THE PLUMBING AND DRAINAGE ACT REGULATIONS

(O.C.1284/77)

(Filed December 8, 1977)

THE PLUMBING and DRAINAGE ACT

R.S.A. 45, 1976

ALBERTA REGULATION 340/77

AS AMENDED BY

ALBERTA REGULATION (295/80)

Alberta

LABOUR

General Safety Services Division
Plumbing & Gas Safety Services Branch
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CH-02

ALBERTA REGULATION 340/77

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THE PLUMBING AND DRAINAGE ACT

(O.C. 1284/77)

Approved and Ordered,

RALPH G. STEINHAUER,

Lieutenant Governor. Edmonton, December 7, 1977.

Upon the recommendation of the Honourable the Minister of Labour, the Lieutenant Governor in Council, pursuant to section 24, subsection (1) of The Plumbing and Drainage Act, makes the regulations in the attached Appendix, being the Plumbing and Drainage Regulations.

PETER LOUGHEED (Chairman)

APPENDIX

PLUMBING AND DRAINAGE REGULATIONS

PART 1

INTERPRETATION

1. (1) In these regulations

1. "Act" means The Plumbing and Drainage Act;
2. "air gap" with respect to a water supply means the unobstructed vertical distance through air between the lowest point of a water supply outlet and the flood level rim of the fixture or device into which the outlet discharges;
3. "air gap" with respect to indirect waste and "air break" means respectively the unobstructed distance between the lowest point of an indirect drainage system and the flood level rim of the fixture into which it discharges;
4. "appliance" means a receptacle or equipment that receives or collects liquid or sewage, and discharges liquid or sewage either directly or indirectly to a plumbing system;
5. "approved" means approved for installation or use by the chief inspector in a plumbing system;
6. "area drain" means a drain installed to collect surface or rain water from an open area outside a building;
7. "atmosphere type back-pressure backflow preventer" means an approved backflow prevention device consisting of two double seated spring loaded check valves with an intermediate air break chamber which vents to the atmosphere, for use where back pressure may exceed atmospheric pressure;

8. "atmospheric (siphon) vacuum breaker" means an approved backflow prevention device which will open to admit air to a potable water supply piping in the event the pressure in the piping drops to less than atmospheric pressure;
9. "backflow" means a flow in a direction opposite to the normal direction of the flow;
10. "backflow connection" means a device or method to prevent backflow;
11. "backflow preventer" means a device or a method to prevent backflow;
12. "back-siphonage" means the backflow of liquid from a plumbing system or other source into a water supply pipe due to negative pressure in the pipe;
13. "back-siphonage backflow preventer for hose bibb installations" means an approved backflow prevention device consisting of a primary check valve seating on a soft rubber and an atmospheric venting feature which allows water to spill to the atmosphere if the supply pressure becomes less than atmospheric pressure;
14. "back-siphonage preventer" and "vacuum breaker" mean respectively a device that is installed in a water supply system to prevent backflow in the system when the pressure in the system is less than atmospheric pressure;
15. "branch" means auxiliary piping which is connected to main or primary piping;
16. "branch vent" means a vent pipe connecting one or more vent pipes to a vent stack or stack vent;
17. "building" includes any structure in which a plumbing system or plumbing equipment is used or intended to be used;
18. "building drain" means the lowest horizontal piping that conducts sewage, clear water waste or storm water to a building sewer;
19. "building sewer" means that part of a drainage system outside a building commencing at a point 1 metre (3 feet) from the outer face of the wall of the building and connecting the building drain to the main sewer and terminating at the property line or place of disposal of sewage;
20. "building subdrain" means that part of a drainage system that cannot drain by gravity into the building sewer;
21. "building trap" means a trap that is installed in a building drain or building sewer to prevent circulation of air between a drainage system and a public sewer;
22. "circuit vent" means a vent pipe that serves a number of fixtures and connnects to the fixture drain of the most upstream fixture;
23. "clean-out" means a pipe fitting that has a removable cap or plug and is so constructed that it will permit pipe cleaning;
24. ":clear-water waste" means water that does not contain sewage or storm water;
25. "combined building drain" means a building drain that is intended to conduct sewage and storm water;
26. "combined building sewer" means a building sewer that is intended to conduct sewage and storm water;
27. "combined sewer" means a sewer that is intended to conduct sewage and storm water;

28. "continuous vent" means a vent pipe that is an extension of a vertical soil or waste pipe;

29. "continuous waste" means a waste or pipe from two or more fixture outlets, or outlets from fixture compartments, connected to a single trap;

30. "critical level" means the level at which a backflow preventer fails to function;

31. "cross-connection" means a physical connection whereby liquids are permitted to mix, and one or both of them becomes, or may become contaminated, polluted or infected;

32. "dead end" means a pipe that is 600 mm (two feet) or more in developed length and temrinates with a closed fitting;

33. "developed length" means the length along the centre line of a pipe and fittings;

34. "diameter" unless otherwise indicated means the nominal diameter by which a pipe, fitting, trap or other item is commercially designated;

35. "directly connected" means physically connected in such a way that liquid or gas cannot escape from the connection;

36. "disposal system contractor" means a person to whom has been issued a permit to install a private sewage disposal system;

37. "double check valve assembly" means an approved pressure type backflow preventer consisting of two check valves with field testing cocks to determine whether the check valves are leaking and a shutoff valve at each end of the assembly;

38. "drainage system" means an assembly of pipes, fittings, fixtures, traps and appurtenances that is used to convey sewage, clear-water waste or storm water or all or any of them to a public sewer or a private sewage disposal system but does not include subsoil drainage pipes;

39. "dual vent" means a vertical vent that serves two traps that are connected at the same level to a soil-or-waste stack;

40. "effective opening" means an opening that has a cross-sectional area equal to the minimum area through which water is discharged at a discharge opening, control valve inlet or control valve seat of a water supply inlet to a fixture or device;

41. "effluent sewer" means piping for the flow of sewage effluent through the action of gravity;

42. "factory assembled building" means any building which is partly or wholly assembled at a site other than the site at which it will be used, and includes mobile housing and recreational vehicles;

43. "first storey" means the storey with its floor closest to grade and having its ceiling more than 1.8 m (6 feet) above grade;

44. "fixture" means a receptacle, appliance, apparatus or other device that discharges sewage or clear-water waste and includes a floor drain;

45. "fixture drain" means the pipe that connects a trap to its vent;

46. "fixture outlet pipe" means a pipe that connects the waste opening of a fixture to the trap serving the fixture;

47. "fixture unit" in respect of drainage means a design factor for a drainage, waste, and vent system;

48. "fixture unit" in respect of water supply means a design factor for water supply;

49. "flood level rim" means the top edge at which water can overflow from a fixture or device;

50. "floor drain" means a fixture used to receive water from a floor of a building;

51. "header" means a pipe that is used to connect two or more pipes which are used for a similar purpose;

52. "holiday trailer sanitary station" means a device to receive sewage and other water carried wastes from sewage tanks installed on recreational vehicles;

53. "horizontal pipe" means a pipe installed in a horizontal position or which makes an angle of less than 45 degrees with the horizontal;

54. "indirectly connected" means piping not directly connected to a drainage system;

55. "individual vent" means a vent pipe that serves not more than one fixture trap;

56. "interceptor" means a receptacle that is installed to prevent oil, grease, sand or other materials from passing into a drainage system;

57. REPEALED (AR 295/80)

58. "leader" means a pipe that is installed to carry storm water from a roof to a storm building drain or sewer or other place of disposal;

59. "loop vent°" see "circuit vent";

60. "material" means plumbing equipment as defined in the Act;

61. "nominally horizontal" means at an angle of less than 45 degrees with the horizontal;

62. "offset" means a combination of fittings which brings one section of the pipe out of line, but into a line parallel with the other section;

63. "plumbing contractor" means a person or firm that, pursuant to section 7 of the Act or these regulations, is permitted ot install, renew, remove or change any plumbing equipment or a plumbing system;

64. "potable" means safe for human consumption;

65. "pressure type vacuum breaker" means an approved backflow prevention device consisting of a check valve, vacuum relief, inlet and discharge shutoff valves and field testing cocks;

66. "private sewage disposal system" means a privately owned system for the treatment and disposal of sewage and includes a septic tank with an absorption field or other approved means of disposal;

67. "reduced pressure principle backflow preventer" means an approved device consisting of two shutoff valves, and a differential relief valve between the two check valves and operating on a pressure differential across the first check valve and a relief valve discharging to the atmosphere;

68. "relief vent" means a vent pipe which is connected to a horizontal soil or waste branch at a point between the lowest fixture drain connection and any other drainage piping;

69. "riser" means a water supply pipe which extends vertically one storey or more to supply water to branches or fixtures or both;

70. "sanitary building drain" means a building drain that may conduct sewage and clear-water waste but not sotrm water;

71. "sanitary building sewer" means a building sewer that may conduct sewage and clear-water waste but not storm water;

72. "sanitary drainage system" means a drainage system that conducts sewage;

73. "seepage pit" and "leaching cesspool" means respectively a coverd pit through which septic tank effluent or other settled sewage may seep or leach into the surrounding soil;

