharge into a sewer ;

1949. *Sewerage, Water Supply, Etc., Act.*

- (vi.) The method of such treatment, which may be by settling, sedimentation, filtering, screening, neutralizing, detention, or any other method, or by any one or more methods ;
- (vii.) The means or method by which the volume of trade waste shall be measured ;
- (viii.) The dimensions, capacities, materials of construction and finish of sedimentation tanks, filters, screens, neutralizing, settling, and detention tanks required for the satisfactory treatment of trade waste before discharge into a sewer ;
- (ix.) The quantity, rate, and place of application of any chemicals required for treatment of trade waste.

The effluent from any treatment process shall be free from solids in suspension beyond 30 parts per 100,000, including no more than 10 parts per 100,000 of fat, shall possess no acidity, and shall have a five-day bio-chemical oxygen demand not greater than that of the sewage in the sewer into which the trade waste is to be discharged.

Permission in writing may be granted to the owner of any premises to discharge trade wastes into a sewer subject to such of the conditions aforesaid as may be approved by the engineer or authorised.

In no case shall the said permit be assigned or transferred except by permission in writing of the Council.

The Council, if satisfied on the report of its engineer that any owner who has been granted permission to discharge trade wastes into any sewer has failed to observe any of the conditions of approval or authorisation or of these By-laws, may require him to carry out such conditions or may by resolution revoke such permission.

The owner of any works for the treatment of trade wastes shall maintain such works at his own expense in a clean and sanitary condition so as not to be a nuisance, and in good repair and in an efficient and satisfactory working condition.

If in the opinion of the engineer the conditions of approval and the By-laws are not complied with the Council may, by notice in writing, require the owner of any works for the treatment of trade wastes to clean such works at such intervals as may be specified in such notice.

The Council shall, by notice in writing, when, in the opinion of the engineer, any works for the treatment of trade wastes are in an insanitary condition, or are a nuisance, or are out of repair, or are not in an efficient or satisfactory working condition, require the owner to remedy the insanitary condition, or to abate the nuisance, or to repair or to carry out such work as may be necessary to put such works into an efficient and satisfactory working condition.

The owner or occupier of any works for the treatment of trade wastes shall permit the engineer or inspector to enter upon the premises and inspect such works and, if required, take samples of the sewage or effluent on or from such works.

If the owner of any works for the treatment of trade wastes fails to comply with any notice in writing from the Council within the time specified in such notice the Council may enter upon such premises and carry out any works necessary to comply with such notice at the expense of the owner.

For the purposes of examination, maintenance, or repair of any sewer the Council may, by notice in writing, require the owner of any premises to cease to discharge any trade wastes into any sewer for such time as shall be specified in such notice without payment of any compensation to the owner or occupier.

This By-law shall apply to any premises which are discharging trade wastes into any sewer on or after the date of commencement of these By-laws.

Any cost or expense which may be incurred by the Council and which under these By-laws is recoverable by it from the owner shall include five pounds per centum for superintendence, and shall carry interest at the current bank rate from and after the expiration of one calendar month after service upon the owner of a demand for the payment of such cost and expense and shall be and remain, until paid, a charge on the land.

DIVISION 10.—MATERIALS AND WORKMANSHIP.

Standard of Materials.

35. All materials, fittings, fixtures, pipes, and apparatus used in the house drainage and plumbing shall be the best of their respective kinds and shall comply, except where otherwise expressly provided in these By-laws, with the relevant Australian Standards Specification, where such exists, or in the absence of any Australian Standard the relevant British Standards Specification. If no Australian or British Standards Specification is available in respect of any material, fittings, fixtures, pipes, or apparatus, then such material, fittings, fixtures, pipes, or apparatus shall comply with such other specification as may be authorised.

Any person who executes any house drainage or plumbing on any premises shall use only approved, stamped, or marked fittings, fixtures, and pipes, and such materials which are the best of their respective kinds or types and which comply with such Standard Specifications as apply and as are authorised by the Council.

The engineer or inspector may prohibit the use of any fittings and fixtures or materials where the circumstances or conditions are considered unfavourable to their use.

All work shall be executed in a thorough and workmanlike manner to the approval of the engineer or inspector.

Other Designs of Fittings and Fixtures.

36. Notwithstanding anything contained in these By-laws, the engineer may approve of any fitting or fixture or patented apparatus under these By-laws not covered by By-law 35, and shall determine the conditions governing the connection of such fittings and fixtures to the house drain.

Existing House Drainage and Plumbing.

37. The owner of any premises who has been notified by the Council to provide house drainage and plumbing for such premises, and on which premises there exist house drainage and/or plumbing not in accordance with these By-laws, may make application to the Council in writing to retain such house drainage and/or plumbing on such premises.

1949. *Sewerage, Water Supply, Etc., Act.*

The Council may authorise in writing that all or any of such house drainage and/or plumbing may be retained on such premises, and may fix a time limit for such retention as it may deem fit. If required by the Council such house drainage and/or plumbing shall be inspected and tested before such authorisation. The expense of such inspection and testing shall be borne by the owner of the premises.

The owner of such premises shall comply with such conditions and shall remove such house drainage and/or plumbing when so required by the Council.

Concrete.

38. Concrete, unless otherwise approved, shall consist of one part Portland cement, two parts clean sharp sand, and four parts broken stone or river gravel not exceeding one and a half inch gauge, and shall be thoroughly mixed with clean water to an approved consistency.

Cement Mortar.

39. Cement mortar for rendering and pipe jointing, unless otherwise approved, shall consist of one part Portland cement and two parts clean sharp sand mixed with clean water to an approved consistency.

DIVISION 11.—INSPECTIONS—TESTS.

Only Approved and Stamped Materials to be Used.

40. All fittings, fixtures, materials, and pipes used in connection with the house drainage and plumbing on any premises shall be first approved, tested, and stamped or marked in such manner as may be approved by the engineer. Such testing and stamping or marking shall be done at such time and place as may be fixed by the engineer.

The person, firm, or company submitting any fittings, fixtures, materials, or pipes to the Council for testing shall, whether such fittings, fixtures, materials, or pipes be approved or rejected, pay the cost of such testing and stamping or marking.

No person shall use any fittings, fixtures, materials, or pipes which have not been approved, tested, and stamped or marked or which have been rejected in or on any house drainage or plumbing on any premises.

Inspection and Testing.

41. Any fittings, fixtures, materials, or pipes which have been damaged after such fittings, fixtures, materials, or pipes have been tested and stamped shall not be used in the house drainage and plumbing of any premises.

No person shall cover up any newly-constructed or reconstructed house drainage and plumbing or newly-fitted or refitted fittings and fixtures until such house drainage or plumbing or fittings and fixtures have been inspected, tested, and approved.

The person in charge of the installation, alteration, or repair of any house drainage or plumbing on any premises shall report to the Council in writing when such house drainage or plumbing is ready for inspection and/or testing.

The Council shall cause such inspection to be carried out within forty-eight hours of such notification being received at the Council office ; should such notification be received on a Friday, or a public holiday or holidays intervene, then within forty-eight hours after the termination of the week-end or such holiday period.

The engineer or inspector (who shall possess a plumber's license) may apply the water test, or smoke test, or any other approved test to the whole of the house drainage and plumbing and to all fittings and fixtures or to any section or any part thereof, or to any such fittings and fixtures, and such test may be carried out in one or more operations.

The testing apparatus shall be provided by the Council.

The licensed person in charge shall provide all tools, materials, labour, and assistance as may be required by the engineer or inspector.

Any defects found as a result of such inspection and/or test shall be made good by the person who executed such house drainage or plumbing, within twenty-four hours after being notified of such defects.

The engineer or inspector shall reapply such test before final approval of the work.

DIVISION 12.—MAINTENANCE AND DEFECTIVE WORK.

Maintenance by Council.

42. The Council shall, where house drainage and/or plumbing work has been executed by the Council on any premises, either on request or default of the owner, keep and maintain such work in a state of good repair at the Council's own expense for a period of twelve months from the date of completing such work unless the necessity for such repair is caused by the wilful act or neglect of the owner or occupier.

Maintenance by Contractor.

43. Any licensed person who has executed house drainage and/or plumbing work on any premises shall within fourteen days after notice in writing from the Council of any defect found within twelve months from the date of completing such work, which defect in the opinion of the engineer or inspector is due to faulty workmanship or defective material, make good all such defects at his own expense.

Cleaning, Repairs, and Renewals.

44. A licensed person before commencing to effect any repair or renewal of house drainage or plumbing, or the removal or the cleansing thereof, shall give twenty-four hours' notice thereof in writing to the Council so that an inspector may attend, except in cases of emergency, when he shall give the Council such notice as the circumstances in each case permit, and written notice thereof immediately after commencing the work.

Defective House Drainage and Plumbing.

45. The Council may, by notice in writing, require the owner of any premises, within a time specified in such notice, to relay, remove, replace, or repair in such premises any house drainage and/or plumbing which in the opinion of the engineer or inspector is in a defective condition. The owner shall comply with such notice within such specified time.

1949. *Sewerage, Water Supply, Etc., Act.*

Chokages in Combined House Drains.

46. In the case of any obstruction in, disrepair of, or damage to any combined house drain, due to defective materials, breakages, or tree roots, the Council shall, in the case of dispute between the owners of such premises, execute such work as is necessary to remove such obstruction, or to repair or reconstruct the whole or any part of such combined house drain, and shall apportion the cost thereof among such owners.

Where there is only one owner for two or more premises sewered by a combined house drain, such owner shall cause to be carried out such work as may be required by the Council by notice in writing within a time specified in such notice.

Responsibility of Owner.

47. The owner of any premises shall maintain the house drainage and plumbing and all fittings and fixtures in good repair, and in working order at all times.

In any case where the owner of any premises is unknown to the Council, or is difficult to communicate with, the Council may require the occupier of the premises to do anything which by these By-laws may be required to be done by the owner and the occupier shall thereupon be under the like obligation as if he were the owner. But (subject to any contract between the owner and the occupier) the occupier shall be entitled to recover from the owner any expense incurred by him in fulfilling such requirements and may retain the same from any rent payable by him. For the purpose of this By-law, owner includes any person from whom the occupier holds the premises and to whom he pays the rent.

Responsibility of Occupier.

48. The occupier of any premises shall maintain the house drain and fittings and fixtures free from obstruction other than obstructions caused by defective materials, breakages, or tree roots, and in a clean and sanitary condition at all times.

DIVISION 13.—MINIMUM REQUIREMENTS.

Minimum Number of Fixtures Required for Certain Premises.

49. The owner of any premises may provide any number of approved fixtures over the prescribed number on any premises in accordance with these By-laws.

The owner of any premises as prescribed hereunder shall provide the following minimum number of approved fixtures for such premises connected or to be connected to the sewerage of the Council :—

(a) *Dwelling-houses :*

One water-closet pan with seat, one bath or shower, one kitchen sink, and one set of two washtubs.

(b) *Flats :*

For each flat—one water-closet pan with seat, one bath or shower, and one kitchen sink. In addition a set of three washtubs shall be provided for every four flats or part of four flats in any block of flats.

(c) Boarding-houses ; tenement buildings :

One water-closet pan with seat, one bath or shower, and one basin for every ten males or part thereof and the like provision for every ten females or part thereof. One kitchen sink. One set of three washtubs. One urinal where more than 20 males.

(d) Schools, colleges, educational institutions :

Water closet accommodation shall be provided for schools, colleges, and educational institutions as follows :—

For every 33 boys attending 1 water closet.

For every 25 girls attending 1 water closet.

Each water-closet pan shall be fixed in a separate compartment or cubicle with open fronts or half-waisted doors.

In the case of infants, juvenile water-closet pans shall be used or arrangements made, as directed by the engineer or inspector, to reduce the height of the water-closet pan from the floor.

In addition to the water closet accommodation for boys, there shall be provided urinal accommodation at the rate of six lineal feet or three urinal stalls per hundred boys.

(e) Office and business premises :

Such numbers of water closets and basins and such urinal accommodation as may be required and approved by the engineer.

(f) Places of amusement, recreation, and sport :

Such numbers of water closets and basins and such urinal accommodation as may be required and approved by the engineer, except as provided for theatres and cinemas hereunder.

(g) Theatres and cinemas :

Water closets—Separate water closets for males and females shall be provided in accordance with the following table :—

Total Seats in Theatre or Cinema.	Number of Water Closets to be Provided.		
	For Males.	For Females.	Total.
Up to 200 seats	1	1	2
Between 200 and 400 seats ..	1	2	3
Between 400 and 500 seats ..	2	2	4
Between 500 and 1,000 seats ..	2	3	5

Where the total number of seats in the theatre or cinema exceeds 1,000, in addition to the water closets to be provided as shown in the last line of the above table an extra water closet for males shall be provided for every 1,000 seats or part thereof above the original 1,000 seats in the theatre or cinema, and in addition an extra water closet for females shall be provided for every 800 seats or part thereof above the original 1,000 seats in the theatre or cinema.

1949. *Sewerage, Water Supply, Etc., Act.*

Urinals—One urinal stall or two lineal feet for every 100 seats in the theatre or part thereof.

Basins—One basin for every 500 seats in the theatre or part thereof, provided that one basin shall be provided for males and one for females.

Separate water closet and urinal accommodation and basins as may be required and approved shall be provided for staff, performers, orchestra, and other employees.

(h) *Hotels :*

Such accommodation as is prescribed by **“ The Liquor Acts, 1912 to 1948,”* and Regulations thereunder in force for the time being.

(i.) *Shops, factories, and warehouses :*

Such accommodation as is prescribed by †*“ The Factories and Shops Acts, 1900 to 1945,”* and Regulations thereunder in force for the time being.

The water closet accommodation for any premises other than dwelling-houses and/or flats as prescribed heretofore shall be separate for the sexes, and, if adjacent to one another, shall have soundproof party walls, separate entrances, and where practicable separate approaches, and be so situated as to secure privacy.

Water-Closet Pans and Baths in Separate Apartments.

50. Each water-closet pan and each bath or separate shower provided in any boarding-house, tenement building, or on any other premises as may be required by the Council shall have a separate apartment or compartment.

On any such premises, except dwelling-houses or flats, where a water-closet pan is provided in a bathroom it shall be in addition to the number of water-closet pans prescribed by these By-laws.

PART IV.—HOUSE DRAINAGE.

DIVISION 14.—GENERAL PROVISIONS.

Separate and Combined House Drains.

51. Each premises shall be sewered separately : Provided that, where two or more premises or a group or block of premises can with advantage be sewered by a combined house drain, the engineer may approve of or by notice in writing require such a combined house drain for such premises.

In the case of any dispute between the owners of any premises sewered or to be sewered by a combined house drain, the Council shall apportion the cost of such combined house drain among the separate owners, if any, of such premises.

Sizes of House Drain.

52. Every house drain shall be of an approved size for the carrying away of all sewage from any premises. The minimum diameter shall be four inches.

* 3 G. 5 No. 29 and amending Acts.

† 64 V. No. 28 and amending Acts.

Materials.

53. All house drain pipes, bends, junctions, and fittings used shall be of glazed stoneware, concrete, cast iron, or other approved material: Provided that the engineer may prohibit the use of any of the abovementioned where the circumstances or conditions are considered unfavourable.

Inspection Chambers.

54. Inspection chambers shall be located on the line of the house drain as indicated on the approved plan and shall be constructed of concrete or brick up to the ground surface, rendered in cement mortar, and fitted with an approved closed cover.

Inspection chambers shall comply with any plan and/or specification which may be prepared by the Council.

The portions of the house drains which cross the floor of the inspection chamber shall be constructed in channels in the floor of the chamber so as to provide a streamline flow.

Such inspection chambers shall be of the following dimensions:—

- (a) Under five feet deep, not less than three feet long by two feet wide;
- (b) Up to eight feet deep, not less than three feet six inches long by two feet six inches wide; and
- (c) Over eight feet deep, not less than four feet long by three feet six inches wide.

Inspection Openings.

55. Every line of house drain shall be provided with an approved inspection opening at intervals of not more than forty feet, and at each junction not provided with an inspection chamber, and at each change of direction or grade in the line of the house drain.

In areas paved or covered with concrete, bitumen, or other impervious material such inspection opening shall be carried up to the surface and fitted with an approved airtight cover.

The cross sectional area of an inspection opening shall not be less than the cross sectional area of the house drain.

Drain Openings not in Use.

56. The ends of all house drains not in use for any purpose and not connected to any fittings and fixtures shall be securely sealed with approved watertight materials. If such house drains be of stoneware, fireclay, or concrete, an approved disc shall be cemented in the opening; if of cast iron, a cast iron plug shall be caulked in with lead.

Replacing or Inserting Pipes.

57. Where it becomes necessary to remove a pipe to clear a stoppage or to insert a pipe or branch in an existing stoneware or concrete house drain, such pipe so removed shall be replaced by an inspection pipe or inspection junction of the same length, by one of the following methods:—

- (a) The top half of the socket of the new pipe and of the existing downstream pipe may be removed, but the bottom half shall, in each case, be left intact and the joints surrounded with concrete; or

1949. *Sewerage, Water Supply, Etc., Act.*

- (b) An approved split pipe with double collar surrounded with concrete may be used ; or
- (c) A length of not less than three pipes may be removed, the centre pipe replaced by an inspection pipe, and the pipes dropped back into place without springing or cutting.

Junctions in existing metal pipes shall be made with an approved closure pipe in each case.

Springing pipes into position shall not be resorted to or allowed.

Use of Concrete.

58. Concrete shall be used in the following cases, and except where otherwise specified in these By-laws shall be not less than six inches in thickness at any point, and where exposed shall be steel-trowelled to a smooth surface :—

- (a) Under and around earthenware and/or concrete pipes laid at a shallow depth or exposed above the surface of the ground ;
- (b) Under and around house drains where the foundation is bad ;
- (c) Under and around house drains laid in water-charged ground ;
- (d) Under and around house drains under a building where the floor of such building is less than three feet from the surface level of the ground ;
- (e) Under and around bends of pipes rising vertically off branches ;
- (f) Around any vertical pipe or jump up ;
- (g) Under and around traps on the house drain ;
- (h) Under and around trap basins ; and
- (i) In any other circumstances around any house drain or fitting where required by the engineer.

Areas Subject to Flooding.

59. In areas subject to flooding the tops of all fittings and fixtures shall not be placed at a reduced level lower than the reduced level to be fixed by the Council unless authorised in writing and except under such conditions as shall be specified in writing by the Council.

Polluted Areas.

60. The engineer may by notice in writing and under such conditions as may be imposed require the owner of any stable, cowshed, market-place, abattoir, dairy, area where milk cans are washed, area for washing vehicles, and any other area or place from which polluted waters are discharged into a sewer to—

- (a) Roof over the area or place so as to prevent the entry of rain water into the house drain or sewer ;
- (b) Pave the floor or area with approved impervious materials to an approved grade to an outlet ; and
- (c) Provide an approved silt trap complete with a removable grating, fixed in a position so as to prevent silt entering the sewer, as and when provided.

The occupier, or where there is no occupier the owner, shall remove the silt from such trap as often as may be necessary in order to keep such trap in working order.

DIVISION 15—BASEMENTS AND CELLARS.

Fixtures.

61. No water closet pan, urinal, and/or other fixture shall be fixed in any cellar or basement or on any floor below ground level, unless by consent of the Council previously obtained and subject to such conditions as the Council may impose, and then only when in the opinion of the Council other provision cannot be made. The owner shall submit such plans and/or other information as the Council may require and shall undertake, in writing, to accept all liability for damage that may occur.

If satisfied that the ventilation and lighting provided are in accordance with the provisions of these By-laws, and all other conditions have been complied with, the Council may give its consent: Provided always, that if such fixtures and their surroundings are not kept, in the opinion of the engineer, in a sanitary condition, or if the purpose for which such cellar, basement, or floor below ground level is used be changed, such consent may be revoked by the Council at any time and that upon fourteen days' notice of revocation such fixture shall be abolished by the owner.

Risk of Backflow.

62. Where such cellar, basement, or floor below ground level is at such a level as may, in the opinion of the engineer, involve risk of backflow 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.

Seepage Drains.

63. In no case shall seepage drains from cellars, basements, or any floor below ground level be discharged into a sewer without the consent of the engineer.

Where such discharge is permitted by the engineer the seepage shall be raised where necessary by ejector, siphon, or other approved mechanical appliance to such height as ordered, and be discharged into the sewer as and where directed.

DIVISION 16.—TRAPS—DRAINAGE.

Classes of Drainage Traps.

64. The following classes of traps for house drains shall be used for their respective purposes, and shall be fixed on the house drain as and where approved or directed by the engineer:—

- (a) "Acid trap" or "neutralising trap"—for neutralising acids and acidulated liquid prior to discharge into any plumbing, house drain, or sewer. Such trap shall be of such form and construction as may be approved or authorised;

1949. *Sewerage, Water Supply, Etc., Act.*

- (b) "Disconnecter trap"—for isolating or disconnecting waste pipes from the house drain and having an approved grating fitted flush with the finished top of the trap and providing inlet ventilation to the waste pipe or pipes discharging into it ;
- (c) "Grease trap"—for collecting and solidifying grease and/or such like matter which may foul the house drain. Such trap shall be of such form and construction as may be approved or authorised ;
- (d) "Gully trap"—being a trap as described in class (b) which is provided with a dished top and grating. The depth of the dish shall be not less than six inches. The grating shall be removable, and shall be not less than six and seven-eighths inches overall with openings of approved outlet capacity ;
- (e) "Interceptor trap"—for preventing the passage of air or gases from the sewer to the house drain, and situated on the house drain at some point between the sewer and the lowest inlet to the house drain ;
- (f) "Oil trap"—for collecting all kinds of oil and petroleum products and preventing their discharge into any plumbing, house drain, or sewer. Such trap shall be of such form and construction as may be approved or authorised ;
- (g) "Silt trap"—for intercepting gases and solid matters. Such trap shall have slightly tapered sides, flat bottom, round section, and where required by the engineer or inspector shall be provided with approved means for arresting and removing the solid matters.