74. "septic tank" means a digestion chamber in which sewage is received and retained and from which the liquid effluent, which is comparatively free from settleable and floating solids, is discharged;

75. "service water heater" means a device for heating water for plumbing services;

76. "service water heater, indirect" means a service water heater that derives its heat from a heating medium including warm air, steam or hot water;

77. "service water heater, storage type" means a service water heater with an integral hot water storage;

78. "sewage" means any liquid waste from a fixture;

79. "sewage effluent" means sewage after it has passed through a septic tank or has undergone some other form of treatment;

80. "sewage holding tank" means a tank designed to retain sewage;

81. "sewer service" means a building sewer which connects a plumbing system to a municipal sewer or to a common sewer;

82. "sewer and water contractor" means a person who installs or services a sewer system, a water system or a private sewage disposal system;

83. "sewerage system" means all construction for collection, transportation, pumping, treatment and final disposal of sewage or any part thereof;

84. "size" unless otherwise indicated means the nominal size by which a pipe, fitting, trap or other item is commercially designated;

85. "soil pipe" means any pipe which conveys the discharge of one or more water closets or fixtures having similar functions, with or without the discharge from other fixtures;

86. "stack" means a vertical pipe of any system of soil, waste or vent piping;

87. "stack vent" means a vertical vent pipe that is an extension of a soil or waste stack;

88. "story" means the interval bewtween two successive floor levels or floor level and roof;

89. "storm building drain" means a building drain that may conduct only storm water or clear-water waste;

90. "storm building sewer" means a building sewer that may conduct only storm water or clear-water waste;

91. "storm drainage system" means a drainage system or part of a drainage system that conveys only storm water or clear-water waste;

92. "storm sewer" means a sewer that is installed to convey storm water;

93. "storm water" means water that is discharged or drained from a surface as a result of natural precipitation;

94. "subsoil drainage pipe" means a pipe that is installed underground to intercept and convey groundwater;

95. "sump" means a tank or pit that receives and holds the discharge from a drainage system pipe;

96. "Technical Plumbing Board" means the board appointed by the Minister of Labour pursuant to The Department of Labour Act;

97. "trap" means a fitting or device that is designed to hold a liquid seal that will prevent the passage of gas but will not materially affect the flow of a liquid;

98. "trap dip" means the lowest part of the upper interior surface of a trap;

99. "trap seal" means the vertical distance between the trap dip and the trap weir;

100. "trap weir" and "crown weir" means respectively the highest part of the lower interior surface of a trap;

101. "vent pipe" means a pipe that is a part of a venting system;

102. "vent stack" means a vent pipe that is used to limit pressure differentials in a soil or waste stack;

103. "venting system" means an assembly of pipes and fittings that connects a drainage system with outside air for circulation of air and the protection of trap seals in the drainage system;

104. "vertical pipe" means a pipe installed in a vertical position or which makes an angle of not more than 45 degrees with the vertical;

105. "waste pipe" means any pipe which receives the discharge from any fixture except water closets or similar fixtures and conveys it to the building drain, soil or waste stack;

106. "water distribution piping" means the piping, control valves and all appurtenances in or adjacent to a building for conveying water from the water meter or main shutoff valve within the building to the points of use;

107. "water service pipe" means a pipe in a water system that conveys water from a private water source or from a curb cock at the property line to the main shutoff valve inside the building;

107.1 "water source" means a man made or natural surface or subsurface source or potential source of potable water;

108. "water system" means an assembly of pipes, fittings, control valves and appurtenances that conveys water from a public main or private water source to the water supply outlets of fixtures or devices, and includes a private water source;

109. "wet vent" means a soil or waste pipe that also serves as a vent pipe;

110. "working capacity of septic tank" means the liquid volume of sewage which will remain in the settling chamber when the tank is properly installed and is in normal use, and does not include the air space, siphon, pumping or effluent chamber;

111. "yoke vent" means a vent pipe connecting upward from a soil or waste stack to a vent stack for the purpose of limiting pressure differentials in soil or waste stacks.

(2) In these regulations, the abbreviations of the following words and phrases mean

ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials
CGSB	Canadian Government Specifications Board
CSA	Canadian Standards Association
Cu	Copper
NFPA	National Fire Protection Association
ULC	Underwriters' Laboratories of Canada
ULI	Underwriters' Laboratories, Inc.
AWWA	American Water Works Association
ABS	acrylonitrile-butadiene-styrene
ASWG	American Standard Wire Gage
°C	degree(s) Celsius (Centigrade)
CPVC	chlorinated polyvinyl chloride
deg	degree(s)
diam	diameter
DWV	Drains, Wastes, and Vents
°F	degree(s) Fahrenheit
ft	foot (feet)
Ft/sec	foot (feet) per second
ga	gauge
gal	Canadian gallon(s)
gpm	gallon(s) per minute
hr	hour(s)
I.D.	Inside Diameter
in	inch(es)
Inc	Incorporated
IPS	Iron Pipe Size
kg	Kilogram(s)
kPa	kilopascals
LH	Left Hand
lb	pound(s)
L	litres
L/s	litres per second
max	maximum
m	metre(s)
m^2	square metre(s)
mm	millimetre(s)
min	minimum
mins	minute(s)
No	number(s)
o.c	on centre
O.D.	Outside Diameter
oz	ounce(s)
psf	pound(s) per square foot
psi	pound(s) per square inch
PVC	Polyvinyl Chloride

RH	Right Hand
sq ft	square foot (feet)
sq in	square inch(es)
temp	temperature
U.S. gpm	United States gallon(s) per minute

(3) Where both a metric measurement and an imperial measurement are prescribed in these regulations and they are not the same, either measurement may be used. (AR 340/77; 295/80).

PART 2
GENERAL
Division 1
Exemptions and Authorizations

2. A plumbing system and plumbing equipment is exempt from the operation of the Act if

(a) it is under the jurisdiction of the Government of Canada, and

(b) it is not connected to a water system or sewerage system or both that is owned or operated by a council. (AR 340/77)

3. The following matters are exempt from section 6 of the Act:

(a) the renewal or change of any fixture, hot water tank, water heater, tap, faucet, valve or trap;

(b) the removal of any blockage in a plumbing system or plumbing equipment;

(c) the repair of leaks in any plumbing system or plumbing equipment;

(d) the thawing of frozen piping;

(e) any maintenance required for the proper operation of any plumbing equipment or plumbing system if there is no change to the piping in the equipment or system. (AR 340/77)

4. (1) The chief inspector is authorized to issue certificates of inspection with respect to any plumbing system or plumbing equipment.

(2) The chief inspector is authorized to prescribe such forms, notices, and tags as are necessary for the purpose of the Act and these regulations. (AR 340/77)

Division 2
Applications for a Permit

5. A person who

(a) holds a notice in writing from the chief inspector that he is an approved sewer and water contractor, and

(b) satisfies the chief inspector that he is sufficiently equipped, experienced and capable of doing the work involved,

may apply for a permit for one or more of the following matters

(c) the installation or servicing of a building sewer, or

(d) the installation or servicing of a water service, or

(e) the installation or servicing of a private sewage disposal system. (AR 340/77)

6. Unless the chief inspector or a municipal inspector, as the case may be, otherwise directs, every application for a permit, shall be accompanied by a detailed plan and specifications of the plumbing system concerned. (AR 340/77)

7. When a person applies to the chief inspector for a permit to install a plumbing system in a building, a water conditioner, and the services connected therewith, one permit only is required for the installation of the plumbing system in the building. (AR 340/77)

8. (1) Where an application for a permit is made to the chief inspector, the following fees are payable

(a) for the installation, renewal, removal or change of a plumbing system - $10 for between one and ten fixtures and $1.00 for each fixture over ten;

(b) for a permit to disconnect from a private sewage disposal system and to connect a plumbing system to municipal sewerage: $5.00;

(c) for a permit to connect a plumbing system in a mobile home or other relocatable building to a sewerage or water supply system or both: $5.00;

(d) for a permit to install a plumbing system in a factory-assembled building, mobile housing or other relocatable building: $5.00;

(e) for a permit to install a sewer or water service or both: $5.00;

(f) for a permit to install a private sewage disposal system: $10.00;

(g) for a permit to install a water softener or other water conditioning unit: $5.00.

(2) For the purpose of determining permit fees under this section, each of the following shall be considered to be a fixture

(a) each mobile home sewer inlet in a mobile home park;

(b) each recreational vehicle sewer inlet in a holiday trailer park;

(c) a roof drain;

(d) an area drain;

(e) each subsoil drain connection.

(3) The permit fee required to be paid under this section is payable to the Provincial Treasurer.

(4) A person who desires a special inspection of on existing plumbing system or private sewage disposal system may request that inspection by making an application for it to an inspector on the prescribed form, accompanied by a fee equal to the permit fee prescribed in subsection (1) with respect to the system concerned. (AR 340/77; 295/80)

9. (1) Where a person proposes to install the same plumbing system in buildings that are assembled in a factory, he may apply to the chief inspector for a permit in respect of the plumbing system to be installed in those buildings.

(2) If the chief inspector is satisfied that

(a) the buildings are assembled in a factory,

(b) a series of buildings will have the same design, and

(c) the plumbing system in each building will be the same,

he may issue a permit for the instalaltion of the plumbing systems in the buildings in the series.

(3) If the design of the building or the plumbing system in the building is changed after the issue of a permit under subsection (2), the chief inspector shall be notified accordingly. (AR 340/77)

10. (1) Where an emergency exists and it is not possible to immediately obtain a permit or notify an inspector of his intentions, a person referred to in section 7 of the Act may install, renew, remove or change any plumbing system and plumbing equipment.

(2) Where emergency work is performed, the person doing the work shall apply to an inspector for a permit on the first day the appropriate office is open following commencement of the work. (AR 340/77)

11. (1) A person who installs, renews, removes or changes any plumbing equipment or a plumbing system shall do so in accordance with the Act and these regulations.

(2) Where plumbing equipment or a plumbing system is permitted to be installed by the chief inspector or a municipal inspector but no provision is contained in these regulations for its installation, testing or maintenance, it shall be installed, tested or maintained in accordance with the directions of an inspector. (AR 340/77)

12. (1) If a person wishes to install or use any plumbing equipment or a plumbing system that is not permitted to be installed or used under these regulations he shall apply to the chief inspector for approval to install or use the equipment or system.

(2) The chief inspector may approve the installation or use of plumbing equipment or a plumbing system if, in the particular circumstances of the application, he considers it appropriate to do so. (AR 340/77)

Division 3
Inspections

13. Every plumbing contractor installing, renewing, removing or changing a plumbing system or plumbing equipment for which a permit is required shall obtain the prior approval of an inspector before he covers or conceals any part of the plumbing system or the plumbing equipment. (AR 340/77)

13.1 Within 7 days after completing work authorized under a permit the plumbing contractor who completed the work shall notify the inspector that the work is completed and ready for final inspection. (Ar 340/77; 295/80)

14. Within seven days after completing work required by a correction notice, the person doing the work shall notify the inspector that the work has been completed and ready for re-inspection. (AR 304/77)

15. Where an inspector becomes aware of any material or design failure in plumbing equipment or a plumbing system he shall notify the chief inspector within seven days of becoming aware of the failure. (AR 340/77)

16. (1) Where an inspector makes an inspection of any plumbing system or plumbing equipment and considers that it does not meet the requirements of the Act and these regulations, he may attach to the plumbing system or plumbing equipment a tag in the form prescribed by the chief inspector.

(2) No person shall tamper with, or mutilate, any tag attached to a plumbing system or plumbing equipment.

(3) No person shall remove a tag unless

(a) he is the person who has corrected the plumbing system or plumbing equipment and the tag is removed for the purpose of sending it to the inspector who attached it, or

(b) he is authorized to remove it by the inspector.

(4) Where a tag is removed and sent to an inspector under this division, the person sending it shall certify that the plumbing system or plumbing equipment complies with the Act and these regulations.

(5) A correction notice issued under section 17 of the Act shall be served by addressing, prepaying and mailing it. (AR 340/77)

PART 3
TESTING
Division 1
General

17. (1) When required by an inspector, a plumbing system shall be tested as directed by him.

(2) The person required to test the plumbing system shall supply any equipment, material, power and labour that is necessary for testing.

(3) If any part of a plumbing system is covered or concealed before it is inspected, or tested, it shall be uncovered if the inspector so directs. (AR 340/77)

18. The inspector shall satisfy himself during any test required to be conducted that the plumbing system is watertight. (AR 340/77)

Division 2
The Drainage & Venting System

19. (1) Where a water test is required to be conducted it must be applied

(a) to the plumbing system as a whole, or

(b) to sections of the system each of which is subjected to a water pressure exerted by a 3 m (10 foot head) of water.

(2) The plumbing system or the section tested, as the case may be, shall be kept filled with water for at least 15 minutes. (AR 340/77)

20. Where a smoke test is required to be conducted it shall be made by
(a) filling every trap with water,
(b) forcing smoke into the system,
(c) closing all roof terminals after the smoke appears, and
(d) maintaining a pressure equivalent to a 25 mm (1 in.) water column for at least 15 minutes. (AR 340/77)

21. Where an air test is required to be conducted it shall be made by
(a) closing every opening in the system,
(b) forcing air into the system until a pressure of 254 mm (5 psi) of mercury column or 35 kPa is created, and
(c) maintaining the pressure for at least 15 minutes. (AR 340/77)

22. (1) Where a ball test is required to be conducted it shall be made by
(a) dropping a test ball into a vent or waste opening and retrieving it at the lowest point in the drainage system, and
(b) insuring that the ball is sufficiently dense so that it will roll through the pipe.
(2) The ball referred to in subsection (1) shall have
(a) a diameter of at least 50 mm (2 in.) for 75 mm (3 in.) pipe, or
(b) at least 25 mm (1 in.) where the diameter of the pipe is less than 75 mm (3 in.). (AR 340/77)

23. Where a flood level test is required to be conducted it shall be made by
(a) plugging the drain below the section to be tested, and
(b) filling the system to the flood level of a fixture. (AR 340/77)

Division 3

Testing of Water Distribution System

24. (1) A water distribution system shall be capable of withstanding without leakage or loss of pressure for 15 minutes, a water or air pressure test of not less than 700 kPa (100 psi) or not less than 1.5 times the working pressure whichever is greater.

(2) Where water pressure is used to test a potable water distribution system, only potable water shall be used. (AR 340/77)

Division 4

Testing of Septic Tanks

25. (1) Where a septic tank or sewage holding tank test is required to be conducted

(a) the septic or settling chamber(s) shall be filled with water while the effluent chamber whether it is a siphon or a pump, is left dry, and

(b) the test shall last at least 30 minutes without leakage.

(2) Any other test suitable to the inspector may be used in place of the test referred to in subsection (1), but if any leakage through the tank wall or any partition or component of it is observed the tank shall be considered to have failed the test. (AR 340/77; 295/80)

PART 4

PLUMBING EQUIPMENT

Division 1

General

26. (1) No person shall install or use plumbing equipment unless

(a) it complies with a CSA standard, or

(b) it has been approved by the chief inspector.

(2) No person shall install, erect or operate any equipment, apperatus, device or thing or place any material in relation to a plumbing system or plumbing equipment if it interferes or is likely to interfere with the use, operation, maintainance, repair or replacement of that plumbing system or plumbing equipment. (AR 340/77); 295/80)

27. (1) Subject to subsection (2), plumbing equipment that has been used in a plumbing system shall not be reused in that system or any other plumbing system unless an inspector approves of its re-use.

(2) Plumbing equipment that has been used in a plumbing system that is not a distribution system for potable water shall not be reused in a potable water system. (AR 340/77)

28. Where unusual soil or water or other conditions exist, only plumbing equipment suitable for use in those conditions shall be used. (AR 340/77)

29. (1) Every fixture that is intended for a special purpose shall be made of a material approved for that purpose.

(2) The diameter of the waste opening of a fixture shall conform to Table C. (AR 340/77)

30. Where a septic tank is used as a part of the private sewage disposal system, only a hand controlled flush valve shall be used to flush the urinal. (AR 340/77)

31. (1) No shower receptor shall be installed unless it is constructed of a material that is smooth, hard corrosion-resistant and can be readily cleaned.

(2) Every shower receptor shall be constructed and arranged so that water cannot leak through the walls or floors.

(3) Not more than six shower heads shall be served by a single waste opening.

(4) The water from a shower head may not drain over a floor area served by another shower head.

(5) A poured in place fixture shall be equipped with an approved water proof membrane that is securely fastened to a clamping flange device. (AR 340/77; 295/80)

Division 2
Traps

32. (1) Every trap shall

(a) have a trap seal not less than 40 mm (1 1/2 in.) except that the trap seal of a floor drain shall not be less than 100 mm (4 in.),

(b) be self cleaning,

(c) have no concealed partitions except for water closets and similar fixtures with integral traps, and

(d) have a water seal that does not depend on the action of moving parts.

(2) Every trap that serves a lavatory, sink or laundry tray shall

(a) be equipped with a clean out plug made, except as otherwise provided in subsection (2.1), of the same material as the trap and located at the lowest point of the trap, or

(b) be so designed that part of the trap can, for cleaning, be completely removed by means of screwed connections.

(2.1)A clean out plug for a cast iron trap shall be made of brass.

(3) Every trap that serves a leader or a subsoil drainage pipe shall be installed with a cleanout in accordance with section 109, subsection (3). (AR 340/77)

33. (1) Every interceptor shall be designed and installed so that it can be readily cleaned.

(2) Every grease interceptor shall be designed so that it does not become air bound and it shall not have a water jacket.

(3) Every grease interceptor shall be sized, flow rated and capacity rated to the satisfaction of an inspector. (AR 340/77)

34. (1) All fixture traps shall be accessible for servicing.