Location of Drainage Traps.

65. (a) Each inlet, except from a soil pipe, to any house drain, not being an inlet provided as an opening for ventilation of such house drain or for inspection purposes, shall be provided with an approved trap except in the case where the single-pipe system of sewerage of premises has been approved and adopted.

(b) Where waste pipes discharge into traps located inside a building the fresh air inlet shall be taken undiminished in size to the external air. The material for such fresh air inlet shall be the same as for vent pipes and where stoneware or concrete pipes are used such pipes shall be encased in six inches thickness of concrete and trowelled to a smooth surface.

(c) Where required by the engineer or inspector an approved interceptor trap shall be fixed between the house drain and the sewer within the curtilage of the premises if practicable, and as near to the boundary as practicable. Such interceptor trap may be fixed in an approved inspection chamber, or be provided with other approved means of inspection, and ventilated as shown on the approved plan.

Seal of Drainage Traps.

66. Any trap used for intercepting gases or foul air and connected to a house drain or sewer shall have such a trap seal as may be authorised, but no trap shall have a seal less than two inches in depth.

Gratings for Drainage Traps.

67. The grating on any trap connected to a house drain other than a gully or silt trap shall be firmly fixed in position with bitumen or cement compo. The grating of any gully trap or silt trap shall be so fixed as to be removable with reasonable facility.

Kerbing for Drainage Traps.

68. The kerbing of any trap on any house drain, except where otherwise approved, shall be constructed of concrete, finished off with cement mortar to a smooth surface, to a height of at least six inches above the level of the ground so as to prevent the inflow of surface water. Such kerbing shall extend into the ground to a depth of at least six inches.

All edges and arrises of the concrete surround shall be rounded off in an approved manner.

Discharge into Drainage Traps.

69. The sewage discharged into any trap shall be discharged under the grating of the trap and over the top of the liquid in the trap.

DIVISION 17.—GREASE, PETROL, AND OIL TRAPS.

Location of Grease, Petrol, and Oil Traps.

70. On any premises from which any grease, petrol, or oil or like substances are discharged or are likely to be discharged into any waste or soil pipes or house drains, and wherever ordered by the engineer or the inspector, a suitable grease or petrol and oil trap shall be fixed in an approved position, outside the building, wherever practicable, and as near to the fixture as practicable.

Such grease, petrol, and oil traps shall be of approved dimensions, design, construction, and material.

No grease trap shall be installed in any room used for the preparation of food for human consumption.

Capacity of Grease, Petrol, and Oil Traps.

71. The dimensions of any grease, petrol, and oil trap shall be such as to ensure the retention of all grease, petrol, and oil entering such traps.

Each grease trap shall comply with the following conditions :—

- (a) The capacity below the invert of the outlet shall be as determined by the engineer or inspector, but in any case shall be not less than double the total capacity of the fixture or fixtures connected to such trap ;
- (b) The depth from the top of the grease trap to the outlet invert shall be not less than half the depth of the trap below the outlet invert ; and
- (c) The difference in level between the outlet and inlet inverts shall be not less than two inches.

Grease, petrol, and oil traps shall be constructed in accordance with drawings approved by the engineer.

1949. *Sewerage, Water Supply, Etc., Act.*

Outlet of Grease, Petrol, and Oil Traps.

72. The outlet pipe from any grease, petrol, and oil trap shall be of an approved diameter, and shall have a cross sectional area not less than the combined cross sectional areas of the incoming wastes.

Ventilation of Grease, Petrol, and Oil Traps.

73. Each grease, petrol, and oil trap shall have provision made for inlet and outlet ventilation. The engineer or inspector may require any grease, petrol, and oil trap to be ventilated as and where directed. Such vent pipes shall comply with the requirements of By-law 180.

Cleaning of Grease, Petrol, and Oil Traps.

74. The occupier of any premises shall keep any grease, petrol, and oil trap installed on such premises in a clean and sanitary and satisfactory working condition at all times.

DIVISION 18.—LAYING HOUSE DRAINS.

Trenches.

75. The trench for the house drain from any premises shall be excavated so as to meet the connection to the sewer provided by the Council for such premises.

The material from the trench shall be so placed in an approved manner as to cause the least possible obstruction and inconvenience to the public.

Approved barriers and lights shall be provided and maintained where necessary to guard against accident during the progress of the work.

In filling the trench, sand or other approved materials shall first be deposited in the trench to a depth of six inches over the barrel of the pipe and carefully consolidated, after which the remainder of the trench shall be filled in in layers and rammed or flooded, as ordered or approved. No broken rock shall be used in refilling until earth or gravel has been placed over the pipe to a depth of one foot, or more if directed. The refilling shall be carefully consolidated with water or by other approved means.

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

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

Position and Line of House Drains.

76. Every house drain, branch house drain, inspection chamber trap, and any other fittings and fixtures connected therewith shall be laid and fixed in position as indicated on the approved plan.

Every house drain shall be laid in a straight line as far as practicable and as indicated on the approved plan.

Sewerage, Water Supply, Etc., Act. 13 GEO. VI. No. 55,

Where a change of direction occurs, such change shall be made by one of the following methods as indicated on the approved plan:—

- (a) By an inspection bend; or
- (b) By a bend with an inspection opening on the straight pipe next to the bend; or
- (c) In an inspection chamber; or
- (d) By any other approved method.

Depth of House Drains.

77. On any premises where the house drain pipes are of stoneware or concrete, and are not embedded on and/or completely encased in concrete, each pipe shall be laid at a depth to the top of the barrel of the pipe of not less than the following:—

- (a) In any place subject to vehicular traffic—two feet; and
- (b) In any place not subject to vehicular traffic—one foot.

On any premises where the nature of the land or traffic or any other conditions necessitates the house drain being laid at a less depth than that prescribed aforesaid, then such house drain shall be laid at such depth and in such manner as shall be approved.

No person shall alter or cause or permit or allow to be altered the level of the ground surface over any house drain so as to reduce the minimum depth of the cover over such house drain as prescribed aforesaid, unless approved measures are adopted to protect the house drain.

Gradients of House Drains.

78. The house drain on any premises shall be laid on an even grade and, unless otherwise approved, such gradients shall not be less than the following:—

Pipe of a diameter of 4 inches	..	..	1 in 40
Pipe of a diameter of 6 inches	..	..	1 in 60
Pipe of a diameter of 9 inches	..	..	1 in 250
Pipe of a diameter of 12 inches	..	..	1 in 400

For house drains of a diameter greater than six inches the gradient adopted shall be such as directed by the engineer.

On any premises where the grade of any house drain is steeper than—

- 1 in 6 for pipe of 4 inches diameter;
- 1 in 6 for pipe of 6 inches diameter;
- 1 in 10 for pipe of 9 inches diameter;
- 1 in 15 for pipe of 12 inches diameter;

concrete stops, with a minimum length of six inches along the pipes and three inches above and below the pipes, and extending six inches into each side of the trench, shall be constructed as and where directed by the engineer or inspector, but in no case at a greater distance apart than twenty feet.

On any premises where it is not possible to obtain the above minimum gradients, special provision may be approved for the regular and efficient flushing of such house drains.

1949. *Sewerage, Water Supply, Etc., Act.*

On any premises where a change of grade or level takes place in any house drain, such change shall, if so approved by the engineer or inspector, be made as and where indicated on the approved plan—

- (a) By a suitable junction pipe or bend or inspection chamber ;
or
- (b) By a vertical pipe connected at its upper end to the house drain by means of a junction pipe and at its lower end by means of a bend.

Such junction pipes and bends shall be bedded on, and surrounded by at least six inches of concrete, and such vertical pipes shall be surrounded by at least six inches of concrete.

Connection to Sewer.

79. The position of the Council's sewer connection to any premises shall be as indicated on the approved plan and shall be uncovered by the licensed drainer prior to the commencement of any trench excavation.

If the connection is not in the position indicated on the plan, the licensed drainer shall immediately notify the Council. The Council shall locate and uncover such sewer connection and advise the owner or licensed drainer accordingly.

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 or liquid to enter the sewer.

Laying House Drains.

80. House drain pipes laid in any trench shall be bedded on sand or other approved material at least three inches in depth, except in the case of cast iron pipes or pipes encased in concrete.

On any premises where the house drain is likely to suffer injury or damage from tree roots or, in the opinion of the engineer, from any other cause, the house drain shall be of cast iron pipes of a minimum thickness of 0.312 inches, or such house drain shall be encased in concrete of six inches thickness in an approved manner.

On any premises where approval has been given to lay the house drain on or above the surface of the ground, cast iron pipes of a minimum thickness of 0.312 inches shall be used, or such house drain shall be encased in concrete of six inches thickness in an approved manner.

On any premises where approval has been given to lay a house drain under any building such house drain shall, where practicable, be laid in a straight line for the whole distance under such building as indicated on the approved plan.

Where the house drain on any premises must pass through any wall a space of at least three inches shall be left in the wall over the top of such house drain so as to prevent injury to the pipes, and such space shall be securely closed with approved ratproof material to prevent the passage of rodents through such wall.

Junctions on House Drains.

81. Where any house drain joins another house drain or sewer the junction shall be made obliquely at an angle of not greater than forty-five degrees with the direction of flow of such house drain or sewer. Such junction shall be made in an inspection chamber or with an inspection junction or by an oblique junction with an inspection opening on the straight pipe next to the oblique junction.

DIVISION 19.—DRAINAGE JOINTS.

Stoneware and Concrete Pipe.

82. Every joint of stoneware or concrete pipes shall be properly centred and the joint shall be filled in solidly all round with cement mortar or other approved material neatly splayed off to an angle of forty-five degrees all round.

After each joint is made the interior of the joint shall be wiped clear of surplus material.

Stoneware, &c., to Cast Iron or Galvanised Sheet Iron Pipe.

83. Every joint between stoneware or concrete pipes and cast iron pipes or galvanised sheet iron vent pipes shall be as prescribed for stoneware and concrete pipes.

Cast Iron Pipe.

84. Every joint of cast iron pipes shall have a ring of tarred yarn well driven into the socket all round and the joint filled in solidly all round with molten lead, lead wool, or other approved material, and caulked so as to make it gas and watertight.

PART V.—PLUMBING.

DIVISION 20.—GENERAL.

Separate Discharge Pipe.

85. Except on premises where the single-pipe system of sewerage has been approved, separate waste and/or soil pipes shall be used for conveying sewage away from each of the following classes of fixtures :—

- (a) Baths, basins, showers, washtubs, sinks, dental cuspidors, and suchlike fixtures ;
- (b) Sinks and suchlike fixtures for which grease traps are required ; and
- (c) Water-closet pans, urinals, and slop sinks :

Provided that in exceptional circumstances, with the approval of the engineer, a combined waste pipe may be used for conveying sewage away from basins as well as sinks and such like fixtures for which grease traps are required.

In class (a) the waste pipe from any such fixture shall be connected by the shortest and/or most practicable route and shall discharge into an approved disconnector trap or gully trap fixed in an approved position.

1949. *Sewerage, Water Supply, Etc., Act.*

In class (b) a waste pipe from any such fixture shall discharge into an approved grease trap fixed as near to the fixture as possible, and where required by the engineer or inspector shall be independently trapped from the house drain.

In class (c) a soil pipe from any such fixture shall discharge untrapped direct into the house drain.

Two or more branch soil or waste pipes from fixtures may be connected to a main soil or waste pipe, respectively, where and as directed by the engineer or inspector, provided that such soil or waste pipe is of the diameter prescribed by these By-laws.

Fixtures Not to Abut against Walls.

86. Unless otherwise approved, sinks, tubs, and similar fixtures, and/or draining boards, slabs, and plates used in connection with such fixtures in any premises where food for human consumption is prepared, manufactured, kept, or stored for sale shall not abut against any wall, but shall be fixed not less than three inches from such wall or from the studs or framework of such wall.

Flashings of Fixtures.

87. Sinks, basins, and similar fixtures which are fixed less than three inches, and baths less than six inches, from any wall on any premises shall be securely flashed with approved impervious material, and the wall or walls shall be lined with approved impervious material for such area as shall be determined and approved by the engineer or inspector.

All such flashings shall be turned up on the wall at least four inches, or be tucked one inch into a joint and cemented watertight, and shall be bedded for a width of not less than one inch along the edge of the fixture in putty or other approved material. Where the walls are tiled the flashing shall be carried up at least one-quarter of an inch behind the tiles, and bedded as aforesaid.

Baths and other fixtures having turned-up flanges for use against tiled walls shall be strongly supported to prevent settlement, and the flange shall lap at least one-quarter of an inch behind the tiles, which shall be brought hard down on to the surface of the fixture.

Gratings.

88. Fixtures connected to waste pipes and urinals and slop sinks shall be fitted with outlet gratings of approved design and material in accordance with the relevant Australian Standards Specification.

Disconnected Fixtures.

89. Wherever a fixture is disconnected the soil, waste, vent, and water supply pipes in connection with such fixture shall be removed or, if approval is given for any such pipe to remain, such pipe shall be sealed with approved watertight materials.

Painting.

90. No person shall paint any plumbing work unless and until such work has been inspected, tested, and approved.

DIVISION 21.—SOIL AND WASTE PIPES.

Pipes in Direct Line.

91. Soil, waste, and vent pipes and any branches connected thereto shall be fixed in as direct lines as possible.

Materials.

92. Waste pipes for fixtures in classes (a) and (b) as defined in By-law 85 shall be of galvanised wrought iron or steel, cast iron, lead, brass, glazed stoneware, or other approved material.

Soil pipes for fixtures in class (c) shall be of cast iron, lead, brass, glazed stoneware, or other approved material.

Lead Pipe.

93. The minimum permissible weight of lead for waste and waste vent pipes shall be six pounds per square foot.

The minimum permissible weight of lead for soil and soil vent pipes shall be seven pounds per square foot.

The weights of lead pipe for soil, waste, and soil and waste vent pipes shall not be less than the minimum weights per lineal yard as shown in the following table :—

Diameter (Inches).	Thickness Equal to—	
	6 lb. Sheet Lead.	7 lb. Sheet Lead.
	Weight in Pounds per Lineal Yard.	Weight in Pounds per Lineal Yard.
1½	6.34	7.50
1½	7.51	8.87
1¾	8.70	10.24
2	9.85	11.61
2½	12.20	14.35
3	14.55	17.09
4	19.24	22.57

Lead pipes shall not be used in the ground nor shall they be fixed in any position where they are liable to be damaged.

Support of Lead Pipes.

94. Lead pipes shall be supported by cast lead tacks of approved dimensions wiped or burned on to the pipe, or by other approved fastenings. All such fastenings shall be spaced as nearly as possible as follows :—

	Centres.
Vertical lead pipes of 4 inches diameter	.. 2 feet 6 inches
Inclined lead pipes of 4 inches diameter	.. 2 feet 0 inches
Vertical lead pipes of less than 4 inches diameter	3 feet 0 inches
Inclined lead pipes of less than 4 inches diameter	2 feet 3 inches

Wrought Iron and Steel Pipe.

95. All wrought iron and steel pipes and their fittings shall be of standard weight and quality, and galvanised or lined, as authorised by the Council.

1949. *Sewerage, Water Supply, Etc., Act.*

Cast Iron Pipe.

96. All cast iron waste and soil pipes and their fittings shall be sound, free from holes and cracks, and coated inside and outside with approved bituminous composition or coated outside and lined inside with glass enamel or other material approved by the engineer.

Each cast iron pipe and its fittings shall have a minimum thickness of three-sixteenths inch, measured without the glass enamel or other lining, and shall have faucets not less than two inches in depth, and shall be in accordance with the authorised standard.

Copper and Brass Pipe.

97. Copper and brass waste pipes and internal waste vent pipes shall be seamless solid-drawn tube, and shall be not less than 16 gauge, and where directed by the engineer or inspector, shall be protected from external injury.

Sheet copper vent pipe, for use only on outside work, shall be not less than 24 gauge, and shall be made with grooved seams. Circumferential joints shall be sweated with fine solder.

Incorrodible Metal Alloy Sanitary Fittings.

98. All brass sanitary fittings shall be in accordance with the relevant Australian Standards Specification.

Minimum Gradients.

99. The minimum gradients for soil and waste pipes, except where otherwise approved by the engineer or inspector, shall be—

Diameter of Pipe.	Minimum Gradient.
1¼ inches	1 in 15
1½ inches	1 in 18
2 inches	1 in 24
2½ inches	1 in 30
3 inches	1 in 36
4 inches	1 in 48
6 inches	1 in 72

Minimum Sizes.

100. The minimum sizes of soil and waste pipes for the following classes of fixtures shall be—

Cuspidor	1 inch
Basin	1¼ inches
Bath, shower, washtub, or sink	2 inches
Urinal	2 inches
Slop sink	3 inches
Water-closet pan, siphonic	3 inches
Water-closet pan, non-siphonic	4 inches

Waste Pipes not to be Laid Underground.

101. No waste pipes, other than of cast iron or glazed stoneware, shall be laid underground unless otherwise approved.

Cleaning Eyes.

102. Cleaning eyes of approved dimensions shall be provided on all junctions and bends and also on soil and waste pipes at approved distances.

Inspection Openings.

103. Vertical stacks of cast iron soil pipes shall be provided with an inspection opening having a cover fixed to a flange on the pipe with bolts or studs of incorrodible metal for inspection and cleaning purposes where the stack serves two or more water closet pans on more than one floor of the building. The dimensions of the opening shall be at least nine inches by four inches and the opening shall be located near the foot of the stack and not more than four feet above ground level.

Concealment of Pipes.

104. All soil, waste, and main vent pipes, except where passing through walls, partitions, and floors, and all traps shall be reasonably accessible at all times for inspection and convenience of repairing.

- (a) In hospitals and similar institutions all soil, waste, and main vent pipes, where practicable, shall be fixed on the outside of external walls or, otherwise, 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 or soil pipe or main vent pipe and shall be vermin proof.
- (b) In buildings other than hospitals and similar institutions, if soil, waste, or main vent pipes are concealed within pipe ducts or recesses in walls, such pipe duct or recess shall—
 - (i.) Be provided with approved means of access and have a width of not less than two feet and a minimum area of nine square feet (measured clear of all pipes or other obstructions); or
 - (ii.) Have at least one of its sides constructed of woodwork, brickwork in lime mortar, terracotta or gypsum blocks, plaster on expanded metal lathing, 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 openings so placed as to allow ready inspection and maintenance of every straight line of soil or waste or main vent pipe.
- (c) 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 cast iron or wrought iron or steel pipe, or of brass or copper of thickness not less than 12 gauge where screwed fittings are used, and not less than 16 gauge where compression fittings are used or when joints are brazed.
- (d) All inspection or access openings to concealed pipes shall be finished throughout with smooth surfaces, and shall be of such dimensions and shape as to permit the entrance of cleaning tools to the pipe.

For the purposes of this By-law a straight line of soil, 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.

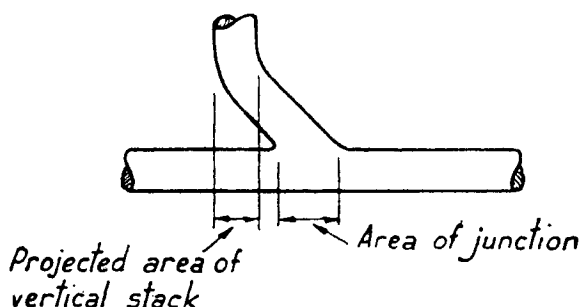
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*Sewerage, Water Supply, Etc., Act.**Pipe Junctions.*

105. Pipe junctions shall be curved; right-angled junctions shall not be used.

The connection of any branch waste or soil pipe to a main waste or soil pipe shall be made at an angle of not less than forty-five degrees, and the length of the branch of the fitting shall be such that the vertical projection of the attached stack will be wholly outside of the area of the junction with the graded pipe. See Figure 2 hereunder.

Figure 2.



No junction shall be built into a wall except with the approval of the engineer or inspector.

DIVISION 22.—PLUMBING JOINTS.

Stoneware, Cement, or Cast Iron Pipe.

106. Joints of stoneware, cement, or cast iron pipes shall conform with the requirements of By-laws 82, 83, and 84.

Lead Pipe.

107. All joints of lead pipes shall be wiped solder joints. The minimum thickness of metal to be added at the joint shall be five-sixteenths of an inch and the minimum length of the joint shall be three inches for all sizes of pipes and/or fittings.

Wrought Iron and Steel Pipe.

108. The screwed ends and sockets of each particular size of wrought iron or wrought steel pipe shall be so formed and the threads so cut that the ends of the pipe will butt against each other when screwed home in the sockets. 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.

Wrought Iron or Steel Pipe to Lead Pipe.

109. All joints between wrought iron or steel pipes and leadpipes shall be made by means of brass unions screwed to iron and wiped to lead.

Wrought Iron or Steel Pipe to Brass Fittings.

110. All joints between wrought iron or steel pipes and brass fittings shall be so formed and the threads so cut that the ends of the pipe will extend the full length of the socket of the fitting to ensure that the bore will be continuously uniform and without breaks or pockets.

Brass or Copper Pipe.

111. All joints of brass or copper pipes shall be brazed or made in accordance with the relevant Australian Standards Specification.

Lead Pipe to Cast Iron Pipe.

112. The connection of lead pipes or traps to cast iron pipes shall be made by means of a brass ferrule ; the brass ferrule shall be lined with and connected to the lead pipe or trap by means of a wiped solder joint and connected to the cast iron by inserting the ferrule into the faucet thereof and making the joints in the same manner as in cast iron pipe.

Lead Pipe to Stoneware or Concrete Pipe.