(2) Every fixture outlet pipe of a fixture that is directly or indirectly connected shall be provided with a trap, but

(a) one trap may serve all the trays or compartments of a two, or three-compartment sink or a pair of laundry traps if

(i) the developed length of the fixture outlet pipe from the trap seal to the waste opening of the farthest compartment or tray does not exceed 1m (36in), and

(ii) the part of a fixture waste pipe that is common to 3 compartments of a sink or laundry tray is not smaller than the size of the trap as specified in Table C;

(b) one trap may serve a group of floors drains, a group of washing machines, or a group of laboratory sinks if the fistures

(i) are in the same room, and

(ii) are not located where they can receive food or other organic matter;

(c) a trap is not required for an indirectly connected fixture that can discharge only clear water waste;

(d) where an interceptor is installed to serve a fixture and has an effective water seal of at leat 40mm (1 1/2 in), it may serve as a trap.

(3) Open traps, acid traps or any trap that may overflow shall not be permitted in a crawl space or any other unfrequented area.

(4) Every trap and every interceptor that serves as a trap shall be located as close as is practicable to the fixture it serves.

(5) The size of trap that serves a fixture shall not be less than the size of the fixture outlet pipe.

(6) The size of a trap that serves a fixture shall not be less than the size specified in Table C.

(7) If, in the opinion of an inspector, a trap seal is subject to trap seal loss, provisions shall be made of maintaining the trap seal by

(a) a trap seal primer,

(b) by using the trap as a receptacle for an indirectly connected fixture, or

(c) a method specified by the inspector. (AR 340/77; 295/80)

Division 3

Fittings

35. (1) No fitting shall be installed unless it is constructed so that it does not offer unnecessary obstruction to flow.

(2) Except for a floor drain and water closet bend or flange, a fitting that has reduction in area in the downstream direction shall not be used in a drainage ssytem downstream of a trap. (AR 340/77)

36. (1) A Tee or a cross fitting shall not be used in a drainage ssytem except to connect a dry vent pipe.

(2) A sanitary "TY" fitting shall not be used in a nominally horizontal plane in a drainage ssytem except to connect a vent pipe. (AR 340/77)

37. A single pipe may serve as a dual vent for two fixture traps, provided the fixture drains connect separately and at the same level into an approved double fitting, and within the limitations provided in section 38. (AR 340/77)

38. Where two fixture drains connect to a vertical pipe (which serves as their vent) at the same level, only the following double fittings may be installed

(a) a short sweep double "TY" fitting smaller than 100 mm (4 in.) nominal pipe size if the vertical section of the double TY fittings is at least one size larger than its largest branch,

(b) long sweep double "TYs", in which case, the fall in elevation which would occur within that fitting shall not be considered as any part of the fall mentioned in section 130, subsection (4),

(c) a side inlet "TY", if the angle between the fixture drains does not exceed 90 degrees and providing it is a drainage fitting.

(d) a double inlet drainage fitting that is so designed that the discharge from a fixture cannot interfere with the flush seal or trap seal of any other fixture. (AR 340/77; 295/80)

39. (1) A quarter bend or 90 degree elbow that has a centre line radius that is less than the diameter of the pipe shall not, except in the case of a water closet, be used for drainage.

(2) A change of direction shall be made only with an appropriate fitting. (AR 340/77; 295/80)

40. A sisson fitting (double length hub) shall not be installed in a nominally horizontal soil-or-waste pipe. (AR 340/77)

Division 4
Piping Materials and Uses

41. (1) Unless a municipal inspector otherwise requires, water service piping may be of plastic if

(a) the piping is constructed in accordance with the appropriate CSA standard,

(b) the pressure rating of the service pipe must be at least 500 kPa (75 psi) or be one and one-half times greater than the rated working water pressure of the public water main to which it is connected, whichever is the greater,

(c) Repealed (AR 295/80)

(d) corporation valves connected to plastic pipe shall be installed with an appropriate anchor,

(e) plastic piping is installed below frost level and in accordance with the manufacturer's specifications,

(f) Repealed (AR295/80)

(g) the complete service is free of kinks and sharp bends,

(h) the minimum size of the service is 20 mm (3/4 in.) nominal pipe size, and

(i) the main stop has a clear opening equal to that of the pipe. (AR 340/77; 295/80)

42. (1) CPVC pipe and fittings shall not be used in water distribution system where the design water temperature may exceed 80 degrees C. (180 deg. F.) or if the design may exceed 700 kPa (100 psi).

(2) No person shall install ABS-DWV or PVC-DWV piupe and fittings unless

(a) the connection from ABS-DWV or PVC-DWV piping to any other type of piping is made air and water tight by a connection approved by the inspector;

(b) the piping design or the use of an approved expansion fitting or both shall compensate for settling, expansion, or contraction, to the satisfaction of the inspector;

(c) a piping or expansion fitting shall be installed in each stack or leader so that no stress or strain is transmitted to any fixture connection or to any piping branch;

(d) ABS-DWV pipe or fittings is not solvent welded to any PVC-DWV pipe or fittings or vice-versa;

(e) ABS-DWV solvent is not used for PVC-DWV pipe or fittings or vice-versa;

(f) the solvent for ABS-DWV is yellow in color; and for P.V.C.-D.W.V. is any color except yellow

(g) multi purpose solvent is not used;

(h) all ABS-DWV pipe and fittings are black, and all PVC-DWV pipe and fittings are gray;

(i) all buried DWV plastic piping is bedded on granular material to the satifaction of the inspector;

(j) plastic pipe shall not be used for fixture drains on commercial dishwashing equipment.

(3) Copper pipe shall not be used for a urinal fixture drain or for that portion of a vent serving a urinal fixture trap that is below the flood level of the fixture.

(4) Metal pipe shall not be used for a drainage system into which azide compounds will be discharged. (AR 340/77; 295/80)

43. Repealed (295/80)

PART 5
FLASHINGS AND ROOF TERMINALS

44. (1) The upper end of every vent pipe that does not terminate in open air, shall be connected to a venting system that terminates in open air.

(2) The upper end of every vent pipe that terminates in open air shall be extended through a roof.

(3) An 80 mm (3 in.) or smaller vent pipe shall be increased to a 100 mm (4 in.) or larger pipe before passing through the roof.

(4) A 100 mm (4 in.) or larger vent pipe shall be increased one pipe size before passing through the roof. (AR 340/77)

45. (1) Where stacks or vent pipes or rainwater leaders pass through a roof they shall be equipped with a flashing, and the joint between the roof and the pipe or stack shall be made water tight.

(2) Except as provided in section 45, subsection (3), flashing shall be rectangular and at least 500 mm (20 in.) in length by 500 mm (20 in.) in width and, where sleeve flashing is used, the sleeve shall be extended at least 150 mm (6 in.) above the roof at every point of the pipe or stack.

(3) For stacks, vents or rainwater leaders passing through

(a) a sloping roof, the flashing flange shall be not less than 125 mm (5 in.), and

(b) a flat roof, the flashing flange shall be not less than 250 mm (10 in.). (AR 340/77)

46. (1) Where flashing is required it shall consist of

(a) lead sheet weighing not less than 25 kg/m^2 (5 lb. per sq. ft.), or

(b) copper sheet weighing not less than 3 kg/m^2 (10 oz. per sq. ft.), or

(c) sheet aluminum weighing not less than 1.5 kg/m^2 (5.5 oz. per sq. ft.), or

(d) alloyed zinc sheet weighing not less than 2.5 kg/m^2 (8.1 oz. per sq. ft.), or

(e) any other approved flashing.

(2) Where sheet lead is used as a flashing, it shall be worked over and into the hub of the increaser, which shall then be fitted with a 100 mm (4 in.) or larger roof ring properly caulked into the hub of the increaser. (AR 340/77)

47. (1) A vent pipe which passes through a sloping roof shall terminate

(a) not less than 25 mm (1 in.) above the hub of the flashing, and

(b) not more than 80 mm (3 in.) above the hub of the flashing.

(2) A vent pipe roof terminal shall be located

(a) at least 1 m (3 ft.) above, or 4 m (12 ft.) in any other direction from every air inlet, openable window or door;

(b) at least 2 m (7 ft.) above ground;

(c) at least 2 m (7 ft.) from every property line, and

(d) shall be insulated and braced, and shall terminate at least 2 m (7 ft.) above, or 4 m (12 ft.) in any other direction from a roof that supports an occupancy.

(3) A vent pipe which passes through a flat roof shall terminate

(a) at least 25 mm (1 in.) above the roof, and

(b) only high enough to prevent the entry of roof drainage. (AR 340/77)

PART 6
CONSTRUCTION AND USE OF JOINTS
Division 1
General

48. (1) Every caulked lead joint shall be firmly packed with oakum, and be tightly caulked with 25 mm (1 in.) of lead.

(2) A paint, varnish or other coating shall not be applied to the lead until after the joint has been tested.

(3) Caulked lead drainage joints shall not be used except for cast-iron pipe in a drainage system, or venting system or between such pipe, and

(a) other ferrous pipe, or

(b) brass and copper pipe, or

(c) a caulking ferrule, or

(d) a trap standard.

(4) Cold-caulked joints shall not be used except for bell and spigot joints and the caulking compound shall be applied according to the manufacturer's specifications. (AR 340/77)

49. (1) Hot-poured joints shall be caulked tightly with rammed oakum, and a hot-poured caulking compound shall be placed to a depth of at least 25 mm (1 in.) all around the pipe.

(2) Hot-poured joints shall not be used except for vitrified clay or concrete pipe, or between either of those pipes and ferrous pipe.

(3) A cement joint shall be made by caulking a twisted hemp or oakum gasket or other approved material into the annular space between the hub and spigot to a depth of at least 25 mm (1 in.), and the remaining space shall be filled with cement mortar or other approved material.

(4) The exterior of every cement joint shall be carefully shaped from the outside of the hub to the barrel of the pipe at an angle of approximately 45 degrees.

(5) Cement joints shall not be used except for vitrified clay or concrete pipe or between either of such pipes and ferrous pipe. (AR 340/77)

50. (1) Wiped joints shall not be used except for sheet lead or lead pipe, or between such pipe and copper pipe or a ferrule.

(2) Every wiped joint in a straight pipe shall

(a) be made of wiping solder,

(b) have an exposed surface on each side of the joint at least 20 mm (3/4 in.) wide, and

(c) be at least 10 mm (3/8 in.) thick at the thickest part.

(3) Every wiped flanged joint shall be reinforced with a lead flange that is at least 20 mm (3/4 in.) wide. (AR 340/77)

51. (1) In making a screwed joint the ends of the pipe shall be reamed or filed out to the size of the bore and all chips and cuttings shall be removed.

(2) No pipe-joint cement or paint shall be applied to the internal threads. (AR 340/77)

52. (1) In making a sweat soldered joint the surface to be soldered shall be cleaned bright and reamed and the joint shall be properly fluxed, made with solder and thoroughly cleaned of all residue.

(2) In making a flared joint the pipe shall be expanded with a proper flaring tool.

(3) Flared joints shall not be used for hard (drawn) copper tube.

(4) In making a burned lead joint the lead shall be lapped and fused to form a weld that is at least 1 1/2 times as thick as the wall of the pipe. (AR 340/77)

53. In lead pipe the width of the weld shall not be less than

(a) 15 mm (1/2 in.) where the diameter of the pipe is less than 80 mm (3 in.), or

(b) 16 mm (5/8 in.) where the diameter of the pipe is 80 mm (3 in.) or

(c) 20 mm (3/4 in.) where the diameter of the pipe is longer than 80 mm (3 in.) (AR 340/77)

54. In sheet lead the width of the weld shall be as specified in Table B.

TABLE B

Weight of Sheet Lead Kglm2 (lb./sq. ft.)	Minimum Width of Weld, mm (in.)
12 to 15 (2 1/2 to 3)	5 (1/4)
20 to 25 (4 to 5)	10 (3/8)
30 to 40 (6 to 8)	20 (3/4)
50 to 60 (10 to 12)	25 (1)
60 to 150 (12 to 30)	30 (1 1/4)

(AR 340/77)

55. Mechanical joints shall be made with compounded elastomer or butyl rubber couplings or rings held by stainless steel or cast-iron clamps or be contained within a compression connection and shall only be used to join vitrified clay pipe, asbestos-cement pipe, cast-iron soil pipe, steel pipe or any other combination of pipes and fittings approved by an inspector. (AR 340/77)

Division 2

Joints and Connections

56. (1) Pipe or fittings, or both, in soil, waste or vent piping shall not be drilled or tapped unless a suitable provision in the fitting has been provided for drilling and tapping.

(2) No person shall weld ferrous piping for installation or use in a plumbing system. (AR 340/77)

57. (1) Organic materials shall not be used as gaskets, packing or seals in any union, slip joint, long running thread and packing nut, or a similar joint downstream from a trap in any drain, waste or vent piping.

(2) Every connection between two pipes of different size shall be made with an increaser or a reducer fitting installed so that it will permit the system to be completely drained.

(3) Every joint between pipes and fittings of dissimilar material or sizes shall be made by adaptors, connectors or mechanical joints manufactured for the purpose. (AR 340/77)

58. Every roof hopper shall be securely connected to a leader and provision shall be made for expansion. (AR 340/77)

59. Every pedestal urinal, floor-outlet water closet, or S-trap standard shall be connected to a fixture drain by a floor flange, except that a cast-iron trap standard may be caulked to a cast-iron pipe. (AR 340/77)

60. (1) A floor flange shall be properly connected to the fixture drain.

(2) Where plastic pipe is used a floor flange of the same material may be used.

(3) Every floor flange shall be securely set on a firm base and be bolted to the trap flange of the fixture, and every joint shall be sealed with a natural rubber, synthetic rubber or asbestos graphite gasket, or with a closet setting compound. (AR 340/77)

61. Where a lead water closet stub is used the length of the stub below the floor flange shall be at least 80 mm (3 in.). (AR 340/77)

62. The design and installation of every piping system shall, include means to accommodate expansion and contration of the piping system. (AR 340/77; 295/80)

63. (1) Every pedestal urinal, floor mounted water closet or "S" trap standard shall be connected to a fixture drain by a floor flange, except that a cast iron trap standard may be caulked to a cast iron pipe.

(2) Except as otherwise provided in subsections (3) and (4) every floor flange shall be made of brass.

(3) If plastic pipe is used, a floor flange of the same material may be used.

(4) Every floor flange shall be securely set on a firm base and bolted to the trap flange of the fixture, and every joint shall be sealed with a natural rubber, synethetic rubber or asbestos graphite gasket, or other closet setting compound.

(5) If a lead closet stub is used, the length of the stub below the floor flange shall be at least 80 mm (3 ins.). (AR 340/77; 295/80)

PART 7
PIPING
Division 1
Support of Piping

64. (1) Piping shall be provided with support that is capable of keeping the pipe in alignment and bearing the weight of the pipe and its contents.

(2) Every pipe that is connected to a fixture, tank or device shall be supported independent of it.

(3) Except as provided in clauses (b) and (c), vertical piping shall be supported at its base and at the floor level of alternate storeys

(a) by metal rests, each of which can bear the weight of pipe that is between it and the metal rest above it,

(b) the maximum spacing of supports shall be 8 m (25 ft.), and

(c) cast-iron soil pipe shall be properly supported at each storey. (AR 340/77; 295/80)

65. (1) Nominally horizontal piping that is inside a building shall be braced to prevent swaying and buckling and to control the effects of thrust.

(2) Nominally horizontal piping shall be supported so that

(a) galvanized iron or steel pipe and copper pipe is supported at intervals of

(i) 4 m (12 ft.) or less if the pipe diameter is 150 mm (6 in.) or more, and

(ii) 2.5 m (8 ft.) or less if the pipe diameter is less than 150 mm (6 in.);

(b) lead pipe is supported throughout its length,

(c) cast-iron pipe is supported

(i) at or adjacent to each hub or joint,

(ii) at intervals not exceeding 1.5 m (5 ft.), and

(iii) at intervals not exceeding 1 m (3 ft.) if the pipe has mechanical joints and the length of pipe between adjacent fittings is 300 mm (12 in.) or less;

(d) asbestos-cement pipe is supported

(i) adjacent to each joint,

(ii) at intervals not exceeding 2 m (6 ft.), and

(iii) at intervals not exceeding 1 m (3 ft.) where the length of pipe between adjacent fittings is 300 mm (12 in.) or less;

(e) ABS, PVC or CPVC plastic pipe is supported

(i) except as otherwise provided in clause (e)(v) at intervals not exceeding 1 m (3 ft.),

(ii) at the ends of branches,

(iii) at changes of direction or elevation,

(iv) if the pipe is a fixture drain that is more than 1 m (3 ft.) in length, as close as possible to the trap, and

(v) as specified by the manufacturer for pipe that is more than 100 mm (4 in.) nominal pipe size. (AR 340/77; 295/80)

66. Where PVC, CPVC or ABS plastic pipe is installed

(a) the pipe shall be aligned without added strain on the piping,

(b) the pipe shall not be bent or pulled into position after being welded, and

(c) hangers shall not compress, cut or abrade the pipe. (AR 340/77)

67. (1) Where hangers are used to support nominally horizontal piping they shall be

(a) metal rods of at least 10 mm (3/8 in.) diameter for pipe over 100 mm (4 in.) in diameter, and

(b) solid or perforated metal strap hangers for pipe 100 mm (4 in.) or less in diamter.

(2) Where a hanger is attached to concrete or masonry it shall be fastened by metal or expansion-type plugs that are inserted or built into the concrete or masonry. (AR 340/77)

68. (1) Nominally horizontal piping that is underground shall be supported on a base that is firm and continuous under the whole of the pipe.

(2) Where a vent pipe terminates above the surface of a roof it shall be supported or braced to prevent misalignment. (AR 340/77)

Division 2
Protection of Piping

69. (1) Where piping is installed underground the backfill shall be carefully placed and tamped to a height of 300 mm (12 in.) over the top of the pipe and shall be free of stones, boulders, cinders and frozen earth.