113. The connection of lead pipe to stoneware or concrete pipe shall be made by means of a brass ferrule lined with and connected to the lead pipe by means of a wiped solder joint, and connected to the stoneware or concrete pipe by inserting the brass ferrule into the faucet of the stoneware or concrete pipe and making a cement mortar joint.

Galvanised Sheet Iron Pipe to Cast Iron Pipe.

114. All connections of galvanised sheet iron to cast iron pipes shall be made with molten lead, lightly but tightly caulked into the cast iron faucet.

Galvanised Sheet Iron Pipe to Wrought Iron or Steel Pipe.

115. Galvanised sheet iron or sheet steel pipes shall be connected to wrought iron or steel pipes by means of brass unions or sleeves soldered to the sheet iron and screwed to the wrought iron, or by means of a wrought iron socket screwed to the wrought iron pipe into which the sheet iron pipe shall be lightly but tightly caulked with molten lead.

Galvanised Sheet Iron Pipe to Lead Pipe.

116. Connections of sheet iron pipes to lead pipes shall be made by means of brass sleeves wiped to the lead pipe and soldered to the sheet iron pipe, or by means of a cast lead collar wiped to the lead pipe, into which the sheet iron pipe shall be caulked as directed, or soldered and jacketed.

Water-Closet Pan or Slop Sink Outlet to Stoneware Pipe.

117. The connection of water-closet pan or slop sink outlet to stoneware pipe shall be made with an approved bituminous or other approved material.

Water-Closet Pan or Slop Sink Outlet to Lead Pipe.

118. The connection between the water-closet pan or slop sink outlet and lead pipe shall be made by means of a cast lead or brass socket, and the joint made with an approved bitumen or other approved material ; the lead pipe shall be connected to the tail end of the brass or lead socket by means of a wiped solder joint.

Cistern Flush Pipe to Water-Closet Pan.

119. The connection between the cistern flush pipe and water-closet pan inlet horn shall be made by an approved three point brass clip and rubber ring or by a lead cap piece of not less than four pound lead packed with putty or other approved method or material.

1949. *Sewerage, Water Supply, Etc., Act.*

The cap piece shall be jointed to a copper, brass, or drawn-steel flush pipe by means of a soldered joint, and to a lead flush pipe by a wiped solder joint, or by any other approved method.

Cistern Flush Pipe to Flushing Cistern.

120. The connection between the flush pipe and cistern shall be made by means of a brass union nut and washer or cap and lining, wiped or brazed to flush pipe, or by any other approved method.

Anti-siphon Vent Pipe to Water-Closet Pan.

121. The connection between the anti-siphon vent pipe and water-closet pan vent horn shall be by means of a lead, copper, or brass pipe connected to the vent horn of the water-closet pan and jointed with bitumen or putty, or by any other approved method, and connected to the vent pipe by a brass union.

Outlet Fittings (Wastes) to Fixtures.

122. The connections between waste outlet fittings and such fixtures as baths, sinks, basins, &c., where such fixtures are made of cast iron, plate iron, ceramic ware, or concrete, shall be made with brass flanged back nuts and lead washers.

The outlet fitting shall in all cases be connected to the waste pipe by means of a brass cap and lining or other approved union.

Outlet Fittings (Wastes) to Washtubs.

123. The connections between waste outlet fittings and washtubs shall be made as hereunder :—

- (a) Concrete tubs, unless otherwise approved, shall have cast-in outlet fittings ;
- (b) Sheet metal tubs shall be connected to the outlet fittings with a brass waste with a sheet iron drop piece ;
- (c) Wooden tubs shall be connected to the outlet fittings as prescribed in By-law 122.
- (d) Glazed fireclay tubs shall be connected to the outlet fittings as prescribed in By-law 122.

DIVISION 23.—FIXTURE TRAPS.

Fixtures to be Trapped.

124. Each water-closet pan, urinal, slop or other sink, basin, bath, washtub or set of washtubs, or any other fixture shall be separately and effectively trapped except as provided for in By-law 125, and every trap shall be so fixed as to be easily accessible.

Omission of Fixture Traps.

125. Except in the case of the single-pipe system, baths, showers, basins, washtubs, and sinks may remain untrapped where fixed in the open air or in a detached outbuilding or under a house, provided that the length of the waste pipe does not exceed six feet.

Position of Traps.

126. The trap shall be fixed under and as close to the fixture as practicable, but shall not be more than three feet from any fixture.

Materials for Traps.

127. Traps for all fixtures other than water-closet pans, urinals, and slop sinks shall be of copper, brass, six pounds drawn lead, or other approved material. Traps for urinals fixed above ground floor level shall be of cast iron, lead, or brass. Cast brass or suchlike traps shall not be fixed to porcelain basins in wooden buildings.

Seal of Traps.

128. All fixture traps shall have a trap seal as may be authorised, but no trap shall have a seal less than two inches in depth.

Type of Trap.

129. The types of trap on or connected to fixtures shall be those known as the "P" or "S" trap, which shall be self-cleansing in action.

No other type of trap with the exception of hospital, bag, running, or adjustable traps shall be connected to a fixture unless such type is authorised for use in special circumstances.

Plaster traps, where required for collecting and arresting all kinds of plaster and preventing their discharge into a house drain or sewer, shall be of such form and construction as may be approved or authorised.

Access for Cleaning of Traps.

130. The trap of any fixture other than a water-closet pan or slop sink shall be provided with an approved screwed plug fitted with lugs and fixed directly under the dip of the trap as an access for cleaning purposes.

DIVISION 24.—WATER CLOSETS.

Dimensions of Water Closets.

131. No water closet shall be less than the following dimensions :—

Height—Six feet six inches from floor to ceiling ;

Width—Three feet, inside measurement ;

Length—Five feet, inside measurement.

Inside measurement shall in the case of wooden water closets mean the measurement clear of studs.

Construction of Water Closets.

132. Each water closet shall be provided with a door which shall open to the inside and be capable of being fastened inside, and shall be so situated as to secure privacy.

External water closets built on the ground level or less than twelve inches above the ground level shall have a floor of concrete of not less than four inches in thickness or other approved material finished to a smooth surface and graded to a fall of not less than one-quarter inch to the foot, or as may be approved, and shall have the floor protected by a rat baffle wall of ratproof material from such floor down two feet below ground level or on to rock.

Internal water closets situated over or above any room shall be provided with a concrete floor of not less than four inches thickness or other approved impervious material finished to a smooth surface and graded as directed or they shall be provided with safes of lead or other approved material in accordance with these By-laws.

1949. *Sewerage, Water Supply, Etc., Act.*

In wooden water closets the bottom plates shall be of approved hardwood and the frame shall be securely fastened to the floor and made rigid, without attachment to fences.

Where repairs to wooden closet buildings are required the studs shall be cut back to sound timber and new plates fixed to the sound ends and bedded and secured to dwarf concrete or brick walls extending up to such a height as is necessary to give the required height from the floor to the level of the top wall plates.

Airlocks for Water Closets.

133. (a) No water closet or urinal apartment 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 as a factory or workshop.

In cases where otherwise such closet or urinal apartment would be directly entered from any such room, an ante-chamber or airlock completely disconnected from such water closet or urinal apartment shall, except as provided in paragraph (b) hereof, be provided having a floor area of not less than twenty square feet and lighted and ventilated in accordance with the provisions of By-laws 134 and/or 191, and fitted with self-closing doors.

(b) The airlock may be omitted where a water closet within any building is intended solely for the private use of not more than two persons and opens off a room normally occupied by those persons only, provided that such room is not used for the manufacture, preparation, storage, or consumption of food, or as a factory or workshop.

In dwelling-houses and flats no ante-chamber or airlock is required for water closets opening on to a well ventilated hall, passage, lobby, or staircase within the dwelling-house or flat, as the case may be, but where, in the opinion of the engineer, this condition does not exist an airlock as above shall be provided.

(c) No airlocks will be required where ventilation in accordance with By-law 134 (d) is provided to closets or urinals.

Ventilation and Lighting of Water Closets, Urinal Apartments, and Airlocks.

134. Every internal water closet, urinal apartment, and airlock shall comply with the following conditions :—

(a) One of the sides of every water closet and/or urinal apartment within a building shall be an external wall of such building, abutting on to a street or lane, or on to an open space within the premises, having a width of not less than four feet and, excluding obstructions, an area (measured on a horizontal plane at the floor level of such water closet or urinal apartment) not less than the following :—

	Square feet.
When the building is of one story	36
When the building is of two stories	72
When the building is more than two stories ..	100

(b) Each water closet, urinal apartment, and airlock shall be provided with adequate means of constant fresh air ventilation. The effective area provided for outlet ventilation of each water closet, urinal apartment, or airlock shall be not less than twenty-seven square inches per water-closet pan or per three stall urinal or its equivalent, as the case may be.

(c) In addition to the provision made in paragraph (b) above and except as provided in paragraph (d) hereunder, each water closet or urinal apartment within a building shall be provided with glazed louvres or a window capable of being opened, of not less than two square feet of glass area per water-closet pan or three-stall urinal or its equivalent, as the case may be, opening directly into the external air. Each airlock shall be lighted in a similar manner unless separately lighted by electricity or other approved means of artificial light.

(d) Water closets, urinal apartments, and airlocks may be ventilated by a mechanical system of exhaust ventilation in accordance with the requirements of By-law 191. Where such system of ventilation is approved by the engineer each water closet, urinal compartment, and airlock so ventilated shall be separately lighted by electricity or other approved means of artificial light and provided with a separate switch within the compartment.

(e) Where circumstances preclude the lighting and ventilation of water closets and/or urinal apartments in the manner set out in paragraphs (a), (b), and (c) above, the engineer may approve the lighting and ventilation of such water closets and/or urinal apartments through the roof of the building, where such roof is immediately above the water closet or urinal apartment, by the use of a skylight of a minimum glass area of two square feet and a six inch diameter cowled vent.

For the purpose of this By-law where the water closet consists of a number of water closet compartments the division walls of such compartments shall extend at least six feet above the floor, and shall be at least six inches clear of the floor of the water-closet, and a minimum distance of two feet shall be provided between the tops of such walls and the ceiling of the water closet.

Alterations to Existing Water Closets.

135. The owner of any existing water closet on any premises which, in the opinion of the engineer or inspector, requires any structural alteration or repair shall, on notice in writing from the Council, carry out any alteration or repair as shall be specified in such notice, and the owner shall comply within a time specified in such notice.

No room, apartment, compartment, building, or part thereof shall be used as a water closet unless such has been approved by the engineer or inspector.

DIVISION 25.—WATER-CLOSET PANS.

Water-Closet Pans.

136. Water-closet pans shall be of approved material with a smooth well-glazed surface of non-absorbent material, and of capacity, construction, and design in accordance with the relevant Australian Standards Specification, or as otherwise approved. They shall have the basin and trap in one piece.

1949. *Sewerage, Water Supply, Etc., Act.*

Water-closet pans and the fittings thereto shall not be enclosed and the whole fixture shall be open to inspection.

Each water-closet pan shall have a trap seal as may be authorised, but no trap shall have a seal less than two inches in depth.

Each water-closet pan shall have an outlet of not less than three and one-half inches or more than four inches in diameter, except in the case of siphonic water-closet pans.

Juvenile Water-Closet Pans.

137. The requirements of these By-laws shall apply to juvenile water-closet pans fixed in any premises.

Fixing of Water-Closet Pans.

138. Where the floor of any water closet is of concrete or other impervious material the water-closet pan shall be fixed on such floor and secured with brass screws to lead or other approved plugs set into the floor, or by any other approved method.

Where the floor of any water closet is of timber the water-closet pan shall be secured to the timber by brass screws or any other approved method.

In any wooden building where the bottom plate (or the top of the stump) is more than two feet above ground level the water-closet pan shall be connected to the soil pipe or soil vent pipe by means of a lead bend. Where the plate is two feet or less above ground level the water-closet pan shall be fixed on a concrete block, which block shall be not less than eighteen inches by twelve inches and shall be set on solid ground. The top of the block shall be finished flush with the floor and be trowelled to a smooth surface.

Water-closet pans shall be fixed so that all joints are easily accessible for inspection and repair.

Water-Closet Pan Seats.

139. Where provided, water-closet pan seats shall be of approved construction and material so as to provide a non-absorbent smooth surface free from cracks and crevices. When constructed of wood, one-piece seats shall be reinforced by the insertion of wooden slips having the grain running transversely to that of the seat, secured in place with waterproof glue. Multi-piece wooden seats shall be glued and dowelled or secretly bolted.

The seats shall be provided with approved nickel or chromium plated bar or pillar type hinges complete with four rubber washers, two brass washers, and nuts for attachment to the water-closet pan.

The opening in any water-closet pan seat shall not be greater than ten and seven-eighths inches by nine inches.

Vent Horn on Water-Closet Pans.

140. Each water-closet pan, except siphonic water-closet pans, shall be provided with a vent horn. Such vent horn shall, where not required for anti-siphonage purposes, be sealed with a lead disc and bituminous filler or by a lead cap piece or by any other approved method.

Water-Closet Pan Trap Anti-siphonage.

141. Each internal water-closet pan, except siphonic pans, shall have a two-inch diameter anti-siphonage pipe connected to the vent horn on the water-closet pan except as otherwise provided for hereunder.

In an internal water closet where one water-closet pan only is connected to a soil vent pipe or house drain and fixed not more than five feet from such pipe, measured along the centre of the branch from the outlet of the water-closet pan to the centre line of the soil vent pipe or house drain, the anti-siphonage pipe may be omitted except where siphonage occurs.

Where an internal water-closet pan is fixed more than five feet from a soil vent pipe or educt vent pipe such pan shall be vented with a pipe of two inches diameter, which may be connected to an inverted junction fixed on the soil vent pipe or educt vent pipe above the level of the top of the water-closet pan, or alternatively taken through the roof with a wire basket affixed at the top.

Where such vents are taken off the vent horn of the pan they shall be connected thereto as prescribed in By-law 121.

If taken from a point other than the pan vent horn they shall be connected at a point not more than five feet from the crown of the trap.

Where one water-closet pan only is fixed in an external water closet an anti-siphonage pipe may be omitted, except where siphonage occurs, in which case an anti-siphonage pipe of two inches diameter shall be provided.

Where there are more than three external water-closet pans grouped on the ground floor or in the yard of any premises the fixtures shall be separately ventilated to prevent siphonage for every group or part of a group of three water-closet pans. The size of vent shall be in accordance with the requirements of By-law 194.

DIVISION 26.—FLUSHING APPARATUS.

General.

142. Approved flushing apparatus shall be provided for the effective flushing and cleansing of water-closet pans and/or urinals and the effective removal therefrom of any solid or liquid matter which may be deposited therein.

Such apparatus shall have an approved flushing rate and shall be so constructed, fitted, placed, and fixed as to supply water to the water-closet pan and/or urinal without any direct communication with any water supply pipe upon the premises.

Flushing Cisterns.

143. Flushing cisterns for water closets shall be of three gallon capacity for each water-closet pan and give an effective flush of three gallons, and not more than three gallons, and for test purposes shall flush with two gallons. They shall be provided with a half-inch ballcock capable of conveying three gallons of water to the cistern

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within three minutes and a three-quarter inch diameter overflow and an approved cover. In timber buildings cisterns shall be fixed to cistern boards not less than ten inches deep and seven-eighths of an inch thick or be attached to the wall by other approved means.

On premises where the head of water supplied from the storage tank or other source of supply to the flushing cistern is less than twenty feet a low pressure ballcock shall be provided to the cistern.

The connection between the outlet fitting and cistern where such cistern is made of cast iron, sheet metal, ceramic ware or concrete, or other approved material shall be made by means of a brass flanged back nut and approved jointing material.

The overflow pipe shall be of galvanised wrought iron, copper, brass, or lead and shall, unless otherwise approved by the engineer, discharge in a position where it will not cause damage but where it will act as a waste water detector. Such overflow pipes may discharge into the open air but in the case of grouped internal water closets the overflow pipes from each cistern shall not be directly connected to the discharge pipe or pipes but shall first flow into open cones so as to be visible. Such cones shall be of plain galvanised sheet iron or copper.

No high level flushing cistern shall be fixed at a less height than—

- (a) Six feet six inches where one and a quarter inch external diameter flush pipe is used ; and
- (b) Five feet nine inches where one and a half inch external diameter flush pipe is used,

measured from the floor of the water closet to the top of the cistern, unless otherwise approved by the engineer or inspector.

There shall be a clear space of at least nine inches between the cover of the cistern and the ceiling.

Flush Pipe from Flushing Cisterns.

144. The flush pipe from any flushing apparatus to a water-closet pan shall be of six pound lead, or brass, or copper, or galvanised steel pipes, and shall have a minimum diameter of one and one-quarter inches.

Flush pipes from high level cisterns shall be fitted with two clips. Where a water-closet pan is provided with a hinged seat the lower clip shall be provided with an approved buffer.

Other Approved Flushing Apparatus.

145. Notwithstanding anything contained in these By-laws water-closet pans may be provided with any other type of flushing apparatus provided that such type is tested and approved by the Council, and provided also that any such approved type is fixed and used subject to such conditions as may be ordered by the engineer.

Automatic flushing valves shall be supplied only from supply tanks. Each flush valve shall be controlled by a stopcock fixed in an approved and readily accessible position near the water-closet pan.

DIVISION 27.—STORAGE TANKS.

Storage Tanks General.

146. On premises where the water pressure is lower than twenty pounds per square inch, or on other premises where ordered by the engineer, flushing apparatus for water-closet pans shall be supplied with water from storage tanks capable of holding at least six gallons of water for each occupant of the building, with a minimum of sixty gallons per water-closet pan for all buildings except private dwellings, which shall have a storage tank with a minimum capacity of thirty gallons.

Except where ordered by the engineer or inspector, such storage tank shall be placed in the water closet apartment, or on the roof, or in an accessible place between the ceiling and the roof.

All storage tanks situated between the ceiling and the roof shall have an overflow at least one and one-half inches in diameter which shall discharge into a safe of galvanised iron, lead, or other approved impervious material, provided with an approved outlet fixed in an approved position so as to be visible.

Storage tank safes shall be of galvanised sheet iron, copper, lead, or other approved material. The edges shall be turned up at least two inches and wired at the top, or shall be dressed over timber supports to prevent damage.

Safe outlets shall be not less than one and a half inches in diameter and shall discharge through the soffit, or in some other approved position.

Safes and bottoms of storage tanks shall be painted with bitumastic paint, or alternatively a piece of malthoid the same size as the bottom of the tank shall be placed in the safe and the tank set upon the malthoid. Every such storage tank shall be made of approved impervious material and shall be covered with a close-fitting, removable, and mosquito-proof cover.

Except by special permission of the engineer the head of water supply shall in no case be less than ten feet measured vertically from the top water level of the storage tank to the level of the point of discharge into the cistern.

Size of Water Pipes Connected to Flushing Cisterns.

147. The water supply pipes from storage tanks to cisterns shall be not less than the following diameter :—

For 1 or 2 cisterns	..	..	..	..	$\frac{3}{4}$ inch
For 3 to 6 cisterns	..	..	..	..	1 inch
For 7 to 16 cisterns	..	..	..	..	$1\frac{1}{2}$ inches
For 17 to 34 cisterns	..	..	..	..	2 inches
For 35 to 59 cisterns	..	..	..	..	$2\frac{1}{2}$ inches
For 60 to 100 cisterns	..	..	..	..	3 inches

DIVISION 28.—SUPPLY TANKS.

Supply Tanks General.

148. Where flush valves are provided for the flushing of water-closet pans, supply tanks shall be provided for the supply of water to such valves, and such tanks shall have a minimum capacity of twenty gallons of water per closet pan.

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Such supply tanks shall be of copper of a minimum of twenty-four gauge soldered with pure tin or a brazing alloy containing no zinc, or other approved impervious material, and shall be covered with a close-fitting, removable, and mosquito-proof cover placed in a well-lighted, ventilated, and accessible position for easy inspection and repair.

Such supply tanks shall not be used to supply water to any other fixture and/or fitting or to any hot water service.

Size of Water Pipes Connected to Flush Valves.

149. The sizes of water supply pipes from supply tanks to flush valves shall be determined from—

- (a) The available head measured vertically, in stories, from the level of the lowest flush valve to the normal water level of the supply tank ; and
- (b) The total number of flush valves served,

in accordance with the following table :—

Available Head in Stories.	Diameter of Supply Pipe.	Maximum Permissible Number of Flush Valves Served.	
		Galvanised Wrought-iron Pipe (Special Permission Required).	Copper or Brass Pipe.
1	Inches.		
	1½	1	2
	2	10	15
	2½	30	50
	3	100	150
2	1½	2	3
	2	15	30
	2½	30	150
	3	100	150
3	1½	2	4
	2	25	50
	2½	100	150
4 (or more) ..	1½	2	6
	2	40	100
	2½	100	150

Where the number of flush valves exceeds the maximum number above stated, or where more than twenty flush valves are subject to an available head of less than twenty feet, the size of the supply pipe shall be determined by the engineer.

DIVISION 29—URINALS.

Urinals General.

150. Urinals shall be fixed on premises licensed for the sale of fermented or spirituous liquors and on premises used as a factory, workshop manufactory, picture theatre or other building intended for public entertainment, shop, office, or school where persons of the

male sex are employed or are in attendance and shall be of such dimensions as the Council requires : Provided that where the number of persons of the male sex does not exceed ten a urinal need not be fixed.

Urinal Apartments.

151. Each urinal apartment or compartment or building shall be constructed in accordance with the approved plans and/or specifications as may be required by the Council.

The requirements prescribed in By-laws 133, 134, and 191 as to position, light, and ventilation of water closets shall apply to urinal apartments or compartments and buildings.