(2) Where asbestos-cement drainage pipe is located less than 600 mm (2 ft.) below a basement floor and the floor is constructed of other than 80 mm (3 in.) or more of concrete, the pipe shall be protected by 80 mm (3 in.) or more of concrete installed above the pipe.

(3) Where piping passes through or under a wall or floor it shall be installed so that the wall or floor does not bear on the pipe. (AR 340/77; 295/80)

70. (1) Every part of a plumbing system shall be protected from freezing.

(2) Where a vent pipe that terminates above the surface of a roof is in danger of closure by frost it shall be insulated.

(3) Plumbing, piping and equipment exposed to physical damage shall be protected. (AR 340/77)

PART 8

CONNECTION OF DRAINAGE SYSTEMS

Division 1

General

71. (1) Every sanitary drainage system shall be connected to a municipal sanitary sewer or combined sewer, or a private sewage disposal system.

(2) Every storm drainage system shall be connected to one of the following.

(a) a combined building drain, or

(b) a combined building sewer, or

(c) a municipal storm sewer, or

(d) a municipal combined sewer, or

(e) a drain or sewer designated by the chief inspector or a municipal inspector, as the case may be. (AR 340/77)

72. (1) Where an overflow from a rainwater tank is discharged into a sanitary or storm drainage system, the connection must render impossible any backflow or escape of sewer gas.

(2) The storm water and run-off from roofs, paved areas, yards, courts and courtyards shall be drained to a storm sewer, or to a combined sewer where such is available in the street or alley upon which the property abuts. (AR 340/77)

73. (1) An inspector may require separate storm or sanitary sewers or both to be installed to a designated property line, for future connection to the public mains.

(2) Storm water shall not be discharged into a sanitary sewerage system without the prior written approval of the engineer responsible for the sanitary sewerage system. (AR 340/77)

74. Subsoil drainage shall be disposed of as directed by an inspector. (AR 340/77)

Division 2

Connection of Fixtures

75. (1) Every fixture shall be connected to a sanitary drainage system but

(a) where permitted by an inspector, a floor drain may be connected to a storm drainage system, if it is located where it can receive only clear-water waste or storm water;

(b) Fixtures that discharge only clear-water waste, other than a floor drain, may be connected to a storm drainage system or be drained onto a roof.

(2) If any of the following fixtures discharge to a drainage system, they shall be indirectly connected to that system.

(a) a device or appliance that uses water as a cooling or heating medium;

(b) a drip pipe from a food receptacle;

(c) a water operated device;

(d) a sterilizer or water still;

(e) a water treatment device;

(f) a drain or overflow from a water sytem;

(g) an overflow from a tank or vat in which a water supply inlet is protected by an air gap;

(h) a pressure, temperature or other relief valve that is installed in a water system.

(3) Drinking fountains may be indirectly connected. (AR 340/77; 295/80)

76. (1) Except as provided by section 76, subsections (2) and (3), where a fixture is indirectly connected, the connection shall be made by terminating the fixture drain above the flood level rim of a directly connected fixture to form an air break.

(2) Two or more fixture drains that serve as outlets from a single fixture that is listed in section 75, subsection (2) may be directly connected to a branch that

(a) has a diameter of at least 30 mm (1 1/4 in.), and

(b) is terminated above the flood level rim of a directly connected fixture to form an air break.

(3) Two or more fixture drains from fixtures that are listed in section 75, subsection (2) may be directly connected to a pipe that

(a) is terminated to form an air break above the flood level rim of a fixture that is directly connected to a storm drainage system, and

(b) is extended through the roof when fixtures that are on three or more storeys are connected to it.

(4) The size of the air break shall at least equal the size of the fixture drain, branch or pipe that terminates above the directly conected fixture and it shall not be less than 25 mm (1 in.). (AR 340/77)

PART 9
PLUMBING FIXTURES REQUIRED

77. If The Uniform Building Standars Act or any other Act or any regulation made under those Acts requires the installation of plumbing fixtures, the fixtures shall be installed in accordance with these regulations. (AR 340/77; 295/80)

78. A floor drain shall be installed in a basement or cellar unless this requirement is specifically waived by the inspector. (AR 340/77)

79. (1) Every fixture shall be lcoated where it is readily accessible for cleaning.

(2) A suitable access door shall be provided for concealed traps, valves and fittings which have unions, slip joints or gasket connections.

(3) Every direct flush valve or flush tank shall be located where it is readily accessible for repair. (AR 340/77)

80. Garbage grinders shall not be located upstream of an interceptor. (AR 340/77)

81. A commercial dishwasher shall not discharge through an interceptor or grease trap, unless such interceptor or grease trap has been sized and capacity-rated to the satisfaction of the plumbing inspector. (AR 340/77)

82. A drinking fountain, or a fountain bubbler over a plumbing fixture, shall not be located in a school washroom. (AR 340/77)

83. Hot and cold water shall be piped to suply every kitchen sink, washbasin, bathtub, shower, slop sink and laundry area. (AR 340/77)

84. Cold water shall be piped to supply every water closet, urinal and drinking fountain. (AR 340/77; 295/80)

PART 10
INSTALLATION OF FIXTURES

85. (1) Every wall-mounted water closet bowl shall be supported so that no strain is transmitted to the piping.

(2) When a water closet is installed in a public washroom it shall be provided with a seat of the open front type.

(3) Every flushing device that serves a water closet or one or more urinals shall have sufficient capacity and be adjusted to deliver at each operation a volume of water that will thoroughly flush the fixture or fixtures that it serves.

(4) Where a manually operated flushing device is installed it shall serve only one fixture.

(5) An automatic flush tank may not be used where a urinal drains to a septic tank. (AR 340/77)

86. (1) Repealed (295/80)

(2) All floor drains and floor drain traps shall be not less than 100 mm (4 in.) diameter throughout, and shall have at least a 100 mm (4 in.) water seal, and this trap may connect to a 80 mm (3 in.) waste pipe.

(3) The vertical distance between the trap weir of a floor drain and the surface of the floor shall not exceed 400 mm (16 in.). (AR 340/77; 295/80)

87. Where sanitary sewers are available no floor drain shall be connected to a storm sewer. (AR 340/77)

88. Food processing equipment connected to a waste pipe shall, for the purposes of this Part, be considered to be a fixture. (AR 340/77)

PART 11
TREATMENT OF HARMFUL SEWAGE AND WASTES

89. (1) Where a fixture discharges sewage, that in the opinion of the inspector, may damage or impair the sanitary drainage system or the functioning of a public or private sewage disposal system, provision shall be made for treatment of the sewage before it is discharged to the sanitary drainage system.

(2) A sampling manhole suitable for determining the sewage quality, temperature and rate of flow, shall be provided where required by the inspector. (AR 340/77)

90. (1) Where a fixture discharges sewage or clear water waste that is at a temperature in excess of 75 degrees C. (170 Deg. F.), provision shall be made for cooling of the waste to less than 75 degrees C. (170 Deg. F.) before it is discharged to the drainage system.

(2) Where the discharge from a fixture may contain oil, gasoline, solvents or similar products, an oil interceptor shall be installed.

(3) Where a fixture discharges sewage that includes grease is located in a public kitchen or restaurant or in an institution, a grease interceptor shall be installed if required by the inspector.

(4) Where a fixture discharges sand, grit or similar material, an appropriate interceptor shall be installed.

(5) In a private garage that serves a single family dwelling a garage floor interceptor is not necessary. (AR 340/77; 295/80)

91. (1) Every interceptor shall have sufficient capacity to perform the service for which it is provided.

(2) Every interceptor shall be located where it is readily accessible for cleaning.

(3) The design for a commercial garage floor interceptor shall be in accordance with the latest edition of the drawing for that type of an interceptor available from the Plumbing Inspection Branch of the Department. (AR 340/77; 295/80)

92. Acids and any other chemicals which might be harmful to any part of the plumbing system, sewerage system or sewage disposal system, shall be effectively neutralized by an approved method before being discharged into a drainage system. (AR 340/77)

PART 12

STORM DRAINS

Division 1

Traps

93. Repealed (295/80)

94. Repealed (295/80)

95. Repealed (295/80)

96. Where a storm drainage system is connected to a combined building drain or combined building sewer, a trap shall be installed between any opening from the system and the drain or sewer, but no trap is required if the opening is the upper end of a leader that terminates

(a) at a roof that is used only for weather protection, and

(b) at least 1 m (3 ft.) above or 4 m (12 ft.) in any other direction from an air inlet, an openable window or a door, and 2 m (6 ft.) from a lot line. (AR 340/77)

97. The hydraulic load for a fixture trap shall be in accordance with Table C. (AR 340/77)

Division 2

Subsoil drains

98. (1) Every subsoil drain shall be protected from the backflow of sewage, sewer gases or storm drainage water.

(2) Where a subsoil drain is directly connected to a sanitary or storm drainage system, the connection shall include an accessible and approved

(a) trapped backwater valve, or

(b) a separate trap and backwater valve.

(3) Where a subsoil drain runs into a sump, the water may be removed from the sump by means of

(a) a pump, or

(b) a connection described in section 98, subsection (2).