The floor of each urinal apartment, compartment, or building shall be of an approved impervious material, ratproofed (as prescribed in By-law 132), and have a smooth surface and be graded to the fixture outlet :

Provided that where urinals are raised above the floor level the floor shall be graded to a two inch or other approved outlet. Such outlet shall be fitted with an approved grating and shall discharge under the grating of the fixture trap.

The base of each urinal fixture situated over or above any room shall be seated on an approved impervious material, and in every such case the impervious floor of the urinal apartment, compartment, or building shall be graded to drain to the fixture outlet.

Type of Urinal.

152. Each urinal fixture shall be of approved design and constructed of glazed fireclay, glazed earthenware, stainless steel, salt glazed stoneware, or approved material with a smooth, well-glazed surface of non-absorbent material.

Urinals constructed of concrete shall be six inches thick and urinals constructed of brick shall be nine inches thick. They shall be rendered to a height of four feet six inches with half-inch thick cement mortar and covered with approved bitumastic paint. Such urinals shall only be permitted for use in outbuildings.

Connection of Urinals.

153. Each outlet from any urinal fixture shall be trapped immediately below such fixture and connected to a soil pipe or house drain.

Each trap from an internal urinal shall be provided with an anti-siphon vent in accordance with By-law 177.

Soil pipes from urinals of up to four feet in width or from a single or double stall shall be not less than two inches in diameter. Soil pipes from urinals of more than four feet width or more than two stalls shall be not less than three inches in diameter.

Each stall urinal which has a separate outlet shall be separately trapped and connected to a soil pipe. Not more than eight feet width of urinal fixture or more than four stalls shall discharge into one outlet.

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154. Each urinal on any premises shall be provided with approved automatic flushing apparatus except where any other type of approved flushing apparatus is ordered by the engineer or inspector.

Each flushing apparatus provided for any urinal shall be provided with an approved well-fitting cover.

The discharge of water from any such apparatus shall be equal to one gallon for each two feet of width or each single stall urinal, except where otherwise approved by the engineer or inspector, but in no case shall larger than a three gallon cistern be used.

Each flushing apparatus provided for any urinal shall be fixed, unless otherwise approved by the engineer or inspector, at a height of at least six feet six inches from the floor to the bottom of the cistern, which shall be so fixed that the ballcock is accessible.

Flush Pipes for Urinals.

155. Flush pipes for urinals shall be of brass or copper with incorrodible metal alloy fittings and shall have a minimum diameter of one and a quarter inches, except that for automatic flushing cisterns flush pipes shall not exceed—

For 1 gallon flushing apparatus, $\frac{3}{4}$ inch internal diameter ;

For 2 gallons flushing apparatus, 1 inch internal diameter ;

For 3 gallons flushing apparatus, $1\frac{1}{4}$ inches internal diameter.

Flush pipe branches of such diameter as approved by the engineer or inspector shall be provided together with spreaders of approved dimensions and design. Perforated flush pipe branches are prohibited.

Water Service for Urinals.

156. Urinal apartments shall be provided with approved shrouded water supply hose cocks fixed in approved positions unless otherwise approved by the engineer.

DIVISION 30.—SLOP SINKS.

Slop Sinks.

157. Each slop sink shall be of smooth, well-glazed, and impervious material, and the basin and trap shall be in one piece and shall be provided with approved flushing apparatus of not less than three gallons capacity.

Each slop sink shall be so placed and ventilated as to comply with the requirements for water closets as set out in By-laws 133, 134, and 191.

Anti-siphonage ventilation in accordance with the requirements for water-closet pans as prescribed by By-law No. 141 shall also apply to slop sinks.

A water supply bibcock shall be fixed directly over every slop sink at a height of at least eighteen inches above such slop sink.

DIVISION 31.—SINKS, BATHS, SHOWERS, BASINS, AND WASHTUBS.

Sinks.

158. Sinks shall be of approved design and constructed of approved material with a smooth, well-glazed surface of non-absorbent material.

Each sink shall be securely fixed and supported and be provided with an approved trap fixed immediately under the outlet of such fixture except as provided for in By-laws 125 and 126.

Baths and Showers.

159. Each bath shall be of cast iron enamelled inside and over flanges with acid resisting porcelain enamel, glazed fireclay, or other approved material, with a smooth, well-glazed surface of non-absorbent material and shall be provided with an approved trap fixed immediately under the outlet of such fixture, unless as otherwise provided for in By-laws 125 and 126.

Each pedestal bath, where flashing is not provided, shall be fixed at least six inches clear of walls.

Each bath shall be fixed on suitable timber, concrete, or other approved flooring or foundation of such dimensions as may be required and approved by the engineer or inspector.

The floor of an apartment or compartment on the ground level in which a shower only is provided shall be of concrete or other approved impervious material with a smooth, easily-cleaned surface properly graded to the outlet and made ratproof. Such shower shall be trapped with a fixture trap immediately under the outlet and shall be connected to a disconnector or gully trap outside the building: Provided that, if the length of waste pipe from the shower outlet to the disconnector or gully trap is less than three feet and no other wastes are discharging into the disconnector or gully trap, the fixture trap may be omitted.

Where a shower is provided on an upstairs floor, the floor of any such apartment or compartment shall be of an approved impervious material laid and finished in an approved manner and properly graded to the outlet. An approved trap of two inches diameter complete with grating shall be provided as an outlet.

The level of the outlet grating 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.

The walls of any shower apartment shall be lined to a height of at least six feet with approved impervious material.

Basins.

160. Each basin shall be of approved material with a smooth, well-glazed surface of non-absorbent material, and shall be fitted with an approved trap fixed immediately under the outlet of such fixture or as otherwise provided for in By-laws 125 and 126.

Separate anti-siphonage pipes shall be provided for two or more basins on the same floor level which are connected direct to the same waste pipe. Where two or more basins are on separate floors and connected to a ventilated waste pipe, in each case separate anti-siphonage pipes shall be provided for each basin with the exception of the single basin on the uppermost floor.

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Where a range of basins is placed in an external building isolated from the main building, ventilation by means of a single vent pipe at the upper end of the waste pipe will be permitted provided that the range does not exceed more than four basins. Such basins need not be individually trapped provided that a trap is placed on the waste pipe below the last basin connected thereto.

Basins of the tip up type shall not be permitted except as authorised for use in hospitals or similar institutions.

Washtubs.

161. Each washtub or set of washtubs shall be of approved pattern and material, and properly graded to an outlet fitted with a brass grating sunk to the level of the bottom of each tub and securely fixed in position.

DIVISION 32.—SAFES AND OVERFLOWS.

Safes—Where Required.

162. Each apartment or compartment situated over or above any room and which has a floor of wood and in which a water-closet pan, slop sink, urinal, bath, or shower is provided shall have a safe of approved impervious material fitted under any such fixture.

Dimensions.

163. Each safe shall extend not less than twelve inches beyond the sides of any fixture and not less than fifteen inches beyond the front of any water-closet pan under which such safe is fixed, and shall extend back to and be carried up three inches on the wall and, if so directed by the engineer or inspector, shall be overflashed.

Safe Overflows.

164. Each safe shall, unless otherwise approved, be provided with an outlet of two inches diameter fixed in an approved position and provided with an approved grating fixed over the outlet.

Discharge from Overflows.

165. The outlet pipe shall discharge into the open air, or where directed by the engineer, and shall not connect with any waste pipe, soil pipe, house drain, or sewer.

Regrading Existing Floors.

166. Except as provided in By-law 151 for urinals, any floor on which any fixture is placed shall, if so directed by the engineer or inspector, be regraded and provided with a safe as prescribed.

DIVISION 33.—SINGLE-PIPE SYSTEM.

General.

167. Where the single-pipe system is approved or has been required for any premises the following special requirements shall be adopted :—

(a) Both soil and waste pipes shall be connected direct to the house drain either separately or in combination, thereby eliminating gully and disconnector traps ; and

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- (b) All fixtures shall be provided with approved traps, and such traps shall be provided with anti-siphonage pipes where and as required by the engineer or inspector in accordance with the requirements of By-law 194.

All plumbing and drainage work in connection with the single-pipe system shall comply with the requirements of these By-laws.

PART VI.—VENTILATION.

DIVISION 34.—DRAINAGE VENTS.

Vents on Main House Drain.

168. The main house drain shall be ventilated at its upper end by a vent pipe erected vertically. Such vent pipe may be a soil vent pipe.

If the house drain is provided with an interceptor trap there shall be, in addition, a vent pipe connected to the interceptor trap shaft. 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 ends of the drain, respectively.

Vents on Branch House Drains.

169. Branch house drains need not be vented if the length of such drain, including the soil pipe, if any, does not exceed a distance of twenty feet from the main house drain, measured along the line of pipes.

Size of Drainage Vents.

170. Drainage vent pipes shall, unless otherwise ordered, be of not less than four inches diameter in the case of educt vents and not less than three inches 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 not less than four inches diameter, and all others of not less than three inches diameter.

Materials for Drainage Vents.

171. Drainage vent pipes situated wholly outside of buildings or outbuildings shall be of cast iron, galvanised wrought iron, galvanised sheet iron, or other approved material above ground and of stoneware or concrete beneath the surface of the ground.

Galvanised sheet iron vent pipes shall be grooved, welded, or riveted and shall be of not less gauge than twenty for three inches and four inches diameter pipes and eighteen for six inches pipes, and where liable to be damaged the first six feet above ground shall be of cast iron or other approved material. The circumferential joints of galvanised sheet iron vent pipes shall be riveted, soldered, and lapped so as to prevent condensation pockets inside the pipe: Provided that vents of three inches diameter may be sweated instead of riveted.

Every vent pipe shall be coated inside with approved composition, and all vent pipes shall be painted on the outside with two coats of paint of approved quality and colour.

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.

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Unless otherwise ordered or approved, every such vent pipe shall be provided with approved basket end, educt, or induct cowls.

Induct Vents.

172. Every induct vent shall be securely supported in an approved manner.

Ground Vents.

173. Ground vents may be used on interceptor traps when situated not less than thirty feet from any window, door, or other opening into a building.

DIVISION 35.—PLUMBING VENTS.

Size of Waste Vents.

174. Waste vents shall be of such diameter as to comply with the requirements of By-law 194.

Where different sizes of vent pipes and/or fittings are to be connected, such connection shall be made by the use of an approved reducing socket.

Materials for Soil and Waste Vents.

175. Soil or waste vent pipes shall be of cast iron, wrought iron, lead, copper, or brass, except that where the vent pipe is entirely outside a building grooved, welded, or riveted galvanised sheet iron vent pipes may be used, but such sheet iron vent pipes shall not be used at a level lower than two feet above the level of the highest fixture served thereby.

The circumferential joints of galvanised sheet iron vent pipes shall be riveted, soldered, and lapped so as to prevent condensation pockets inside the pipe: Provided that such vents of three inches diameter and under may be sweated instead of riveted.

External vent pipes of galvanised sheet iron shall be of a gauge not less than the following:—

1½ inches to 2½ inches	..	..	..	22 gauge
3 inches to 4 inches	..	..	..	20 gauge
Over 4 inches	..	..	..	18 gauge.

Soil Vent Pipes.

176. In all cases the upward extension from the soil pipe for ventilation shall pass in as direct a manner as possible above and, if necessary, through the roof.

Anti-Siphonage Vents.

177. Loss of water seal in traps shall be prevented by proper ventilation in accordance with the requirements of By-law 194. Such anti-siphonage vents from fixtures shall be carried up in accordance with By-law 180 or joined to the branch or main vent above the level of the fixture, unless special permission to the contrary is granted.

These vent pipes shall connect to the waste or soil pipe on the opposite side of the water seal to the fixture at a point not less than three inches nor more than eighteen inches from the crown of the trap, except in the case of water-closet pans, when the vent pipes shall connect at a point not more than five feet from the crown of the trap.

Combining of Vents.

178. The various vents may be combined by branching together those which serve traps of the same class.

The vent pipes may be branched into a soil vent or waste vent pipe of the same class above the level of the highest fixture.

Length of Unvented Waste Pipes.

179. Except as provided in By-law 160, waste pipes need not be ventilated unless they exceed twelve feet in inclined length and/or eighteen feet in vertical length or their equivalent, provided that there is only one fixture attached to the waste pipe, and provided that the water in the trap seal is not reduced by siphonage or other cause.

Where there is more than one fixture or the water in the trap seal is reduced a vent pipe shall be supplied to the fixture trap or traps.

DIVISION 36.—GENERAL PROVISIONS.

Height of Vent Pipes.

180. Unless otherwise directed every vent pipe extending upwards from a soil pipe or house drain shall be carried not less than six feet higher than any door, window, or other opening into a building within a distance of thirty feet thereof, and in any case every educt vent shall be carried at least twelve feet above ground level and six feet above the level of the eaves or coping.

Every vent pipe extending upwards from a waste pipe or trap shall be carried four feet above any door, window, or other opening into a building within fifteen feet thereof, and in any case at least two feet above the level of the eaves or coping. 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. Where necessary vents shall be carried to such additional heights as may be required to prevent effectually the escape of foul air into any building within the vicinity.

Vent pipes shall, where necessary, be provided with sufficient clips or stays to support them effectively.

Pipes through Roofs.

181. In all cases where a vent, waste, or soil pipe passes through any roof a suitable lead collar or flashing shall be soldered or otherwise fixed to the pipe and also the roof in such manner as shall make the roof perfectly watertight.

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Chimneys.

182. No chimney shall be used as a ventilator to any drain, soil, or waste pipe.

Vents near Chimneys.

183. Vents shall, as far as possible, be kept away from chimneys and ventilating air shafts.

Where a vent pipe terminates six feet or more from a chimney opening or ventilating air shaft the requirements of By-law 180 shall apply, but where the distance is less than six feet the vent pipe shall, provided it is at least twelve feet long, terminate not less than two feet below the top of such chimney or air shaft.

Vents Adjoining High Buildings.

184. 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 thirty 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 are necessary to conform with By-law 180.

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 election of the owner of the new or higher building, the making of such alteration by the owner of such new or higher building.

Vent Pipe Grades.

185. All vertical lines of vent pipe shall connect, full size, at their bases with a soil, waste, or drain pipe and shall extend in undiminished size above the roof or be connected to the soil, waste, or vent stack, in compliance with the requirements of By-law 178, on a grade of not less than one in forty.

All offsets shall be at a grade of not less than forty-five degrees to the horizontal.

Vent pipes shall not be used as waste or soil pipes.

Attachment to Walls.

186. Unless otherwise directed, where a galvanised sheet iron pipe with or without offset is carried up above the brick wall of a building or outbuilding a galvanised wrought iron clip shall be used, leaded into the wall near the top wherever possible, and bolted against the vent pipe.

All band iron clips of vent pipes to brick walls shall be fastened with bolts and nuts, leaded in, or by means of T-headed bolts passed through the brick joints and turned at right angles to the joints.

Supporting Vents.

187. Vent pipes the tops of which are more than six feet above the highest fastening to structure or which have offsets above the top holdfast shall be stayed by at least two stays set at right angles to each other.

Vent Pipe Clips.

188. There shall be at least one pipe hook or clip to each six feet length of vent pipe.

For cast iron pipe without lugs or wrought iron pipe approved coated wrought iron clips, and for galvanised sheet iron pipe one and a half inch by fourteen gauge galvanised band iron clips, or approved pipe hooks shall be provided.

Wherever it is necessary to fix pipes clear of the wall approved extension clips shall be used. Clips in the case of cast iron pipes must be placed tight up against the head or form part of the faucet or between the beads of the faucet.

Vents in Outbuildings.

189. 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.

Sheet Metal Bends and Offsets.

190. All sheet metal bends and offsets for vent pipes shall be bent or pressed. Mitred elbows will not be permitted.

Mechanical Ventilation.

191. (a) Each system of mechanical ventilation shall be approved by the Council and shall be capable of changing the air contents of the airlocks and/or water closets served as required by the engineer but in no case less than six times per hour.

(b) 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 engineer, be designed to act temporarily as an effective natural vent in the event of the mechanical equipment failing.

(c) Upon completion the owner or his representative shall carry out such tests of the ventilating system as the engineer may deem necessary.

(d) Such mechanical system shall be operated continuously and maintained in good working order and condition under the direction of a properly qualified person.

(e) Any such mechanical system shall be open to inspection by the engineer or inspector at all reasonable times, and shall be subject to such tests as the engineer or inspector shall, from time to time, direct.

(f) Subject to the requirements of By-law 104, air shafts may be used also as pipe shafts.

(g) The failure for a period longer than forty-eight hours of any such ventilating system to operate efficiently or to fulfil the requirements of this clause shall be an offence against this By-law.

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PART VII.—PIPE CAPACITIES.

DIVISION 37.—CAPACITIES OF SOIL, WASTE, DRAIN, AND VENT PIPES.

Fixture Units.

192. For the purpose of determining the size of any house drain, waste, soil, or vent pipe the following equivalent fixture units denoting a rate of discharge equal to one cubic foot per minute shall be adopted, unless otherwise directed :—

Fixture.	Nominal Outlet Diameter.	Fixture Units.
	Inches.	
One basin	1½	1
For each basin over 20 served by such pipe ..	..	½ for each basin
One kitchen sink (up to six inches depth to overflow)	2	3
One bath (with or without shower)	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 sink	3	4
One shower compartment	2	3
One water-closet pan	4	6
Groups of fixtures contained in one apartment—		
Bath and basin .. .. .	..	6
Bath, basin, and shower .. .. .	..	6
Bath, basin, shower, and water-closet pan ..	..	6

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

Sizes of Soil, Waste, and Drain Pipes.

193. The sizes of soil, waste, combined waste, and drain pipes, computed in accordance with the methods set out in By-law 195, 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 :—

Permissible Maximum Number of Fixture Units.

Diameter of Pipe (Inches).	Grade not less than—				Vertical Stacks.
	* Minimum Permissible Grade.	† 1 in 40.	‡ 1 in 12.	§ 1 in 4.	
1½	1	..	1	1	1
1½	6	..	6	8	9
2	9	..	12	17	24
3	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 99. † Corresponds to 88½° fittings. ‡ Corresponds to 85° fittings. § Corresponds to 75° fittings.

The maximum length of such pipes, including the extension as vent, shall not be more than—

- 50 feet for pipe of $1\frac{1}{4}$ inches diameter ;
- 65 feet for pipe of $1\frac{1}{2}$ inches diameter ;
- 85 feet for pipe of 2 inches diameter ;
- 105 feet for pipe of $2\frac{1}{2}$ inches diameter ;
- 212 feet for pipe of 3 inches diameter ;
- 300 feet for pipe of 4 inches diameter ;
- 510 feet for pipe of 6 inches diameter.

For lengths greater than the above next appropriate size shall be adopted :

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 except from a urinal ;
- (c) Not more than two water-closet pans shall discharge into any graded soil pipe of three inches diameter ;
- (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 forty-five degree fittings are used throughout for connections to any stack, the "permissible maximum number of fixture units for vertical stacks" in the above table may be increased by fifty per cent. ;
- (f) Not more than one-half of the total permissible number of fixture units for a vertical stack, in accordance with the above table, shall be connected to such stack in any eight feet length thereof ; and
- (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.

Sizes of Vents.

194. (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 stories above the floor on which are situated the lowest fixtures served by such vent ; and
- (b) Length of branch vent shall be the height of the building in stories above the floor on which are situated the lowest fixtures served by such vent, plus an additional story for each twelve feet or part of twelve feet in the length of the branch vent, measured horizontally from the main vent to the fixture in question.

1949. *Sewerage, Water Supply, Etc., Act.*

(2) *Main and branch vents.*—The sizes of main and branch vents, computed in accordance with the method set out in By-law 195 and subject to the provisions of By-laws 170 and 185, shall be not less than the sizes determined from—

- (a) The size of soil, waste, or combined 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 the following table :—

Minimum Permissible Sizes of Main or Branch Vents (Inches).

Diameter of Soil, Combined Waste, or Waste Pipe (Inches).	Total No. of Fixture Units Served.	Total Length of Vent in Stories—									
		1	2	3	4	5	6	7	8	9	10 and over.
1½	Up to—										
	8	1¼	1¼	1¼	1½	1½
	14	1¼	1¼	1½	..	..	..	..	..	..
2	12	1½	1½	1½	1½	2	2	2	..	..
	18	1½	1½	1½	2	2	2	2	..	..
	36	1½	1½	1½	2	2	2	2	..	..
2½	6	1½	1½	1½	1½	1½	2	2	2½	2½	
	12	1½	1½	1½	1½	2	2	2	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	2½	2½	2½	2½	
3	12	1½	1½	2	2	2	2	2	2	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	3	
	42	2	2	2½	2½	2½	2½	2½	3	3	
	60	2	2	2½	2½	2½	2½	3	3	3	
	75	2	2½	2½	2½	2½	3	3	3	3	
4	12	2	2	2	2½	2½	2½	2½	2½	2½	
	24	2	2½	2½	2½	2½	2½	2½	3	3	
	36	2	2½	2½	2½	2½	2½	3	3	3	
	48	2½	2½	2½	2½	2½	3	3	3	3	
	72	2½	2½	2½	2½	3	3	3	3	3	
	120	2½	2½	2½	3	3	3	3	3	3	
	180	2½	2½	3	3	3	3	3	3	3	
	300	2½	3	3	3	3	3	3	4	4	
390	3	3	3	3	3	4	4	4	4		
6	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 one and a quarter inches in diameter, and in no case shall a main or branch vent have a diameter less than one-half that of the soil, combined waste, or waste pipe which it serves ;
- (ii.) For waste pipes of two and two and a half inches diameter the main or branch vent shall have a diameter of not less than one and a half inches ; and
- (iii.) No branch vent need be larger in diameter than the soil, combined waste, or waste pipe 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
1½	1½	3	2
2	1½	4	2

Method of Computing the Sizes of Soil, Waste, Combined Waste, and Vent Pipes.

195. The sizes of soil, waste, combined waste, and vent pipes shall be computed by the following methods :—

Fixtures.