(4) A subsoil seepage drain connection to a sump shall be made in a manner that prevents backflow from the sump to the sub-soil seepage piping. (AR 340/77; 295/80)

99. (1) A backwater valve shall have the cleanout cover extended to within 100 mm (4 in.) of the floor surface and shall be provided with a frame and cover.

(2) A trap, backwater valve or obstruction which would prevent a free current of air passing through the plumbing system, shall not be installed in a building drain or building sewer. (AR 340/77)

100. A floor drain which drains to a storm drainage sytem shall be protected by a trap which

(a) is located between the floor drain and a leader, storm building drain or storm building sewer,

(b) is accessible for cleaning,

(c) may serve all floor drains located in the same room,

(d) need not be protected by a vent pipe, and

(e) need not be provided with a trap seal primer. (AR 340/77)

PART 13

Division1

ARRANGEMENT OF DRAINAGE PIPING

101. (1) Drainage piping shall not be lcated over nonpressure potable water tanks, over manholes in pressure potable water tanks or over food handling equipment.

(2) Rainwater leaders shall not be used for soil-or-waste pipes and soil-or-waste pipes shall not be used for rainwater leaders. (AR 340/77)

102. (1) All piping shall be run as simply, and as direct as possible, with a minimum of fittings and changes in direction as good practice and the provision for expansion, contraction, and building settlement will allow.

(2) All unused openings in a plumbing system shall be properly and effectively closed by means of a cap, plug or cleanout fitting which is appropriate for the piping used.

(3) Hub and spigot pipe and pipe fittings in a drainage system shall be installed with the hub at the upstream end. (AR 340/77)

Division 2

Sewage Pumps

103. (1) Piping that is too low to drain into a building sewer by gravity shall be drained to a sump or receiving tank.

(2) Where the sump or tank receives sewage it shall be water-and-air tight and shall be vented in accordance with Part 15.

(3) Equipment such as a pump or ejector that can lift the contents of the sump or tank and discharge it into the building sewer or building drain shall be installed. (AR 340/77)

104. (1) Where the equipment does not operate automatically the size of the sump shall be sufficient to hold at least 24 hour accumulation of liquid.

(2) The discharge pipe from every sewage pump shall be equipped with a shutoff valve, a check valve and a union. (AR 340/77)

Division 3

Premises Subject to Backflow

105. (1) For the purposes of these regulations, "premises subject to backflow" means those buildings which

(a) would experience a backflow of sewage in the event of the failure of a public sewage lift station or sewage pump, or

(b) drain to a combined sewer, or

(c) are located in an area which has been designated by the inspector as being subject to backflow.

(2) Where premises are subject to backflow, all plumbing fixtures set below the level of the ground surface of the adjoining street or property, but which do not drain into a sump or sewage pump receptacle, shall be protected from backflow by an approved backwater valve.

(3) A backwater valve may serve one or more fixtures on the same branch.

(4) Wherever a floor drain which is subject to backflow is not protected from backflow by a backwater valve, a screw cap shall be installed upstream from the trap seal of the floor drain. (AR 340/77)

Division 4

Cleanouts

106. (1) A building sewer that is connected to a public sewer shall be equipped with a main clean out located not more than 25 m (85 ft.) from the property line.

(3) Where there is a change of direction more than 45 degrees in a building drain or any run of horizontal drainge piping, a cleanout shall be installed at, or upstream, of the change of direction. (AR 340/77; 295/80)

107. (1) Cleanouts shall be installed throughout every system of vertical and horizontal soil, waste and drainage piping, in a manner which shall provide ready access for the cleaning of any such piping, with the cleaning tool being required to pass through not more than a total of 135 degrees.

(2) For the purposes of these regulations

(a) a Barret Cleanout, or plugged T type of cleanout, may be counted as a 45 degree change of direction, and

(b) a union type trap which has the body of the trap removable, may be considered as being a cleanout for the horizontal fixture drain. (AR 340/77)

108. (1) Cleanouts shall be installed in a building drain and a nominally horizontal branch of a building drain at intervals that will ensure that the distance between cleanouts does not exceed

(a) 30 m (100 ft.) where the diameter of the pipe exceeds 100 mm (4 in.), or

(b) 15 m (50 ft.) where the diameter of the pipe is equal to or less than 100 mm (4 in.).

(2) A cleanout shall be installed to serve the base of every stack. (AR 340/77; 295/80)

109. (1) Where there is a change in direction in a drip pipe from a food receptacle a cleanout shall be installed.

(2) Cleanouts shall be installed on horizontal waste pipes sized 50 mm (2 in.) and smaller at intervals not exceeding 7.5 m (25 ft.).

(3) A cleanout shall be installed at the upstream side of and directly over a trap that serves a leader or subsoil drainage pipe. (AR 340/77; 295/80)

110. The following fittings and devices may be used as cleanouts:

(a) a barret type fitting that has a bolted cover plate and gasket;

(b) a fitting that has a threaded plug;

(c) a threaded cap;

(d) a cleanout ferrule with a screwed plug or a bolted cover plate and gasket;

(e) a union trap which has the body of the trap easily removable. (AR 340/77)

111. (1) A water closet or a similar type of fixture or a trap which is 50 mm (2 in.) or larger and which has an accessible inlet, may be considered as a cleanout for that fixture drain.

(2) Cleanouts shall be of the same nominal size as the pipe served up to 100 mm (4 in.) and not less than 100 mm (4 in.) for larger pipes.

(3) Every cleanout shall be so located that the opening isreadily accessible and has sufficient clearance for effective rodding and cleaning. (AR 340/77)

112. (1) Manholes may be used as cleanouts in a building sewer or building storm sewer where

(a) the developed length from the outer face of the wall of the building to the manhole nearest to the outer face of the wall shall not exceed 30 m (100 ft.),

(b) the distance between successive manholes in the building sewer or building storm sewer shall not exceed 90 m (300 ft.) where the pipe size is less than 200 mm (8 in.) diameter,

(c) the distance between successive manholes in the buildng sewer or building storm sewer shall not exceed 120 m (400 ft.) where the pipe size is 200 mm (8 in.) diameter or larger, and

(d) there is no change in slope or direction of any section between manholes of a building sewer or building storm sewer.

(2) Where manholes are not used in a building sewer, extended Y cleanouts shall

(a) be installed at intervals not exceeding 25 m (85 ft.), and

(b) the extended branch of a Y used as a cleanout shall not change direction more than 45 degrees.

(3) A manhole for a building sewer or for a building storm sewer shall not have less than 1 m (3 ft.) inside diameter. (AR 340/77; 295/80)

113. Every horizontal soil or waste pipe shall be graded in accordance with Table F. (AR 340/77)

PART 14
HYDRAULIC LOADS
Division 1

114. (1) For the purposes of these regulations, the hydraulic load on a pipe is the total load from

(a) every fixture that is connected to the system upstream of the pipe,

(b) every fixture for which provision is made for future connection upstream of the pipe, and

(c) all roofs and paved surfaces that drain into the system upstream of the pipe.

(2) The hydraulic load from a fixture that is specified in table C is the number of fixture units set forth in the Table. (AR 340/77)

115. (1) Subject to this section, the hydraulic load from a fixture that is not listed in Table C is the number of fixture units specified in table D for the trap of the size that serves the fixture.

TABLE C

(1.1)

Fixture	Min. Diam. of Trap mm (in.)	Minimum Hydraulic Load Fixture Units
Autopsy Table	40 (1 1/2)	2
Bathroom group		
(a) with flush tank	-	6
(b) with flush valve	-	8
Bathtub with or without shower	40 (1 1/2)	1 1/2
Bath: foot, sitz or slab	40 (1 1/2)	1 1/2
Beer Cabinet	40 (1 1/2)	1 1/2
Bidet	30 (1 1/4)	1
Clothes washer	40 (1 1/2)	2
Dental unit or cuspidor	30 (1 1/4)	1
Dishwasher		
(a) domestic type	40 (1 1/2)	1 1/2 no load when connected to garbage grinder
(b) commercial type	50 (2)	3
Drinking fountain	30 (1 1/4)	1
Floor drain	100 (4)	3
Garbage grinder		
(a) commercial type	50 (2)	3
Icebox	30 (1 1/4)	1

Laundry tray			
(a) 1 or 2 compartments	40	(1 1/2)	1 1/2 same load with separate traps or common trap
(b) 3 compartments	50	(2)	3
Potato peeler	50	(2)	3
Shower drain			
(a) from 1 head	40	(1 1/2)	1 1/2
(b) from 2 or 3 heads	50	(2)	3
(c) from 4 to 6 heads	100	(4)	6
Sink			
(a) butler, bar, rinse, single compartment kitchen sink or single compartment or combination sink	40	(1 1/2)	1 1/2
(b) single compartment kitchen sink or single compartment or combination sink with garbage grinder	40	(1 1/2)	1 1/2
(c) 3 compartment sink - common trap	50	(2)	3
(d) 2 or 3 compartment sink with garbage grinder - common trap	50	(2)	3
(e) dishwasher, pot or scullery	50	(2)	4
(f) P-trap service	50	(2)	3
(g) surgeons or surgeons scrub	40	(1 1/2)	1 1/2
Urinal			
(a) pedestal, siphon-jet or blowout type	50	(2)	3
(b) stall, washout type	40	(1 1/2)	1 1/2
(c) wall, lip type			
(i) washout type	40	(1 1/2)	1 1/2
(ii) other types	50	(2)	3
Washbasin			
(a) barber or beauty parlor	40	(1 1/2)	1
(b) dental	30	(1 1/4)	1
(c) domestic type	30	(1 1/4)	1 with 30 mm (1 1/4 in.) trap, 1 1/2 with 40 mm (1 1/2 in.)
(d) multiple or circular	40	(1 1/2)	
Water closet			
(a) with flush tank	80	(3)	4
(b) with flush valve	80	(3)	6

TABLE D

Size of Trap in mm (inches)	Hydraulic Load Fixture Units
30 (1 1/4) or less	1
40 (1 1/2)	2
50 (2)	3
65 (2 1/2)	4
80 (3)	5
100 (4)	6
Column 1	Column 2

(3) Except as provided in subsection (4), the hydraulic load from a fixture that produces a continuous or semi-continuous flow, is one fixture unit for each 0.04 litres per sec. (1/2 gallon per minute) of flow.