(a) In accordance with By-law 192 the various fixtures shall be classified and the maximum number of fixture units to be provided for in each portion of the system under consideration shall be determined. 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.

(b) (i.) By reference to By-law 193 the required sizes and grades of the soil, waste, and combined waste pipes in each portion of the system shall be determined from the maximum number of fixture units served at the point under consideration.

(ii.) The sizes so obtained shall be compared with the minimum permissible sizes for the particular case and the larger shall be adopted.

Sizes of Vertical Soil, Waste, and Combined Waste Stacks.

(c) (i.) By reference to By-law 193 the required sizes of vertical soil, waste, and combined waste stacks shall be determined from the maximum number of fixture units served at the point under consideration.

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(ii.) The number of fixture units connected to the stack within any eight feet length shall be ascertained. If the number of fixture units so ascertained is not within the permissible units of provision (f) of By-law 193 such larger size stack as will comply with this requirement shall be adopted.

(iii.) The sizes so obtained shall be compared with the minimum permissible sizes for the particular case and the larger sizes, subject to provision (a) of By-law 193, shall be adopted.

Size of Main Vents.

(d) (i.) The approximate vertical length of the main vent in stories from its connection at its lower end with a soil or waste pipe or house drain to the ceiling level of the top floor shall be determined.

(ii.) From the table of permissible sizes in By-law 194 the required size for a vent of such a length shall be determined for the maximum number of fixture units served by the vent.

(iii.) The sizes so determined shall be compared with minimum permissible sizes and the larger shall be adopted.

Sizes of Branch Vents.

(e) (i.) The approximate vertical length in stories of the main vent from the point of connection of the branch vent under consideration to the ceiling level of the top floor shall be determined.

(ii.) The horizontal length of the branch vent from its connection with the main vent to the furthestmost end of the portion under consideration shall be determined.

(iii.) Allowing one story for each twelve feet or part of twelve feet in horizontal length of branch vent, as determined by paragraph (e) (ii.) of this By-law, the length in stories as determined shall be added to the length in stories determined by paragraph (e) (i.) of this By-law.

(iv.) The number of fixture units served by the portion of branch vent under consideration shall be determined.

(v.) From the table of permissible sizes in By-law 194 the minimum size of vent required for the above number of fixture units and for the total length of vent in stories as determined by paragraph (e) (iii.) of this By-law shall be determined.

(vi.) The sizes so determined shall be compared with the minimum permissible sizes and the larger shall be adopted subject to the provision that no vent need be larger than the soil or waste pipe which it serves.

PART VIII—WATER SUPPLY.

DIVISION 38—WATER SUPPLY FOR SEWERAGE PURPOSES.

Supply to Fixtures and Fittings.

196. The owner of any premises for which sewerage has been provided shall provide an adequate supply of water to all fittings and fixtures on such premises.

The owner of such premises shall provide all the pipes and fittings of such size and type as may be prescribed in the Standard Water Supply By-laws.

Such water supply, unless otherwise approved, shall be provided from the most convenient water supply main or, if approved, from a water supply pipe already connected thereto.

The water supply pipe shall be of capacity sufficient to supply all sanitary fixtures on the premises freely and continuously, and convey to the flushing cistern, flushing tank, or other flushing apparatus of each water-closet pan upon the premises enough water to fill the same at a rate of not less than one-half gallon per minute when one other cock on the service is turned full on, and the owner shall cause such pipe to be connected with the cistern before the completion of all work.

Each bath, basin, sink, washtub, or like fixture, and when required by the engineer or inspector any trap, shall be provided with a water supply cock fitted over same so as to discharge into any such fixture or trap. No water supply cock shall be fixed internally unless over such fixture or trap except as provided in By-law 156.

Each water storage tank, flushing cistern, and all fittings and fixtures provided with a pillar cock shall have an approved length of not less than twelve inches of lead pipe with two wiped joints or annealed copper pipe with compression joints connected between the cistern or fittings and fixtures and the supply pipes. In the case of water storage and supply tanks and flushing cisterns a stopcock shall also be connected between the service connection and the water supply pipe.

Separation of Water between Fixture and Supply Pipe.

197. The supply pipe to any fixture, storage tank, supply tank, or flushing cistern shall be so connected that there shall be no direct connection between the water stored or used for any fittings and fixtures and the water in the supply pipe.

Control of Water in Supply Pipe.

198. The supply of water to the flushing cistern or flush valve to any water-closet pan, slop sink, or urinal shall be controlled by a separate stopcock fitted in an approved position.

Water Supply Pipe to Storage Tank and/or Supply Tank.

199. Each supply pipe to any water storage tank and/or supply tank shall be provided with a high-pressure float controlled ballcock.

Where directed an additional stopcock fixed in an accessible position shall be fixed on the supply pipe to every storage tank and/or supply tank.

Maintenance of Water Supply Pipes and Fittings.

200. The owner of any premises shall maintain the supply pipes and fittings connected thereto which supply water to any fittings and fixtures and/or storage or supply tanks in good repair, order, and condition.

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If at any time such pipes and/or fittings have become insufficient to maintain the water supply to any fittings and fixtures and/or storage or supply tanks as prescribed by these By-laws, such pipes and/or fittings shall be replaced, renewed, altered, or repaired as may be required by notice in writing from the Council within a time specified in such notice.

Any such replacement, renewal, alteration, or repair shall be carried out at the expense of the owner.

APPENDIX—SEPTIC TANKS.

This Appendix is to be considered as part of the foregoing Standard Sewerage By-laws and is to be read in conjunction therewith. All house drainage and plumbing work in connection with septic tank installations shall be carried out in complete accordance with the requirements of those By-laws.

Authority to Instal.

1. A person shall not at any premises—
 - (a) Instal or alter ; or
 - (b) Commence to instal or alter ; or
 - (c) Permit or suffer to be installed or altered or to be commenced to be installed or altered,

a septic tank unless the owner of the premises has first obtained from the Council a permit therefor ; or

- (d) Use or permit or suffer to be used a septic tank unless such septic tank has been installed at such premises pursuant to a permit granted under clause two hereof :

Provided that a septic tank installed prior to the coming into force of the Standard Sewerage By-laws may, subject to this clause, be continued to be used without such permit.

Any septic tank receiving discharge from any fixture, which tank in the opinion of an inspector is capable of being used, shall be deemed to be used by the occupier of the premises.

Application for Approval.

2. Every owner of premises desiring a permit to instal or alter a septic tank shall make application in the form prescribed by the Council.

The application shall include particulars of the site and the location on the site of the premises to be served or being served and of the nature and extent of their occupancy, and also when it is proposed to alter a septic tank particulars of the nature and extent of the proposed alterations. The Council may after receipt of any application require the applicant to submit such further particulars, including plans, as in any particular case it may think fit.

If the application is for a permit to instal a septic tank and no authorised means is available for satisfactory disposal of the effluent from the proposed septic tank, the engineer shall cause to be made such tests on the proposed site and such inquiries as he thinks fit and shall transmit his report and recommendation to the Council, which may grant or refuse a permit or grant a permit on such conditions as it thinks fit.

When application has been made for a permit to instal a septic tank at any premises the Council may, without prejudice to its right to impose any other condition, grant such a permit subject to the condition that, except where otherwise allowed by the engineer, every fixture, fitting, and pipe shall be installed in accordance with the Standard Sewerage By-laws.

If application is made for a permit to alter the location of a septic tank and the engineer is of opinion that by reason of such application it will be necessary that an inspection of the site or other inquiries should be made before the permit is granted the engineer shall cause to be made such tests and inspections on the proposed site and such inquiries as he thinks fit and shall transmit his report and recommendation to the Council, which may grant or refuse the permit applied for or grant such permit on such conditions as it thinks fit.

When a septic tank has been installed or altered at premises pursuant to a permit granted under this clause, subject as hereinafter provided it shall not be a breach of this clause to use such septic tank.

The information given on the application form shall be deemed to be a condition of any permit granted.

Every permit granted under this clause shall be deemed to include a condition that the septic tank to be installed or the alterations to be done shall be in all respects in accordance with the provisions of this clause.

The Council may by By-law or, in the case of the Brisbane City Council, by Ordinance prescribe fees which shall be paid to the Council in respect of the following matters :—

- (a) Application for permission to instal a septic tank ; and
- (b) Application for permission to alter a septic tank.

The Council may, in like manner, provide additional charges for the carrying out of inspections and tests and/or the making of inquiries in connection with applications for permission to instal septic tanks or to alter the location of septic tanks.

Breach of Condition of Permit.

3. If a septic tank is installed or altered otherwise than in accordance with the conditions of the permit the engineer may by notice in writing direct the owner for the time being of the premises, at such owner's option, and within a time to be specified in the notice, to (a) rectify any faults or omissions ; or (b) to dismantle and/or fill in the septic tank. If the terms of such notice are not complied with the owner to whom it was given shall be guilty of an offence and in addition the Council may dismantle and/or fill in the septic tank, and the amount of any expense incurred by it in so doing may be recovered from such owner as a debt.

Installation without Permission.

4. If a septic tank has been installed without the permission or approval of the Council prior to the coming into force of the Standard Sewerage By-laws, or if a septic tank is installed without a permit from the Council, and in any such case the engineer is of opinion that such septic tank should not be allowed to remain installed or in use

1949. *Sewerage, Water Supply, Etc., Act.*

unless alterations are made thereto, he may by notice in writing direct the owner for the time being of the premises at such owner's option, and within a time to be specified in such notice, to (a) make such alterations thereto as shall be specified in the notice ; or (b) to dismantle and/or fill in the septic tank.

If in any case as beforementioned the engineer is of opinion that the septic tank should not be permitted to remain installed or in use at all he may, by notice in writing, direct the owner for the time being of the premises to dismantle and/or fill in the septic tank within a time to be stated in such notice.

If the terms of any notice given by the engineer pursuant to this clause are not complied with the owner to whom it was given shall be guilty of an offence and in addition the Council may dismantle and/or fill in the septic tank, and the amount of any expense incurred by it in so doing may be recovered from such owner as a debt.

The power of the engineer to give any notice as aforesaid shall be without prejudice to any other remedy which the Council may have against the owner or any other person in default.

Change in Circumstances.

5. If by reason of any change in circumstances since its installation the demand on any septic tank, whether installed before or after the coming into force of the Standard Sewerage By-laws, is so increased that in the opinion of the engineer it is inadequate to meet such demand, the engineer may by notice in writing direct the owner for the time being of the premises, at such owner's option, and within a time to be specified in the notice, to (a) effect such alterations to the septic tank as will render it adequate to meet such demand ; or (b) to dismantle and/or fill in the septic tank. If the terms of such notice are not complied with the owner to whom it was given shall be guilty of an offence and it shall be a breach of this clause for any person to use or permit or suffer to be used such septic tank, and in addition the Council may dismantle and/or fill in the septic tank, and the amount of any expense incurred by it in so doing may be recovered from the owner to whom such notice was given as a debt.

Work to be in Accordance with the Requirements of the Standard Sewerage By-laws.

6. The installation, alteration, or repair at premises of any house drainage or plumbing as or being part of a septic tank thereon shall, unless the engineer otherwise directs, be carried out in the same manner as the installation, alteration, or repair of house drainage or plumbing for connection with or connected to, as the case may be, a sewer of the Council pursuant to the Standard Sewerage By-laws and generally, but without prejudice to anything in this Appendix elsewhere contained, the requirements of and the obligations imposed by the Standard Sewerage By-laws with respect to procedure, materials, work, and workmanship in the case of the installation, alteration, or repair of house drainage or plumbing shall be the requirements of and the obligations imposed by this clause with respect to the installation, alteration, or repair of house drainage or plumbing at premises as, or being part of, a septic tank thereon.

A person shall not do, or cause, or suffer, or allow to be done, any work on premises in connection with the construction, installation, alteration, or repair thereon of a septic tank unless such work is in accordance with the requirements of this clause.

Only Licensed Persons to do Work.

7. A person shall not in connection with the installation, alteration, or repair of a septic tank do—

- (a) Any plumbing work unless he is the holder of a Plumber's License or an Interim Plumber's License or a Country Plumber's License or an Interim Country Plumber's License granted by the Board, or is an indentured apprentice within the meaning of **"The Apprentices and Minors Acts, 1929 to 1948,"* working actually in company with the holder of a license of one of the aforesaid classes ; or
- (b) Any water supply plumbing work unless he is the holder of a Plumber's License or an Interim Plumber's License or a Country Plumber's License or an Interim Country Plumber's License or a Water Plumber's License or an Interim Water Plumber's License granted by the Board, or is an indentured apprentice within the meaning of **"The Apprentices and Minors Acts, 1929 to 1948,"* working actually in company with the holder of a license of one of the aforesaid classes ; or
- (c) Any house drainage work unless he is the holder of a Drainer's License or an Interim Drainer's License granted by the Board, or is an indentured apprentice within the meaning of **"The Apprentices and Minors Acts, 1929 to 1948,"* working actually in company with the holder of one of the aforesaid licenses :

Provided that any person may lawfully do any work consisting merely of the excavation and/or backfilling of trenches or any other work of an unskilled nature in connection with the installation, alteration, or repair of any septic tank :

Provided, further, that the holder of a Country Plumber's License or an Interim Country Plumber's License shall only be entitled to perform plumbing work in pursuance of this Appendix outside the Area of the City of Brisbane, and the Area of any City or Town which has undertaken the provision of sewerage as a function pursuant to section 36 of †*"The Local Government Acts, 1936 to 1949,"* and, in the case of a Shire, outside the sewered area thereof.

Licensed Persons only to be Employed.

8. A person shall not in connection with the installation, alteration, or repair of a septic tank contract with or employ any other person to do—

- (a) Any plumbing work unless such other person is the holder of a Plumber's License or an Interim Plumber's License or a Country Plumber's License or an Interim Country Plumber's License granted by the Board ; or

* 20 G. 5 No. 37 and amending Acts.

† 1 G. 6 No. 1 and amending Acts.

1949. *Sewerage, Water Supply, Etc., Act.*

- (b) Any water supply plumbing work unless such other person is the holder of a Plumber's License or an Interim Plumber's License or a Country Plumber's License or an Interim Country Plumber's License or a Water Plumber's License or an Interim Water Plumber's License granted by the Board ; or
- (c) Any house drainage work unless such other person is the holder of a Drainer's License or an Interim Drainer's License granted by the Board :

Provided that no person shall contract with or employ the holder of a Country Plumber's License or an Interim Country Plumber's License to do any plumbing work in pursuance of this Appendix within the Area of the City of Brisbane, and the Area of any City or Town which has undertaken the provision of sewerage as a function pursuant to section 36 of **"The Local Government Acts, 1936 to 1949,"* and, in the case of a Shire, within the sewered area thereof.

Maintenance.

9. Every licensed person who shall execute any plumbing or house drainage work or other work, as the case may be, at any premises in connection with the installation or alteration of a septic tank thereon shall within seven days after receiving notification from the engineer or an inspector of any defect found in such septic tank within twelve months of the date of completion of such work, and due in the opinion of the engineer or such inspector to his faulty workmanship or to defective material used by him, make good such defect at his own expense.

Construction of Tank.

10. Every septic tank shall be constructed of plain or reinforced concrete of approved wall and floor thicknesses brought to a smooth trowel finish, nine inch brickwork suitably rendered, or plain metal coated with a firmly adherent and incorrodible enamel or other approved coating. The sides and bottom of every septic tank shall be impervious to water. All internal angles shall be well rounded.

Every septic tank shall be covered with reinforced concrete not less than three inches thick and shall be fitted with approved removable manhole covers and inspection openings at inlet and outlet.

A septic tank may be further covered with earth or other similar medium provided that one removable cover must be exposed at all times.

Capacity of Tank.

11. Every septic tank shall have a capacity in gallons as required by the following table :—

- (1) Tanks serving or to serve water closets and urinal wastes only—

Number of Persons Contributing.	Capacity. (Gallons.)
Up to 5	300
6	310
7	320
8	330
9	340
10	350

* 1 G. 6 No. 1 and amending Acts.

Sewerage, Water Supply, Etc., Act. 13 GEO. VI. No. 55,

Where the number of persons is greater than ten and not more than one hundred the capacity of the tank in gallons shall not be less than two hundred and fifty, plus ten times the number of persons.

(2) Tanks treating or to treat all household wastes—

Number of Persons Contributing.						Capacity. (Gallons.)
Up to 5	..	..	..	..	..	400
6	..	..	..	..	..	420
7	..	..	..	..	..	440
8	..	..	..	..	..	460
9	..	..	..	..	..	480
10	..	..	..	..	..	500

Where the number of persons is greater than ten and not more than one hundred the capacity of the tank in gallons shall not be less than three hundred, plus twenty times the number of persons.

In each of the foregoing cases marked (1) and (2) the length of the tank shall not be less than $2\frac{1}{2}$ times its width, and the dimensions shall be such that the minimum depth of water at the inlet end shall be four feet six inches with a minimum air space of eighteen inches measured vertically from the liquid surface to the underside of the roof of the tank, provided that the horizontal distance between the centre lines of the inlet and outlet pipes shall be not less than three feet nine inches. Circular tanks may be installed with the approval of the engineer, provided the horizontal distance between the centre lines of the inlet and outlet pipes and the minimum depth and air space as above are complied with. Ventilation shall be provided between the top liquid level and the cover of the tank.

Induct vents shall be mosquito proofed where required.

A septic tank to serve more than one hundred people shall be of such dimensions and design as may be approved.

Effluent—Discharge and Treatment.

12. The effluent from a septic tank may be discharged on, into, or under land in approved cases and under approved conditions and by approved methods.

The Council may require the use of an approved method or process for the purification of sewage or effluent, in conjunction with and in addition to land disposal.

Any septic tank effluent discharging directly into any river, stream, creek, watercourse, or storm-water sewer, or into any tidal estuary, or into the sea shall pass through an aerobic filter or other approved process for its effective purification of the effluent before discharge.

Effluent discharging directly into any fresh-water river, fresh-water creek, stream, or watercourse shall be considered effectively purified when it does not contain more than three parts per 100,000 of suspended matter, and with its suspended matter included does not take up at a temperature of sixty-five degrees Fahrenheit more than two parts per 100,000 of dissolved oxygen in five days.

1949. *Sewerage, Water Supply, Etc., Act.*

Effluent shall not be discharged into any storm-water sewer unless it is non-putrescible and free from organisms dangerous to health and from offensive odour. Without prejudice to the use of any other recognised test an effluent (not being chlorinated or otherwise disinfected or sterilised) shall be considered non-putrescible if a sample treated with methylene blue according to the method described in Schedule A hereto retains its blue colour for five days.

Effluent discharged into the sea or into any tidal estuary or tidal river or stream shall be considered effectively purified when it is free from offensive odour and does not contain more than ten parts per 100,000 of suspended matter. The point of discharge of any such effluent shall be below low water mark and such as not to be, in the opinion of the engineer, liable to pollute any bathing ground or shellfish bed.

Design, &c., to be Approved.

13. The design, details of construction, materials, and methods used for the construction of septic tanks and aerobic filters must be approved before the work of construction is commenced.

Filter Requirements.

14. (a) Aerobic or trickling filters shall contain a minimum depth of four feet six inches of filter media and a total quantity of media in accordance with the following requirements:—

- (1) Septic tanks treating water-closet wastes only and serving not more than twenty-five persons—surface area of filter to be nine square feet for each ten or part of ten persons ;
- (2) Septic tanks treating water-closet wastes only and serving more than twenty-five persons—volume of media to be not less than five cubic feet per person ; and
- (3) Septic tanks treating all household wastes—volume of media to be six cubic feet per person with a minimum of sixty cubic feet :

Provided that in special circumstances where levels preclude the provision of the foregoing depth of four feet six inches of filter media, such depth may be reduced with the approval of the engineer to three feet six inches, provided that the cubic contents of the media as set out in paragraphs (1), (2), and (3) above be not reduced.

(b) Every filter shall be so constructed as to permit free and unrestricted movement of air under and through the filter media, the latter being supported clear of the filter floor for this purpose.

(c) Every filter shall be provided with an induct vent of not less than four inches diameter or equivalent ventilating air having connection with the air space underlying the filter media. Where ten persons or more are to be served filters shall be provided with vents as approved.

(d) The structure containing the filter media shall be of plain or reinforced concrete, brickwork, or approved metal coated with a firmly adherent and incorrodible enamel or other approved coating or other approved material.

(e) Sewage shall be distributed over the surface of the filter media by perforated trays, tipping troughs, sprays, distributor pipes, or other means of obtaining proper distribution or other approved means.

Further Structural and Other Requirements.

15. Whenever required by the conditions of a permit or by the engineer subsequently to the issue of a permit, the owner of a septic tank shall make provision for—

- (a) The interception and retention of grease before the admission of the sewage to the septic tank, and the removal as frequently as may be necessary of the grease so intercepted and the proper disposal thereof ;
- (b) Subjecting the whole or any part of the septic tank to a pressure or other test for disclosing the water tightness or otherwise thereof ;
- (c) A sump or well in any sedimentation or other treatment tank thereof to facilitate collection and removal of sludge ;
- (d) Means suitable for the purpose of facilitating the withdrawal and inspection of samples of sewage or sewage scum, sludge, or effluent from any part of the septic tank ;
- (e) The automatic disinfection of effluent from the septic tank by the application thereto of chlorine, chloride of lime, or other approved sterilising agent in sufficient proportion to destroy all harmful organisms, and the retention of the effluent after application of the sterilising agent for a sufficient time to allow the effective action of the sterilising agent ;
- (f) A siphon tank or well for the purpose of discharging the effluent intermittently ; and
- (g) Absorption trenches for the disposal of the effluent.

Prohibiting Entry of Certain Matters into Tank.

16. No person shall turn or cause or suffer to enter into any septic tank—

- (a) Any surface or subsoil drainage, rain water from any pavement or roof, or overflow water from rain-water tanks or flushing systems, or other relatively clean water ;
- (b) Any waste liquids or refuse products of any manufacturing process or steam or any hot liquids of a temperature higher than 100° Fahrenheit without having previously obtained written permission from the engineer, which permission may be granted with or without conditions ;
- (c) Any inflammable or explosive materials that will not readily mix with water, or any materials which when mixed with sewage or water are liable to form explosive compounds or to interfere with the treatment process ;
- (d) Any insoluble matter or articles, dead animals, or rubbish whatsoever ; and
- (e) Any liquids or solids bactericidal in effect and in such quantity as to militate against the proper functioning of the septic tank.

1949.

Sewerage, Water Supply, Etc., Act.

SCHEDULE I.

Disposal of Contents of Tank.

17. (a) In any part of the area which the Council has undertaken or contracted for the removal and disposal of nightsoil no person other than an employee or contractor of the Council or an employee of such contractor shall remove from any septic tank any of the contents thereof. Every such employee or contractor as aforesaid effecting such removal shall convey such contents to a disposal ground or depot approved in accordance with "The Sanitary Conveniences and Nightsoil Disposal Regulations 1946" or other regulations or provisions in that behalf or amending such regulations or in substitution therefor, and there dispose of them in the manner provided for the disposal of nightsoil by such regulations or other provisions as aforesaid.

Any person who deposits or disposes of any of the contents of a septic tank at any place other than an approved disposal ground or depot as aforesaid shall be guilty of an offence.

The foregoing provisions shall not apply to such portions of the contents of a septic tank as are removed therefrom for the purpose only of test or analysis.

(b) In any part of the area which the Council has not undertaken or contracted for the removal and disposal of nightsoil a person shall not deposit or dispose of any of the contents of a septic tank in, on, or under any place situated within one hundred feet of any building where persons reside or work. A person shall not deposit or dispose of any of such contents except at a site and under conditions approved by the engineer.

(c) Whenever the Council by its employees or contractors removes any of the contents from a septic tank on any premises the expense of such removal shall be a debt due to the Council by the owner of such premises and shall also until paid be and remain a charge on the land and recoverable in the same manner as general rates.

Interfering with Tanks.

18. No person shall without first obtaining permission in writing from the engineer dismantle or remove wholly or in part any works or equipment of any septic tank, or alter or change the approved mode of operating such tank.

Damaged and Defective Tanks not to be Used.

19. A person shall not use a septic tank that is damaged or defective.

The owner of any premises shall not permit or suffer any person to use any septic tank on such premises which is damaged or defective.

Owner to Maintain Tank, Filter, &c., in Proper Order.

20. The owner of a septic tank shall maintain it together with the filter and absorption trenches, &c., in proper order and condition and adopt and cause to be adopted proper methods of operation and of treatment and disposal of the effluent in accordance with approved conditions.

Duty of Occupier.

21. An occupier of premises upon which there is a septic tank shall immediately notify the engineer in writing in the event of the escape of offensive vapours or gases or liquid or other matter from such tank.

SCHEDULE A.

METHYLENE BLUE TEST FOR PUTRESCIBILITY OF SEWAGE EFFLUENTS.

1.—*Reagent.*

Methylene Blue—Dissolve 0.5 grams of the double zinc salt or the commercial variety in distilled water and dilute to one litre. Keep in a glass-stoppered bottle in the dark.

2.—*Collection of Sample.*

Collect the sample of sewage effluent in a narrow-necked glass-stoppered bottle of clear glass, avoiding entrainment or absorption of oxygen. Allow the bottle to overflow for several minutes to remove air-bubbles, add the appropriate number of drops of the standard methylene blue solution, and carefully replace the glass stopper so that no air-bubble remains beneath it.

To prevent loss or absorption of oxygen during the test either seal the stopper in the bottle or slip over the neck of the bottle before filling a short collar of rubber tubing forming a small reservoir above the neck. Then insert the stopper, allowing the reservoir to remain full, to form a water-seal.

3 —*Dosage.*

The standard methylene blue solution shall be added to the sample at the rate of 0.40 cubic centimetres to 150 cubic centimetres of the sample to be tested. Converted to drops, this is equivalent to—

Capacity of Bottle.	Dose.	Capacity of Bottle.	Dose.
150 c.c. ..	8 drops	6 fluid ounces	9 drops
170 c.c. ..	9 drops	8 fluid ounces	12 drops
200 c.c. ..	11 drops	10 fluid ounces	15 drops
250 c.c. ..	14 drops	12 fluid ounces	18 drops

4.—*Incubation.*

Hold the bottle at a temperature of as nearly as possible 20 Centigrade (equal to 68° Fahrenheit), observe it at least twice daily, and note the time taken for complete disappearance of the blue colour.

A sample which retains any blue colour for five days or longer may be accepted as being non-putrescible, while one that retains its colour for ten days is good, and one that retains it for twenty-one days is absolutely non-putrescible.

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*Sewerage, Water Supply, Etc., Act.***SCHEDULE II.**[Section 5
(2).]

STANDARD WATER SUPPLY BY-LAWS.

PART I.—PRELIMINARY.

List of Contents.

1. These By-laws are divided into Parts, as follows :—

PART I.—PRELIMINARY :

1. List of Contents ;
2. Definitions :

PART II.—GENERAL REQUIREMENTS :

3. Special Agreements ;
4. Council not Bound to Supply Water in Certain Cases ;
5. Restriction of Supply ;
6. Occupier or Owner to Prevent Illegal use of Water ;
7. Unlawful Taking of Water ;
8. Pollution ;
9. Preventing the Waste or Misuse of Water ;
10. Public Standpipes ;
11. Private Fire Services ;
12. Licensed Persons to do Work ;
13. Unlicensed Person not to be Employed ;
14. Conditions of Holding License ;
15. Standard of Materials ;
16. Other Designs of Fittings and Fixtures ;
17. Fees for Testing Pipes and Fittings ;
18. Notice to be Given before Laying Supply Pipe ;
19. Notice to be Given before Uncovering Pipes ;
20. Inspection of Work ;
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22. Defective Water Supply Plumbing ;
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27. General Penalty ;

PART III.—WATER SERVICES :

28. Application Required for Permission to Lay on Water ;
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30. Services to be Constructed or Fixed by Council at Cost of Owner ;
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32. Extensions, how Permitted ;

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33. Connection with and Tapping of Mains ;
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35. Maximum Tapping without Clip ;
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40. Stopcocks on Separate Floors ;
41. Urinals ;
42. Baths ;
43. Swimming Pools ;
44. Washing Machines, Soda Fountains, &c. ;
45. Boilers and Engines ;
46. Recovery of Water Used in Certain Plant and Equipment ;

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50. High Pressure Cocks to be Used ;
51. Joints ;
52. Use of Untested Materials Prohibited ;
53. Ferrule Cocks ;
54. Storage Tanks ;
55. Inspection of Storage Tanks ;
56. Covering, &c., of Storage Tanks ;
57. Overflow Pipes.

PART I.—PRELIMINARY.

Definitions.

2. In these By-laws, unless the context otherwise indicates, the following terms shall have the meanings respectively assigned to them, that is to say :—

“ The Act ”—In respect of the City of Brisbane the term shall mean **“ The Metropolitan Water Supply and Sewerage Acts, 1909 to 1949,”* and †*“ The City of Brisbane Acts, 1924 to 1949,”* and, in respect of Areas constituted under ‡*“ The Local Government Acts, 1936 to 1949,”* such last-recited Acts ;

* 9 E. 7 No. 12 and amending Acts.

† 15 G. 5 No. 32 and amending Acts.

‡ 1 G. 6 No. 1 and amending Acts.

1949. *Sewerage, Water Supply, Etc., Act.*

- “Actual cost”—The actual expense, whether for wages, materials, fittings, fixtures, apparatus, or otherwise, together with any fees or overhead charges, incurred by the Council in or in connection with the execution of water supply on any premises or place ;
- “Air-conditioning plant”—Any plant, apparatus, or machine which can be used for altering or controlling the temperature of the air in a room or building and in the operation of which water is used ;
- “Approved”—Approved by the engineer or the inspector or an authorised officer of the Council, either generally or for any particular purpose ;
- “Area”—The term shall have the meaning assigned to it by **“The Local Government Acts, 1936 to 1949,”* or any Act amending or in substitution for such Act ;
- “Authorised”—Authorised by the Act or by these By-laws or by the Council ;
- “Board”—The Plumbers, Drainers, and Gasfitter Examination and Licensing Board constituted under †*“The Sewerage, Water Supply, and Gasfitting Act of 1949 ”* ;
- “Boarding-house”—Any premises in which a landlord receives boarders for hire or reward ;
- “Building”—Any fixed structure which is either wholly or in part enclosed by walls and is roofed ;
- “Business premises”—All buildings and parts of buildings used for business purposes, and includes all cellars with concrete, asphalt, wood, earth, or brick floors ;
- “Council”—In respect of Areas constituted under **“The Local Government Acts, 1936 to 1949,”* the Council of such City, Town, or Shire, as the case may be. In respect of the City of Brisbane, Brisbane City Council constituted under ‡*“The City of Brisbane Acts, 1924 to 1949 ”* ;
- “Diameter,” “bore,” or “size”—The internal diameter of any pipe unless otherwise specified ;
- “Domestic purposes”—Includes all the purposes for which water is ordinarily used in or in connection with a dwelling-house or the land attached thereto, or in watering gardens appurtenant to dwelling-houses, and not used for the purposes of business, or in cleansing private vehicles, or in a ship : The term does not include the washing of decks or boats, or the use of water for livery or carriers’ stables, or for any manufacturing purpose, or for irrigation, or for water power, or for any fountain, or for any ornamental purpose ;

* 1 G. 6 No. 1 and amending Acts.

† This Act.

‡ 15 G. 5 No. 32 and amending Acts.

- “ Dwelling-house ”—A building used wholly for human habitation : The term shall not include boarding-houses, tenement buildings, flat buildings, hostels, hotels, convents, schools, clubs, colleges, churches, halls, dwelling and farm, dwelling and nursery, dwelling and dairy, dwelling and stables, warehouses, shops, combined shop and dwelling, or any other premises of a similar nature, or any premises at which water is used for any purpose other than domestic purposes ;
- “ Engineer ”—The Council’s engineer or an engineer engaged or employed by the Council as engineer for water supply : The term shall include an engineer appointed and authorised by the Council in an acting capacity for the time being as engineer for water supply ;
- “ Fittings ”—A meter, valve, stopcock, water cock, cistern, syphon, plug, branch, or other apparatus used for or in connection with the supplying of water under these By-laws ;
- “ Flat ”—A suite of rooms being part of any premises which suite is let or is intended or adapted for occupation as living and/or sleeping accommodation, and which has its own bathroom, kitchen, and water closet ;
- “ Frontage ”—The boundary or any part of the boundary of an area of land, which boundary or part thereof abuts upon or from which there is direct access to a road or other place under the control of the Council ;
- “ Inspector ”—A person appointed and authorised by the Council to inspect and approve the installation of any water supply work executed under the Act and these By-laws : The term shall include an inspector appointed and authorised by the Council in an acting capacity for the time being as an inspector for the purpose of these By-laws ;
- “ Land ”—Includes any buildings thereon ;
- “ Licensed person ”—A person holding a license issued by the Board as Plumber, Country Plumber, or Water Plumber ;
- “ Lodging-house ”—Includes any house, tent, or building, or any part thereof (not being premises licensed under the provisions of “ *The Liquor Acts, 1912 to 1948,*” or any Act amending or in substitution for such Acts) in which a person or persons is or are ordinarily harboured or lodged for hire for a single night or for more or less than a week at any one time or any part of which is let for hire for any term less than a week at any one time for the purpose of occupation ;
- “ Main ”—Any water pipe being the property of the Council ;
- “ Mechanical equipment ”—Any plant, apparatus, or machine designed to use water for cooling or hydraulic purposes ;

1949. *Sewerage, Water Supply, Etc., Act.*

- “ Occupier ”—The person in actual occupation of any land, or if there is no person in actual occupation, the person entitled to the possession thereof ;
- “ Owner ”—The person other than His Majesty who, for the time being, is entitled to receive the rent of any land, or who if the same were let to a tenant at a rack rent would be entitled to receive the rent thereof : The term includes any lessee from the Crown and any superintendent, overseer, or manager for such lessee ;
- “ Plumbing ”—The fixtures, fittings, and piping installed to receive and convey the sewage of a building to the house drain, including the water supply and ventilation required : The term is also used to denote the work of installing such fixtures, fittings, and piping ;
- “ Premises ”—Includes messuages, buildings, lands, easements, and tenements of any tenure ;
- “ Prescribed ”—Prescribed by **“ The Local Government Acts, 1936 to 1949,”* or by †*“ The Metropolitan Water Supply and Sewerage Acts, 1909 to 1949,”* as the case may be, or by these By-laws ;
- “ Private residence and business premises combined ”—Includes any building or buildings with a business place and residence under one roof or under different roofs but on the same land and occupied by the same or different person or persons ;
- “ Storage tank ”—A tank installed for the purpose of storing water for any purposes in accordance with these By-laws in any premises where the water pressure is below twenty pounds per square inch or where directed ;
- “ Supply pipe ”—The water piping including all branch pipes within the curtilage of any premises, excluding any portion of the water service ;
- “ Tenement ”—A room or rooms used for living and/or sleeping, being part of any premises let for hire or reward in one hiring, the occupants of which are not provided with board : The term does not include a flat ;
- “ Water Area ” or “ District ”—Includes all lands within three hundred feet of the middle of the roads on which water mains are laid down from which the Council is prepared to supply water to such lands ;
- “ Water service ”—Any pipe for the conveyance of water from the main to the street alignment or to within twelve inches beyond the street alignment of the premises served thereby.

PART II.—GENERAL REQUIREMENTS.

Special Agreements.

3. Nothing contained in these By-laws shall prejudice the rights or powers of the Council to supply water to any person on such lawful terms and conditions as to payment and otherwise as may be arranged between such person and the Council.

* 1 G. 6 No. 1 and amending Acts.

† 9 E. 7 No. 12 and amending Acts.

Sewerage, Water Supply, Etc., Act. 13 GEO. VI. No. 55,

Council not Bound to Supply Water in Certain Cases.

4. Notwithstanding anything contained in these By-laws or in any agreements, the Council shall not be bound to supply water to any person whose premises are situated above the elevation which can be supplied by gravitation from existing works, or be liable to any penalty or damages for not supplying water to any such person.

Restriction of Supply.

5. Whenever the Council considers it expedient to do so, the Council may exercise all or any of the following powers in respect of water supplied by it :—

- (i.) It may discontinue or lessen in quantity the supply of water for domestic purposes ;
- (ii.) It may limit the hours during which water may be used for domestic purposes ;
- (iii.) It may restrict the use or manner of use of water for all or any domestic purposes ;
- (iv.) It may discontinue or lessen in quantity the supply of water for all purposes other than domestic purposes ;
- (v.) It may limit the hours during which water may be used for purposes other than domestic purposes ;
- (vi.) It may prohibit the use, or the use in certain manner, of water for any specified purpose or purposes.

Any such discontinuance, lessening, limitation, restriction, or prohibition may be either general or during specified hours, and may be made to apply to the whole or any part of the Water Area or to any agreement for supply outside the Water Area or to any particular consumer or consumers or classes of consumers, as the Council in its absolute discretion thinks proper, and the Council shall not on account of any such discontinuance, lessening, limitation, restriction, or prohibition incur any liability.

The powers hereby conferred upon the Council by this By-law shall be exercised by resolution and any such resolution shall be published in a newspaper circulating in the Area, and shall be effective on the third day after such publication.

On and after such third day and until the resolution is rescinded any person who uses water supplied by the Council in contravention of any such limitation, restriction, or prohibition shall be guilty of an offence, and moreover the Council shall have the right forthwith to cut off the water supply to the premises at which the offence is committed.

Nothing in this By-law shall be construed so as to prevent the Council from shutting off the supply of water from any part or parts of the Water Area, without notice, during such period as the Council may deem necessary for repairs, alterations, or additions to the distribution or supply systems.

1949. *Sewerage, Water Supply, Etc., Act.*

Owner or Occupier to Prevent Illegal Use of Water.

6. The occupier of any premises supplied with water by the Council, or in the event of there being no occupier the owner, shall cause such proper means to be taken by locks or otherwise as shall be approved by the Council to prevent water being taken or carried away from the premises ; and any occupier or owner who shall, without the written permission of the Council, take or carry away such water from his premises, or shall allow any person to take or carry away such water, shall be liable for each such offence to a penalty not exceeding ten pounds over and above the value of the water so taken or carried away.

Unlawful Taking of Water.

7. Any person who shall, without the written permission of the Council, take or carry away water from any supply pipe, water service, or trough, or from any standpipe, except a standpipe owned by the Council, for use elsewhere shall be liable for each such offence to a penalty not exceeding ten pounds over and above the value of the water so taken or carried away.

Pollution.

8. A person shall not do any act or thing, or permit any act or thing to be done, whereby the water in any waterworks, source of water supply, or in any main, water service, or supply pipe is or is likely to be polluted.

No supply pipe or water service shall be laid through any sewer, drain, ashes, manure tank, or through, in, or into any place where, in the event of the pipe becoming unsound, the water supplied by the Council through such pipe would be liable to be fouled, or to escape without observation, unless such supply pipe or water service be laid through an exterior 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 to the satisfaction of the inspector.

Preventing the Waste or Misuse of Water.

9. No person shall allow water supplied by the Council to run to waste.

Public Standpipes.

10. In all cases where a standpipe shall have been erected from the supply of the houses or premises in any way, lane, or other place, any person not being an occupier of a house in any such way, lane, or other place who shall, without the written permission of the Council, take or knowingly use or allow to run to waste water from such standpipe shall be liable for each such offence to a penalty not exceeding ten pounds.

No occupier of any such house or premises shall allow water from such standpipe to run to waste.

Private Fire Services.

11 All the provisions of these By-laws relating to installations on premises shall apply equally to fire services.

Subject to previous written consent of the Council, private fire services without meters will be allowed, but every such service shall be sealed, except in cases where the engineer shall have certified in writing that sealing is unnecessary. Except in case of fire no person shall, without the authority of the Council, wilfully break the seal affixed to any private fire service, and in the event of any such seal being broken, accidentally or otherwise, the occupier of the premises shall, within twenty-four hours thereafter, give notice in writing of the fact at the office of the Council; should he fail to do so he shall be guilty of an offence and shall be liable to a penalty not exceeding two pounds and to a further penalty of ten shillings for each day during which he shall neglect to give such notice. He shall, except in case of fire, pay a resealing fee of ten shillings.

Every private fire service pipe must be laid and fixed in a conspicuous position to the approval of the engineer and must be painted and maintained at all times with a distinguishing coating of approved bright paint.

No extension shall be taken from any private fire service pipe beyond the governing stopcock or valve outside the premises except with sealed taps and under the foregoing provisions.

Any persons using water from any portion of a private fire service pipe, or extending or causing to be extended any branch pipe from any private fire service pipe, except for fire extinction purposes and with the authority of the Council, shall be guilty of an offence, and shall be liable to a penalty not exceeding five pounds, and in the case of a continuing offence to a further penalty not exceeding two pounds for each day on which such use is continued after notice of the offence from the Council.

All private fire services shall be maintained by the owners from the Council's main to the building alignment.

Licensed Persons to do Work.

12. No person shall fit, fix, or lay any pipe for the purpose of conveying water supplied by the Council, or connect any supply pipe or water service, meter, or fitting with any pipe of the Council, or with any pipe connected with a pipe of the Council, or extend, alter, repair, or in any manner interfere with any pipe of the Council, or any supply pipe or water service, meter, or fitting connected with any pipe of the Council, or fit, fix, or lay any pipe from an elevated cistern or storage tank, unless he is a licensed person or is an indentured apprentice within the meaning of **The Apprentices and Minors Acts, 1929 to 1948,* working actually in company with such licensed person and he has first obtained the written permission of the Council to do such work and observes any condition laid down therein.

Any unlicensed person laying, fitting, fixing, connecting, extending, altering, repairing, or in any manner interfering with any such pipe, supply pipe, or water service, meter; or fitting as aforesaid shall be liable for each offence to a penalty not exceeding fifty pounds.

Unlicensed Person not to be Employed.

13. No person shall employ or contract with any person to lay any pipe for the purpose of conveying water supplied by the Council, or to connect any supply pipe, meter, or fitting with any pipe of the

* 20 G. 5 No. 37 and amending Acts.

1949. *Sewerage, Water Supply, Etc., Act.*

Council, or with any pipe connected with a pipe of the Council, or to extend, alter, repair, or in any manner interfere with any pipe of the Council, or any supply pipe, meter, or fitting connected with any pipe of the Council, or fit, fix, or lay any pipe from an elevated storage tank, unless such person is a licensed person and has first obtained the written permission of the Council to do such work.

Any person offending against this By-law shall be liable for each such offence to a penalty not exceeding ten pounds.

Conditions of Holding License.

14. Every licensed person shall—

- (a) Execute and complete all water supply plumbing work in accordance with the provisions of these By-laws ;
- (b) Execute all work in a thorough and tradesmanlike manner as expeditiously as practicable, and leave the site clean and undefaced, all to the satisfaction of the engineer or inspector ;
- (c) Use only tested and approved materials ;
- (d) Obtain written permission, where necessary, for the carrying out of any water supply plumbing work ;
- (e) Take all proper and necessary precautions that no accident or damage or unnecessary inconvenience may be directly or indirectly caused in the carrying out of any water supply plumbing work ;
- (f) Comply with any instructions given by the engineer or inspector in accordance with these By-laws.

Standard of Materials.

15. All materials, fittings, fixtures, pipes, and apparatus used in connection with the supply of water to any premises shall be the best of their respective kinds and shall comply, except where otherwise expressly provided in these By-laws, with the relevant Australian Standards Specifications, where such exist, or in the absence of any Australian Standard, the relevant British Standards Specification. If no Australian or British Standards Specification is available in respect of any material, fittings, fixtures, pipes, or apparatus, then such material, fittings, fixtures, pipes, or apparatus shall comply with other such specifications as may be authorised.

Any person who executes any water supply plumbing on any premises shall use only approved, stamped, or marked materials, fittings, fixtures, pipes, and apparatus which are the best of their respective kinds or types and which comply with such standard specifications as apply and as are authorised by the Council.

Other Designs of Fittings and Fixtures.

16. Notwithstanding anything contained in these By-laws, the engineer may approve of any fitting or fixture or patented apparatus under these By-laws not covered by By-law 15, and shall determine the conditions governing the connection of such fittings and fixtures to the water supply.

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Fees for Testing Pipes and Fittings.

17. The Council may by By-laws made in pursuance of the provisions of **"The Local Government Acts, 1936 to 1949,"* or, in the case of the Brisbane City Council, by Ordinance made in pursuance of the provisions of †*"The City of Brisbane Acts, 1924 to 1949,"* prescribe fees for the testing and/or inspection of pipes and fittings which shall be chargeable by and payable to the Council in respect of all pipes and fittings actually tested, whether the same are approved or rejected as the result of such test, but so that if the same are approved as the result of such test they shall be stamped without further fee.

Notice to be Given before Laying Supply Pipe.

18. No person shall lay any supply pipe so as either directly or indirectly to connect with any pipe the property of the Council without having first obtained the written permission of the Council so to do, and except under the supervision and according to the directions of an officer of the Council.

Notice to be Given before Uncovering Pipes.

19. No person shall uncover, expose, or in any way tamper or interfere with or alter any pipe the property of the Council, or any pipe or fitting connected therewith, without first obtaining the written permission of the Council. No person shall wilfully or neglectfully break, injure, uncover, expose, or open any pipe, lock, cock, valve, meter, or other fitting the property of the Council, or do any other act whereby water supplied by the Council might be wasted or misused or the property of the Council be injured or destroyed.

Any person offending against any provision of this By-law shall be liable for each such offence to a penalty not exceeding ten pounds, and in addition to pay any expense incurred in consequence of such offence and for any water wasted or misused.

No person shall deposit any material whatsoever so as to cover over any pipes or fittings of the Council without the permission of the Council. Any necessary alterations to such pipes or fittings may be carried out by the Council at the owner's expense.

Inspection of Work.

20. All work at any time done or being done in connection with the supply of water to any premises, whether such work consists in the laying or fixing of new supply pipes, water services, or fittings, or in the extension, repair, or alteration of existing supply pipes, water services, or fittings, shall be inspected by the authorised officer of the Council, who shall possess a Water Plumber's License, and no person shall commence such work without the written permission of the engineer. In no case shall any person turn on the water to any premises where any such work shall have been executed until the work shall have been inspected and approved by such officer. No person shall cover up or conceal from view any underground or enclosed work until the same shall have been duly inspected and approved by such officer.

* I G. 6 No. 1 and amending Acts.

† 15 G. 5 No. 32 and amending Acts.

1949. *Sewerage, Water Supply, Etc., Act.*

Maintenance by Contractor.

21. Any licensed person who has carried out water supply plumbing on any premises shall, within fourteen days after notice in writing from the Council of any defect found within twelve months from the date of completing such water supply plumbing, which defect in the opinion of the engineer or inspector is due to faulty workmanship or defective material, make good all such defects at his own expense.

Defective Water Supply Plumbing.

22. The Council may, by notice in writing, require the owner of any premises within a time specified in such notice to relay, remove, replace, or repair any water supply plumbing which in the opinion of the engineer or inspector is defective. The owner shall comply with such notice within such specified time.

Observance of By-laws.

23. Where any of these By-laws do not expressly provide by whom its requirements, whether relating to plans, specifications, materials, workmanship, manner of construction or installation, or any other matter, are to be observed, the observance of such requirements shall be the duty of the owner of the premises concerned in any particular case and of the licensed person concerned in the carrying out of the water supply plumbing of such premises.

Instructions Contrary to By-laws.

24. No person, firm, or company shall give or issue to any person any instructions or directions contrary to these By-laws. No licensed person shall carry out any instructions or directions from any person, firm, or company which are contrary to these By-laws.

Obstruction.

25. No person shall obstruct or hinder any contractor or a servant of a contractor or any authorised officer of the Council in carrying out the requirements of these By-laws.

Misrepresentation.

26. No person shall make any wilful misrepresentation in any application, request, plan, or specification in connection with the water supply to any premises.

General Penalty.

27. Any person committing a breach of any By-law to which no specific penalty is attached shall, upon conviction, be liable to a penalty not exceeding twenty pounds and to a daily penalty not exceeding forty shillings for each day on which such offence is continued after notice by the Council.

PART III.—WATER SERVICES.

Application Required for Permission to Lay on Water.

28. Application for permission to fix, fit, lay, or alter supply pipes and fittings on any premises shall in each case be lodged at the Council's office by the owner of such premises at least twenty-four hours before the time at which it is proposed to commence the work.

Each application shall contain full information with respect to the following matters and be accompanied by a sketch plan showing the proposed service :—

- (a) The name of the street or road which the premises front and the district in which the premises are situated ;
- (b) The full name of the owner or occupier of the premises to be supplied ;
- (c) The purpose for which the supply is required, such as building purposes, domestic supply, domestic supply and stables, manufacturing, fire extinction, and other purposes permitted by these By-laws ;
- (d) The size of the supply pipe and the number, description, and position of the cocks and other fittings proposed to be fixed ; and
- (e) The real property description of the premises to be supplied.

Applications which do not contain full information on these several matters may not be entertained.

Permission may be granted subject to such conditions as the Council or its authorised officer may impose.

The person to whom such permission has been given shall within seven days after completion of the work authorised thereby file at the office of the Council on a form obtainable at that office a correct statement of the work done thereunder.

If satisfied that such work has been done in a competent and tradesmanlike manner and in accordance with these By-laws and the permission granted therefor the inspector shall so certify on such statement.

An owner or authorised agent who desires to have a water service laid from the Council's main to the alignment of any premises shall request the Council to lay such service. Such request shall be made at the office of the Council on the Council's printed form and shall be accompanied by the charge fixed by the Council for laying such service. No request shall be entertained unless accompanied by such charge, and no such service shall be laid until a request to lay water supply fittings on the premises has been received from a licensed person and a permit therefor granted to him.

Service to be Separate Except by Permission.

29. Except with the written permission of the Council, not more than one premises shall be supplied by a single water service. In cases where such permission is given the branch service shall be so arranged that the supply to each premises shall be independent of the supply to the other premises and shall be controlled by a stopcock on each branch service, and the diameter of the pipes and ferrules used for each and every service main and/or branch shall be proportioned to give ample and uniform discharges and of such sizes as directed by the Council.

In any case where two or more premises are or shall be supplied by a single water service, if the Council shall be of opinion that, on account of the connection of one or more of such premises to the

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sewerage system or for any other reason whatsoever, the supply of water to such premises by a single water service is inadequate or unsatisfactory, the Council may, notwithstanding any previous approval of such single water service, by notice in writing under the hand of the engineer or other authorised officer order the owner or owners of such premises to provide, lay, and connect to such premises such additional water services and supply pipes as it may consider necessary.

If an owner does not obey such order within the time therein limited he shall be guilty of an offence, and in addition the Council may either cut off the water supply to such premises until the order is obeyed or itself provide, lay, and connect such additional water services and supply pipes, and for that purpose the Council by its officers, servants, workmen, agents, and contractors may enter upon such premises and do all things necessary and incidental to the provision, laying, and connecting of such water services and supply pipes without being liable except for negligence.

Where the Council provides, lays, and connects the water service and supply pipes as hereinbefore provided the owner or owners shall be liable to pay to the Council upon demand its expenses of doing so, including reasonable overhead charges for designing and supervision.

If the amount of such expenses, or any part thereof, is not paid within thirty days after demand it shall thereafter until payment bear interest at the current bank rate, and such amount or part thereof and interest shall until payment be a charge on the land and be recoverable in the same manner as water rates.

Where the premises are not all owned by the same person or persons the Council's order may direct what is to be provided and what work is to be done by the respective owners, and in the event of the Council providing, laying, and connecting any of such additional water services and supply pipes the Council may apportion among the owners the liability to pay to it the expenses.

In any case in which more premises than one are supplied by a single water service without the written permission of the Council the engineer may in his discretion indicate which of such premises may continue to be supplied by such water service and may give notice to the owner or owners of the other premises requiring him or them to disconnect and remove any pipe or fitting connected directly or indirectly with such water service and by means of which supply to his or their premises is obtained.

Any owner who fails to comply with the requirements of such notice within the time stated therein shall be guilty of an offence, and in addition the engineer may on behalf of the Council enter upon his premises and if necessary any other premises supplied by such water service and make such disconnections and effect such removals as will ensure that supply to such owner's premises is no longer taken from such water service. The expenses incurred by the engineer in doing such work shall also be a debt due by such owner to the Council.

Services to be Constructed or Fixed by Council at Cost of Owner.

30. All water services and fittings between the Council's main and the alignment of the street and within twelve inches beyond the alignment of the street and within the nearest premises shall be laid, fixed, or fitted by the Council. The Council may decide where any such service or fitting shall enter upon any premises and may refuse to connect such service or fitting to any pipe or fitting laid, fixed, or fitted on any premises unless satisfied that such service or fitting has been properly laid, fixed, or fitted in accordance with the permission granted under By-law 28.

Supply Pipe to be Disconnected at Owner's Cost.

31. Whenever an installation on premises requires to be dismantled in consequence of the destruction of the premises by fire or from any other cause whatsoever, and a supply pipe becomes no longer required, the owner of the property shall forthwith give notice to the Council, and within seven days after the date thereof employ a licensed person to disconnect, at owner's cost, the fittings and supply pipe within his own premises, and in default the Council may disconnect such supply pipe from the Council's main at the owner's cost.

The owner shall also make good any damage to the property of the Council.

Extensions, how Permitted.

32. Except in case of emergency, the onus of proof of which shall rest on the licensed person doing the work, no extensions, repairs, or alterations of any supply pipe and/or water service or fitting shall be made without first making application on the Council's printed form for a permit to do such work, and for emergency work such application shall be made at the earliest possible moment, and on completion of all work, including emergency work, there shall be furnished to the Council within one week, on the printed form supplied for this purpose, particulars stating when the work was completed and by whom.

Where a supply pipe and/or water service has burst or been broken and a waste of water occurs and/or damage to property is probable, the licensed person engaged shall immediately proceed to repair same and shall forward his application for permit without delay and a completion notice immediately on completion of the work.

Connection with and Tapping of Mains.

33. No person other than an employee of the Council or some competent person duly authorised by the Council shall lay a pipe to connect with and/or tap a main of the Council or in any way interfere with the Council's mains.

Method of Connection to Main.

34. Connections with reticulation mains shall be made with approved ferrule cocks.

Maximum Tapping without Clip.

35. The maximum tapping without clip for each size of cast iron main shall be as follows :—

For pipes of 3 and 4 inches diameter— $\frac{3}{4}$ inch tapping ;

For pipes of 5 inches diameter and over—1 inch tapping.

For all tappings into steel, wrought iron, or non-metallic pipes approved clips shall be used.

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Stopcock and Cover Box.

36. A high-pressure, screw-down stopcock, properly secured and protected by a cast iron cover box of approved standard, shall be fixed on each water service outside the premises and not more than nine inches therefrom, and shall be so fixed that the top of the cover box shall be level with the surface of the footpath. In the event of the footpath being paved or asphalted by any person, such person shall take such action as may be necessary for preventing the cover boxes from being covered by such paving or asphalted and for raising or lowering, as the case may be, the cover boxes so that the top of same shall be level with the surface of the footpath.

PART IV.—INSTALLATIONS ON PREMISES.

Termination of Supply Pipe.

37. When laying any supply pipe on any premises the licensed person shall terminate such pipe within the property at a distance not less than ten inches nor greater than twelve inches from the street alignment unless otherwise directed by the engineer.

Supply Pipes and Fittings to be Repaired at Owner's Cost.

38. The owner, when the supply pipe upon his premises or any fitting connected with such supply pipe requires repairing, shall forthwith employ a duly authorised licensed person to repair the same, and he shall, in default, be liable to a penalty not exceeding five pounds and in addition to make good any damage to the property of the Council; and the Council may cut off the water supply to such premises until the necessary repairs shall have been effected.

Supply Pipes not to Connect with Rain-water Receptacles or Underground Tanks.

39. No person shall without the written authority of the Council connect any pipe conveying water supplied by the Council with, or allow the same to discharge into, any underground tank or vessel used or intended to be used for the reception of rain water or water not supplied by the Council, and in all such cases the supply shall be by meter.

Stopcocks on Separate Floors.

40. In large buildings or in any building where required by the engineer the water supply shall be controlled on each floor by a separate stopcock.

Urinals.

41. No person shall supply, fit, fix, or use a supply pipe or water service so as to communicate directly with any urinal or so as to supply the same with water otherwise than through an automatic flushing cistern fitted with water waste-preventing apparatus approved by the Council.

Baths.

42. No person shall connect a supply pipe with any bath which has a capacity of more than one hundred gallons without the written authority of the Council.

No supply pipe shall be connected to any bath the outlet of which is not distinct from and unconnected with the inlet or inlets, and the inlet or inlets of which is or are not placed above the highest water level of the bath.

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The outlet of any bath shall be provided with a perfectly watertight plug.

No water shall be supplied to any bath unless the bath is so constructed as to prevent any waste or misuse of water.

Swimming Pools.

43. No person shall connect a supply pipe to any swimming or bathing pool, wading pool, fish pond, or ornamental lake or any receptacle of a similar nature without first obtaining the written permission of the Council.

The Council may or may not grant permission, but if permission is granted shall specify—

- (a) The size and location of the supply pipe or pipes required ;
- (b) Whether the supply pipe shall be separate from the ordinary domestic house supply pipe ;
- (c) The rate at which the water will be supplied ; and
- (d) The hours during which the supply of water will be permitted.

All such supplies shall be metered as required by the Council.

Washing Machines, Soda Fountains, &c.

44. All washing machines, dish washing machines, soda fountains, and suchlike apparatus which are supplied direct from the Council's main shall be approved by the engineer before installation.

Boilers and Engines.

45. No person shall supply with water by a direct connection with the supply pipe any steam boiler or any engine whatsoever. Every steam boiler or engine shall be supplied from a storage tank, and no person shall connect any supply pipe with any steam boiler or engine for the purpose of feeding or supplying the boiler or engine with water otherwise than through a storage tank.

No person shall connect directly with any supply pipe or water service any pressure water heater designed and adapted for supplying hot water unless there is provided on such supply pipe or water service an approved self-acting valve adequate to prevent the pressure of any steam produced, including any steam produced inadvertently or accidentally, from causing reversal of flow of water in such supply pipe or water service, and unless such pressure water heater has been tested to the satisfaction of the State Machinery and Scaffolding Department.

No person shall use or allow or suffer to be used any such pressure water heater which is connected in contravention of the foregoing provisions.

Recovery of Water Used in Certain Plant and Equipment.

46. A person shall not connect any mechanical equipment or any air-conditioning plant on any land or premises with the Council's water supply system, or supply to any such equipment or any such

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plant water supplied by the Council, unless such equipment or such plant is equipped with means, approved by the Council or by an officer authorised to give such approval, for recovering and reusing water used therein or in the operation thereof.

A person shall not use, or cause or suffer to be used, any mechanical equipment or any air-conditioning plant which is on any land or premises, and which is connected with the Council's water supply system or is supplied with water supplied by the Council, unless such equipment or such plant is equipped with means, approved by the Council or by an officer authorised to give such approval, for recovering and reusing water used therein or in the operation thereof.

In any case in which an offence against any of the foregoing provisions has been committed, in addition to and without prejudice to any other remedy it may have, the Council may cut off the water supply to the equipment or plant unlawfully connected or used, or from which such equipment or plant is supplied, and for that purpose may by its servants, workmen, or agents enter the land or premises upon which such equipment or plant is situated and do all things necessary therefor.

PART V.—WATER SUPPLY PLUMBING.

Depth of Water Service and/or Supply Pipe.

47. No person shall lay any supply pipe or water service at a less depth than twelve inches below the surface of the ground where such ground is subject to vehicular traffic or at a less depth than nine inches below the surface of the ground where such ground is not subject to vehicular traffic without the written permission of the engineer.

Under special circumstances the engineer may require such greater depth as may be directed.

Protection against Corrosion.

48. Every pipe and fitting laid in the ground shall be well protected against corrosion on every part of the external surface by an approved method and left in perfect condition in the trench.

Quality and Weight of Pipes and Fittings.

49. Water services and supply pipes shall be of copper, lead, or galvanised wrought iron of approved strength and quality.

Where approved by the engineer block tin pipe may be used.

Where the pipes are of lead they shall be of uniform thickness throughout and of at least the respective weights following, viz. :—

- $\frac{1}{2}$ inch diameter, 7 lb. per lineal yard ;
- $\frac{3}{8}$ inch diameter, 9 lb. per lineal yard ;
- $\frac{3}{4}$ inch diameter, 11 lb. per lineal yard ;
- 1 inch diameter, 16 lb. per lineal yard ;
- $1\frac{1}{4}$ inches diameter, $22\frac{1}{2}$ lb. per lineal yard ;
- $1\frac{1}{2}$ inches diameter, 30 lb. per lineal yard.

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Where galvanised wrought iron pipes are used the minimum weight per lineal foot shall be—

	lb. oz.
$\frac{1}{2}$ inch diameter	0 14
$\frac{3}{4}$ inch diameter	1 4
1 inch diameter	1 13
$1\frac{1}{4}$ inches diameter	2 9
$1\frac{1}{2}$ inches diameter	3 4
2 inches diameter	4 2
$2\frac{1}{2}$ inches diameter	5 11
3 inches diameter	6 12
4 inches diameter	8 13

Where copper pipes are used for screwed connections they shall be in accordance with the relevant Australian Standards Specification. The respective diameters and thicknesses, the calculated weight per lineal foot, and the pipe threads shall be as follows :—

Nominal Outside Diameter.	Actual Outside Diameter.	Thickness of Pipe.		Inside Diameter of Pipe.	British Standard Pipe Thread.	No. of Threads per Inch.	Calculated Weight.
Inches.	Inches.	S.W.G.	Inches.	Inches.	Inches.		Lb. per Lineal Foot.
$\frac{3}{8}$	0.381	16	.064	0.253	$\frac{1}{8}$	28	0.25
$\frac{1}{2}$	0.515	14	.080	0.355	$\frac{1}{4}$	19	0.42
$\frac{5}{8}$	0.822	13	.092	0.638	$\frac{1}{2}$	14	0.81
$1\frac{1}{8}$	1.038	13	.092	0.854	$\frac{3}{4}$	14	1.05
$1\frac{1}{4}$	1.289	12	.104	1.081	1	11	1.49
$1\frac{3}{8}$	1.630	12	.104	1.422	$1\frac{1}{4}$	11	1.92
$1\frac{1}{2}$	1.862	12	.104	1.654	$1\frac{1}{2}$	11	2.21
$2\frac{1}{8}$	2.335	11	.116	2.103	2	11	3.12
$2\frac{1}{4}$	2.948	11	.116	2.716	$2\frac{1}{2}$	11	3.97
$3\frac{1}{8}$	3.456	10	.128	3.200	3	11	5.15

No threaded joints will be allowed on copper tubes of less thickness than specified in the above table.

In cases where copper pipes are to be installed inside buildings in exposed and accessible positions solid drawn tubes of not less than 19 S.W.G. will be permitted, provided approved connections are used, and these pipes shall be in the following thicknesses and calculated weights :—

External Diameter.	Wall Thickness.	Calculated Weight.
Inches.	S.G.	Lb. per Lineal Foot.
$\frac{1}{4}$	19	0.10
$\frac{1}{2}$	19	0.22
$\frac{3}{4}$	18	0.41
1	18	0.55
$1\frac{1}{4}$	16	0.92
$1\frac{1}{2}$	16	1.11
$1\frac{3}{4}$	16	1.31
2	16	1.50
$2\frac{1}{2}$	14	2.34
3	14	2.83
$3\frac{1}{2}$	12	4.28
4	12	4.91

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No person shall fit, fix, lay, or use in connection with water supplied by the Council any iron pipe, tee, bend, reducing coupling, plug, or other fitting unless it be of the best material and manufacture, true in section, and of uniform thickness, properly galvanised, perfectly sound and new, and free from all defects, and truly cut with the British Standard pipe thread, and approved by and bearing the stamp of the Council. Every such pipe or fitting shall be capable of withstanding a hydrostatic pressure of not less than 300 lb. per square inch.

High Pressure Cocks to be Used.

50. No person shall fit, fix, lay, or use any cock, stopcock, or bibcock which is not a loose-valve, screwdown, high pressure cock of an approved standard pattern, made of incorrodible metal alloy with solid spindles of extruded or solid drawn or drop-forged incorrodible metal alloy, and in every respect of the best quality and workmanship, and approved by and bearing the stamp of the Council. All cocks, ferrule cocks, stopcocks, bibcocks, valves, and other fittings shall be capable of withstanding a hydrostatic pressure of not less than 300 lb. per square inch, and shall conform to the standard samples on view at the Council's office.

High pressure ballcocks must remain watertight under a pressure of 130 lb. per square inch with the ball half immersed.

Joints.

51. Wrought iron and/or steel threaded pipe joints or pipe joints with any threaded fitting shall be made with hemp.

All connections of lead with iron pipes shall be made with brass union couplings.

All joints connecting lead pipes shall be wiped solder joints, and in no case shall copper bit joints be allowed on pipes, either inside or outside any building.

The minimum thickness of metal to be added at the joint shall be five sixteenths of an inch and the minimum length of the joint shall be three inches for all sizes of pipes and/or fittings.

Copper joints shall be in accordance with the requirements of By-law 49.

Use of Untested Materials Prohibited.

52. No person shall fix, fit, lay, or use any pipe, ferrule-cock, stopcock, bibcock, ballcock, valve, cistern, or other fitting which is not of the best quality and approved by and bearing the stamp or mark of the Council.

Such fittings shall be approved, tested, and stamped or marked by the Council or authorised officer. Such testing shall be done at such time and place and be paid for, whether the fitting be passed or rejected, at such rates as may from time to time be fixed by the Council

Cocks for affixing hosepipes shall have nozzles screwed to the approved standard sizes and threads—viz., half-inch bibcock, to have $\frac{3}{4}$ inch thread for union ; $\frac{3}{4}$ inch bibcock to have 1 inch thread for union ; 1 inch bibcock to have $1\frac{1}{4}$ inches thread for union ; and so on in proportion to size of the bibcock.

Ferrule-cocks.

53. Ferrule-cocks shall be in accordance with an approved standard pattern fitted with solid spindles of extruded or solid drawn or drop forged incorrodible metal alloy. The valve and valve seating shall have machined faces. Leather washers or perishable material shall not be used on the ferrule-cock valve. The inlet of the ferrule-cock shall be screwed with a British standard taper pipe thread.

Storage Tanks.

54. (a) Where storage tanks are installed such storage tanks shall be of copper or other approved impervious non-corrosive material, and shall be made and kept perfectly watertight and be fitted with an approved ballcock.

(b) Every storage tank and water heater shall be controlled by a separate stopcock. The connection between the stopcock and the said tank and water heater shall be made with a minimum length of twelve inches of lead pipe with two wiped solder joints or a similar length of copper pipe with standard compression unions. Unless such stopcock is easily accessible a further stopcock shall be provided where directed in an accessible position.

Inspection of Storage Tanks.

55. Every storage tank shall be placed in such a position that it can be easily inspected, and sufficient space shall be allowed for effecting repairs. No storage tank shall be used for the reception or storage of water unless the use of such tank be allowed by the written permission of the Council.

Covering, &c., of Storage Tanks.

56. Every storage tank shall be properly protected with a close-fitting removable and mosquito-proof cover, and shall be provided with an approved overflow and the ballcock so adjusted that it will be shut when the water is two inches from the invert of the overflow pipe, and so that it will not become submerged when the tank is full to overflow level.

Overflow Pipes.

57. The overflow pipe of a storage tank or the overflow or exhaust pipe of a water meter shall not be connected with any pipe or drain, but shall have an open end brought to the outside of the building above ground at a conspicuous point to be approved by the Council, so that the discharge may be visible to the Council's inspector or shall discharge into a safe of galvanised iron, lead, or other approved impervious material provided with an approved outlet fixed in an approved position so as to act as a detector. Such safes shall have edges turned up at least two inches and be wired at the top or have dressed over timber supports so as to prevent damage.

Safe outlets shall be not less than one and a half inches in diameter and shall discharge through the soffit or other approved position.

Safes and bottoms of storage tanks shall be painted with bitumastic paint, or alternatively a piece of malthoid the same size as the bottom of the tank shall be placed in the safe and the tank set upon the malthoid.

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[Section 13.]

CURRICULUM OF EXAMINATIONS.

(A) FOR CERTIFICATE OF COMPETENCY AS PLUMBER.

(1) *Theoretical Examinations*—

1. Sanitary Plumbing—

- (a) Materials and tools used ;
- (b) Fixtures and fittings ;
- (c) Soil and waste pipes ;
- (d) Plumbing joints ;
- (e) Fixture traps ;
- (f) Water closets ;
- (g) Urinals ;
- (h) Ventilation of water closets and urinals ;
- (i) Water-closet pans ;
- (j) Anti-siphonage ;
- (k) Flushing apparatus ;
- (l) Flush pipes ;
- (m) Storage tanks ;
- (n) Supply tanks ;
- (o) Slop sinks ;
- (p) Safes and overflows ;
- (q) Capacities of soil, waste, drain, and vent pipes ;
- (r) Plumbing ventilation ;
- (s) Designing and sketching ;
- (t) Pressure and capacity of pipes and vessels ;
- (u) Single-pipe system ;
- (v) Double-pipe system.

2. Water-fitting—

- (a) Materials and tools used ;
- (b) Water services ;
- (c) Installations on premises ;
- (d) Protection of supply ;
- (e) Water supply to swimming pools, washing machines, soda fountains, boilers and engines, &c. ;
- (f) Economisers ; recirculating units ;
- (g) Pipe joints ;
- (h) Storage tanks ;
- (i) Overflow pipes ;
- (j) Water meters ;
- (k) Principles and methods of water metering ;

- (l) Fire services ;
- (m) Hydrants ;
- (n) Standpipes ;
- (o) Reciprocating pumps and windmills ;
- (p) Composition and uses of solders and fluxes ;
- (q) Pressure and capacity of pipes and vessels ;
- (r) Main drilling under pressure.

3. Septic Tanks—

- (a) Materials and tools used ;
- (b) General principles of septic tanks ;
- (c) Prohibitive discharges to septic tanks ;
- (d) Tank design and capacity ;
- (e) Methods of construction ;
- (f) Discharge and treatment of effluent ;
- (g) Filters ;
- (h) Absorption trenches ;
- (i) Ash banks ;
- (j) Cleansing and maintenance of tanks ;
- (k) Ventilation of tanks ;
- (l) Plumbing and drainage associated with septic tank installations ;
- (m) General principles of sewage treatment and disposal.

4. House Drainage—

- (a) Materials and tools used ;
- (b) Separate and combined house drains ;
- (c) Size of house drain ;
- (d) Depth and gradients of house drains ;
- (e) Trench excavation ;
- (f) Pipe laying and jointing ;
- (g) Connection to sewer ;
- (h) Junctions ;
- (i) Inspection openings ;
- (j) Inspection chambers and manholes ;
- (k) Drainage ventilation ;
- (l) Drainage traps ;
- (m) Grease, petrol, and oil traps ;
- (n) Draining of basements ;
- (o) Methods of taking levels ;
- (p) Design and sketching of house drainage including fixtures and fittings.

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5. Gasfitting—

- (a) Materials and tools used ;
- (b) Gas pipes and fittings ;
- (c) Gas storage and distribution ;
- (d) Gas pressure ;
- (e) Gas meters and principles and methods of metering ;
- (f) Governors ;
- (g) Installation of gas pipes, meters, and appliances.

6. Roof Plumbing and Sheet Metal Work—

- (a) Materials and tools used ;
- (b) Methods of setting out sheet metal work (lead, galvanised iron, copper, and other metals) ;
- (c) Composition and uses of solders and fluxes ;
- (d) Methods of bronze welding and brazing ;
- (e) Developing patterns in sheet metal ;
- (f) Roof guttering, ridging, and downpipes ;
- (g) Setting out roof ;
- (h) Lead safes ;
- (i) Lead bends ;
- (j) Air-conditioning ;
- (k) Pipe ducts.

7. Hot Water Installations—

- (a) Materials and tools used ;
- (b) Designing and sketching of hot water layouts ;
- (c) Pressure and capacities of pipes and vessels ;
- (d) Expansion valves ;
- (e) Reducing valves, gauges, &c. ;
- (f) Test requirement for pressure vessels, valves, &c. ;
- (g) Head calculations with regard to appliances, systems, and fuels ;
- (h) Calorifiers, cylinders, boilers, and radiators ;
- (i) High pressure systems ;
- (j) Low pressure systems ;

8. Pumps—

- (a) Pressure and head calculations ;
- (b) Pump capacities ;
- (c) Types of pumps ;
- (d) Pumping installations ;
- (e) Windmill installations ;
- (f) Discharge calculations ;
- (g) Well construction.

9. Hard Metals and Welding—

- (a) Materials and tools used ;
- (b) Oxy-welding ;
- (c) Electric welding ;
- (d) Bronze welding and brazing ;
- (e) Inspection and testing of welds.

10. General—

- (a) Water Supply and Sewerage By-laws and Regulations ;
- (b) Building Ordinances ;
- (c) Gasfitting Regulations ;
- (d) Ratproofing methods ;
- (e) Testing regulations and requirements ;
- (f) Building plans and specifications ;
- (g) Machinery Department's requirements ;
- (h) Calculations and formulæ ;
- (i) Estimating and costing ;
- (j) Quantities ;
- (k) Properties and impurities of water ;
- (l) Strength of materials and specific gravities ;
- (m) Measurement of surface areas and volumes ;
- (n) Head and pressure of water.

(2) *Practical Examination—*

1. Soldering lead, copper, galvanised iron, zinc, and other sheet metals ;
2. Joint wiping lead to lead, lead to brass, branch joints ;
3. Sheet lead work ;
4. Sheet metal work ;
5. Copper and wrought iron pipe bending ; compression joints ;
6. Lead burning ;
7. Oxy-welding ;
8. Electric welding ;
9. Brazing and bronze welding ;
10. Pipe laying and jointing ;
11. Fixing W.C.'s and other sanitary fixtures ;
12. Drilling water mains ;
13. Meter reading ;
14. Pipe threading and fitting ;
15. Gasfitting ;
16. Installation of gas meters and appliances ;
17. Setting out and fixing roof covers, gutters, downpipes, and flashings in various metals and materials ;
18. Developing patterns in sheet metal.

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(B) FOR CERTIFICATE OF COMPETENCY AS COUNTRY PLUMBER—

(1) *Theoretical Examination—*

1. Sanitary Plumbing—

- (a) Materials and tools used ;
- (b) Fixtures and fittings ;
- (c) Soil and waste pipes ;
- (d) Plumbing joints ;
- (e) Fixture traps ;
- (f) Water closets ;
- (g) Urinals ;
- (h) Ventilation of water closets and urinals
- (i) Water-closet pans ;
- (j) Anti-siphonage ;
- (k) Flushing apparatus ;
- (l) Flush pipes ;
- (m) Storage tanks ;
- (n) Supply tanks ;
- (o) Slop sinks ;
- (p) Safes and overflows ;
- (q) Capacities of soil, waste, drain, and vent pipes ;
- (r) Plumbing ventilation ;
- (s) Designing and sketching ;
- (t) Pressure and capacities of pipes and vessels.

2. Water-fitting—

- (a) Materials and tools used ;
- (b) Water services ;
- (c) Installations on premises ;
- (d) Protection of supply ;
- (e) Water supply to swimming pools, washing machines, soda fountains, boilers and engines, &c. ;
- (f) Economisers ; recirculating units ;
- (g) Pipe joints ;
- (h) Storage tanks ;
- (i) Overflow pipes ;
- (j) Water meters ;
- (k) Principles and methods of water metering ;
- (l) Fire services ;
- (m) Hydrants ;
- (n) Standpipes ;
- (o) Reciprocating pumps and windmills ;

- (p) Composition and uses of solders and fluxes ;
- (q) Pressure and capacity of pipes and vessels ;
- (r) Main drilling under pressure.

3. Septic Tanks—

- (a) Materials and tools used ;
- (b) General principles of septic tanks ;
- (c) Prohibitive discharges to septic tanks ;
- (d) Tank design and capacity ;
- (e) Methods of construction ;
- (f) Discharge and treatment of effluent ;
- (g) Filters ;
- (h) Absorption trenches ;
- (i) Ash banks ;
- (j) Cleansing and maintenance of tanks ;
- (k) Ventilation of tanks ;
- (l) Plumbing and drainage associated with septic tank installations ;
- (m) General principles of sewage treatment and disposal.

4. House Drainage—

- (a) Materials and tools used ;
- (b) Separate and combined house drains ;
- (c) Size of house drain ;
- (d) Depth and gradients of house drains ;
- (e) Trench excavation ;
- (f) Pipe laying and jointing ;
- (g) Junctions ;
- (h) Inspection openings ;
- (i) Inspection chambers and manholes ;
- (j) Drainage ventilation ;
- (k) Drainage traps ;
- (l) Grease, petrol, and oil traps ;
- (m) Methods of taking levels.

5. Gasfitting—

- (a) Materials and tools used ;
- (b) Gas pipes and fittings ;
- (c) Gas storage and distribution ;
- (d) Gas pressure ;
- (e) Gas meters and principles and methods of metering ;
- (f) Governors ;
- (g) Installation of gas pipes, meters, and appliances.

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6. Roof Plumbing and Sheet Metal Work—

- (a) Materials and tools used ;
- (b) Methods of setting out sheet metal work (lead, galvanised iron, copper, and other metals) ;
- (c) Composition and uses of solders and fluxes ;
- (d) Methods of bronze welding and brazing ;
- (e) Developing patterns in sheet metal ;
- (f) Roof guttering, ridging, and downpipes ;
- (g) Setting out roof ;
- (h) Lead safes ;
- (i) Lead bends ;
- (j) Air-conditioning ;
- (k) Pipe ducts.

7. Hot Water Installations—

- (a) Materials and tools used ;
- (b) Designing and sketching of hot water layouts ;
- (c) Pressure and capacities of pipes and vessels ;
- (d) Expansion valves ;
- (e) Reducing valves, gauges, &c. ;
- (f) Test requirements for pressure vessels, valves, &c. ;
- (g) Head calculations with regard to appliances, systems, and fuels ;
- (h) Calorifiers, cylinders, boilers, and radiators ;
- (i) High pressure systems ;
- (j) Low pressure systems.

8. Pumps—

- (a) Pressure and head calculations ;
- (b) Pump capacities ;
- (c) Types of pumps ;
- (d) Pumping installations ;
- (e) Windmill installations ;
- (f) Discharge calculations ;
- (g) Well construction.

9. Hard Metals and Welding—

- (a) Materials and tools used ;
- (b) Oxy-welding ;
- (c) Electric welding ;
- (d) Bronze welding and brazing ;
- (e) Inspection and testing of welds.

10. General—

- (a) Water Supply and Sewerage By-laws and Regulations ;
- (b) Building Ordinances ;
- (c) Gasfitting Regulations ;
- (d) Ratproofing methods ;
- (e) Testing regulations and requirements ;
- (f) Building plans and specifications ;
- (g) Machinery Department's requirements ;
- (h) Calculations and formulae ;
- (i) Estimating and costing ;
- (j) Quantities ;
- (k) Properties and impurities of water ;
- (l) Strength of materials and specific gravities ;
- (m) Measurement of surface areas and volumes ;
- (n) Head and pressure of water.

(2) *Practical Examination*—

1. Soldering lead, copper, galvanised iron, zinc, and other sheet metals ;
2. Joint wiping lead to lead, lead to brass, branch joints ;
3. Sheet lead work ;
4. Sheet metal work ;
5. Copper and wrought iron pipe bending ; compression joints ;
6. Lead burning ;
7. Oxy-welding ;
8. Electric welding ;
9. Brazing and bronze welding ;
10. Pipe laying and jointing ;
11. Fixing W.C.'s and other sanitary fixtures ;
12. Drilling water mains ;
13. Meter reading ;
14. Pipe threading and fitting ;
15. Gasfitting ;
16. Installation of gas meters and appliances ;
17. Setting out and fixing roof covers, gutters, downpipes, and flashings in various metals and materials ;
18. Developing patterns in sheet metal.

Note.—It will be noted that the curriculum of examinations for a certificate of competency as country plumber closely approximates the curriculum of examinations for a certificate of competency as plumber. However, the standard generally will be less advanced than that required for a plumber's certificate, and this principle will be implemented in the examinations held.

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(C) FOR CERTIFICATE OF COMPETENCY AS WATER PLUMBER—

(1) *Theoretical Examination—*

1. Water-fitting—

- (a) Materials and tools used ;
- (b) Water services ;
- (c) Installations on premises ;
- (d) Protection of supply ;
- (e) Water supply to swimming pools, washing machines, soda fountains, boilers and engines, &c. ;
- (f) Economisers ; recirculating units ;
- (g) Pipe joints ;
- (h) Storage tanks ;
- (i) Overflow pipes ;
- (j) Water meters ;
- (k) Principles and methods of water metering ;
- (l) Fire services ;
- (m) Hydrants ;
- (n) Standpipes ;
- (o) Reciprocating pumps and windmills ;
- (p) Composition and uses of solders and fluxes ;
- (q) Pressure and capacity of pipes and vessels ;
- (r) Main drilling under pressure.

2. Hot Water Installations—

- (a) Materials and tools used ;
- (b) Designing and sketching of hot water layouts ;
- (c) Pressure and capacities of pipes and vessels ;
- (d) Expansion valves ;
- (e) Reducing valves, gauges, &c. ;
- (f) Test requirements for pressure vessels, valves, &c. ;
- (g) Head calculations with regard to appliances, systems, and fuels ;
- (h) Calorifiers, cylinders, boilers, and radiators ;
- (i) High pressure systems ;
- (j) Low pressure systems.

3. Pumps—

- (a) Pressure and head calculations ;
- (b) Pump capacities ;
- (c) Types of pumps ;
- (d) Pumping installations ;
- (e) Windmill installations ;
- (f) Discharge calculations ;
- (g) Well construction.

4. General—

- (a) Water Supply and Sewerage By-laws and Regulations ;
- (b) Building Ordinances ;
- (c) Machinery Department's requirements ;
- (d) Building plans and specifications ;
- (e) Properties and impurities of water ;
- (f) Head and pressure of water ;
- (g) Quantities ;
- (h) Estimating and costing.

(2) *Practical Examination*—

- 1. Soldering lead, copper, galvanised iron, zinc, and other sheet metal ;
- 2. Joint wiping pipes up to 1½ inches in diameter ;
- 3. Copper and wrought iron pipe bending ; compression joints ;
- 4. Brazing and bronze welding ;
- 5. Drilling water mains ;
- 6. Meter reading ;
- 7. Pipe threading and fitting.

(D) FOR CERTIFICATE OF COMPETENCY AS DRAINER—

(1) *Theoretical Examination*—

- 1. Materials and tools used ;
- 2. Designing and sketching of house drainage, including fixtures and fittings ;
- 3. Separate and combined house drains ;
- 4. Size of house drains ;
- 5. Testing of house drains ;
- 6. Methods of repair of house drains ;
- 7. Clearing of house drain chokages ;
- 8. Inspection chambers, inspection openings ;
- 9. Fixtures and fittings ;
- 10. Seepage drains ;
- 11. Basement and cellar drainage ;
- 12. Drainage traps ;
- 13. Seal of drainage traps ;
- 14. Kerbing of drainage traps ;
- 15. Discharging of drainage traps ;
- 16. Grease, petrol, and oil traps ;
- 17. Ventilation of house drains, fixtures, and fittings ;
- 18. Trench excavation ;
- 19. Position and levels of house drains ;
- 20. Depth and gradient of house drains ;
- 21. Pipe laying ;
- 22. Connections to sewer ;

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23. Junctions and branch joints ;
24. Septic tanks ;
25. Absorption trenches ;
26. Ash beds ;
27. Ash banks ;
28. Siphon chambers ;
29. Jointing materials ;
30. Water Supply and Sewerage By-laws and Regulations ;
31. Building Ordinances ;
32. Gasfitting Regulations ;
33. Ratproofing methods ;
34. Testing requirements ;
35. Building plans and specifications ;
36. Taking off quantities ;
37. Estimating and costing.

(2) *Practical Examination—*

1. Drainage excavation and timbering ;
2. Taking levels ;
3. Pipe laying ;
4. Pipe jointing ;
5. Fixing and fitting junctions, bends, and traps ;
6. Vertical pipes (jump-ups) ;
7. Construction of manholes and inspection chambers ;
8. Septic tanks and filter installation ;
9. Construction of ash beds and absorption trenches with siphon chambers.

(E) FOR CERTIFICATE OF COMPETENCY AS GASFITTER—

(1) *Theoretical Examination—*

1. Gasfitting—
 - (a) Materials and tools used ;
 - (b) Gas pipes and fittings ;
 - (c) Gas storage and distribution ;
 - (d) Gas pressure ;
 - (e) Gas meters and principles and methods of metering ;
 - (f) Governors ;
 - (g) Installation of gas pipes ; meters and appliances.
2. Hot Water Installations—
 - (a) Materials and tools used ;
 - (b) Designing and sketching of hot water layouts ;
 - (c) Pressure and capacities of pipes and vessels ;
 - (d) Expansion valves ;

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- (e) Reducing valves, gauges, &c. ;
 - (f) Test requirements for pressure vessels, valves, &c. ;
 - (g) Head calculations with regard to appliances, systems, and fuels ;
 - (h) Calorifiers, cylinders, boilers, and radiators ;
 - (i) High pressure systems ;
 - (j) Low pressure systems.
3. General—
- (a) Gasfitting Regulations ;
 - (b) Building Ordinances ;
 - (c) Building plans and specifications ;
 - (d) Machinery Department's requirements ;
 - (e) Quantities ;
 - (f) Estimating and costing.
- (2) *Practical Examination—*
1. Soldering lead, copper, galvanised iron, zinc, and other sheet metal ;
 2. Joint wiping lead to lead, lead to brass ; branch joints ;
 3. Sheet lead work ;
 4. Sheet metal work ;
 5. Copper and wrought iron pipe bending ; compression joints ;
 6. Lead burning ;
 7. Brazing and bronze welding ;
 8. Pipe threading and fitting ;
 9. Gasfitting ;
 10. Installation of gas meters and appliances.

LOCAL GOVERNMENT.

See LOCAL AUTHORITIES.

LIQUID FUEL.

See WAR LEGISLATION.

MAINTENANCE.

See MARRIAGE AND DIVORCE.