(4) Where a fixture that produces a continuous or semi-continuous flow drains to a combined drain or sewer, or to a storm drain or sewer, the hydraulic load from the fixture is 0.03 litres per sec for each square metre (28 sq. ft. for each gallon per min.) of flow. (AR 340/77; 295/80)

116. (1) The hydraulic load from a road or paved surface shall be determined by

(a) the area in square metres (square feet) of the horizontal projection of the surface that is drained, and

(b) one-half the area in square metres (square feet) of the largest adjacent vertical surface.

(2) Where the hydraulic load is to be expressed in square metres (square feet), fixture units shall be converted so that

(a) when the number of fixture units is 256 or fewer, the load is 83 m^2 dS(1000 sq. feet), and

(b) when the number of fixture units exceeds 256, the load is 0.36 m^2 (3.9 sq. feet) for each fixture unit. (AR 340/77)

117. (1) The hydraulic load that is drained through every soil or waste stack shall be sized as specified in Table E. (AR 340/77; 295/80)

(2)

TABLE E

Diameter of Stack in mm	(Inches)	Maximum Load on Soil-or-Waste Stack, (Vertical), Fixture Units
30	(1 1/4)	2
40	(1 1/2)	8
50	(2)	24
65	(2 1/2)	42
80	(3)	60
100	(4)	500
125	(5)	1100
150	(6)	1900
200	(8)	3600
250	(10)	5600
300	(12)	8600
Column 1		Column 2

(3) The hydraulic load and grade of a horizontal drain or sewer shall be in accordance with Table F.

(4)

TABLE F

Diameter of Drain or Sewer in mm.	(Inches)	Maximum Load on Horizontal Drain or Sewer, Fixture Units Slope of Drain % (in./ft.) 0.5%(1/16)	1%(1/8)	2%(1/4)	4%(1/2)
30	(1 1/4)			1	1
40	(1 1/2)			3	5
50	(2)			10	15
65	(2 1/2)			15	27
80	(3)	----	----	27	36
100	(4)	----	180	240	300
125	(5)	----	390	480	670
150	(6)	----	700	840	1300
200	(8)	1400	1600	2250	3370
250	(10)	2500	3000	4500	6500
300	(12)	3900	5400	8300	13000
380	(15)	7000	10400	16300	22500
Column 1		Column 2	Column 3	Column 4	Column 5

118. (1) The hydraulic load calculated in accordance with this section that is drained to.

(a) a nominally horizontal pipe in a storm drainage system, or,

(b) a combined building drain, or,

(c) a combined building sewer,

Shall not exceed the number of square metres (sq.ft.) specified in table G.

TABLE G

(2)

Diameter of Pipe, Drain or Sewer in mm (inches)	Maximum Load on Pipe, Drain or Sewer m^2 (Sq.Ft.) Slope of Pipe, Drain or Sewer, (in./ft.) 1% (1/8)	2% (1/4)	4% (1/2)
88 (3)	76 (822)	108 (1160)	153 (1644)
100 (4)	175 (1880)	246 (2660)	350 (3760)
125 (5)	310 (3340)	439 (4720)	621 (6680)
150 (5)	497 (5350)	701 (7550)	994 (10700)
200 (8)	1068 (11500)	1514 (16300)	2137 (23000)
250 (10)	1923 (20700)	2713 (29200)	3846 (41400)
300 (12)	3083 (33300)	4366 (47000)	6187 (66600)
380 (15)	5518 (59400)	7803 (84000)	11055 (119000)
Column 1	Column 2	Column 3	Column 4

(AR 340/77; 295/80)

119. (1) The hydraulic load that is drained to a circular leader shall be calculated so that the leader shall not exceed the number of square metres (sq. ft.) specified in Table I (column 2).

(2)

TABLE 1

CIRCULAR LEADER		
Diameter of Leader mm	(Inches)	Max. Load m^2 (Sq.Ft.)
50	(2)	66.9 (720)
65	(2 1/2)	120.7 (1300)
80	(3)	204 (2200)
100	(4)	427 (4600)
125	(5)	804 (8650)
150	(6)	1254 (13500)
200	(8)	2694 (29000)
Column 1		2

(AR 340/77; 295/80)

Division 2

Diameter of Pipes

119.1 The calculation of a hydraulic load to which Table G or I applies is based on a maximum rainfall of 100 mm (4 in.) per hour in accordance with the following formula:

$$\text{Equivalent roof area in } m^2 \ (ft^2) = \frac{\text{Actual roof area } m^2 \ (ft^2)}{4} \times \text{Rainfall mm (in.) per hour}$$

(AR 340/77; 295/80)

120. (1) A pipe shall not be smaller than the largest pipe that discharges or vents through it.

(2) The diameter of every soil pipe that serves a water closet shall be at least 80 mm (3 in.).

(3) The diameter of every building drain, and the building sewer shall be sized as required by Table F, unless a larger size is required by the municipal inspector.

(4) The diameter of every building drain, and the building sewer which connects to a septic tank or sewage holding tank shall be sized in accordance with Table F.

(5) The diameter of every fixture outlet pipe shall not be less than the diameter of the fixture waste opening.

(6) The diameter of every fixture drain shall not be less than the size of the trap that serves the fixture. (AR 340/77)

PART 15

VENTING SYSTEM

Division 1

Vent Pipes for Traps

121. (1) Subject to subsections (2) and (3), a trap shall be protected by a vent pipe.

(2) An 80 mm (3 in.) horizontal or vertical vented soil or waste pipe may serve as a wet vent for a floor drain trap, if

(a) the size of the trap is at least 100 mm (4 in.),

(b) the length of the fixture drain is at least 450 mm (18 in.),

(c) the fall on the fixture drain does not exceed its size,

(d) the length of a 100 mm (4 in.) fixture drain to a 100 mm (4 in.) floor drain does not exceed

(i) 10 m (32 ft.) where the grade on the fixture drain is 1% (1/8" per foot), or

(ii) 5 m (16 feet) where the grade on the fixture drain is 2% (1/4" per foot), and

(e) the length of an 80 mm (3 in.) fixture drain to a 100 mm (4 in.) floor drain does not exceed 4 m (12 feet).

(3) A trap need not be protected by a vent pipe where it serves

(a) a subsoil drainage pipe, or

(b) a storm drainage system, or

(c) where it forms part of an indirect drainage system, or

(d) where the trap is directly connected to a pump.

(4) Unless an inspector permits otherwise, vent piping shall be completely installed when, for future fixtures, drainage piping is installed. (AR 340/77; 295/80)

Divison 2

Wet Venting

122. (1) A horizontal or vertical soil or waste pipe may serve as a wet vent for one or more traps, if

(a) all fixtures are in the same storey,

(b) all fixture drains comply with section 130, subsection (4),

(c) the fixture drains connect separately and directly to the wet vent,

(d) all piping complies with all the installation requirements for drainage piping, and

(e) the size of the wet vent shall not be smaller than required by Table "J".

(2) A vertical (stack) wet vent shall comply with subsection (1).

(3) On a vertical (stack) wet vent a fixture shall not connect to the (stack) wet vent below a water closet connection except if it is a fixture drain of another water closet or of a floor drain. (AR 340/77; 295/80)

123. Wet venting shall comply with section 122, subsection (1). (AR 340/77; 295/80)

124. (1) The fixture drains which connect to a horizontal wet vent shall connect to a Y on its side.

(2) On a horizontal wet vent a trap smaller than 50 mm (2 in) shall not be connected downstream from a water closet connection.

(3) A horizontal soil or waste pipe which serves as the wet vent for more than one water closet and one shower or bath tub shall extend full size throughout its horizontal length. (AR 340/77; 295/80)

125. (1) Only fixture drains that are at the same level may be connected to a horizontal wet vent.

(2) A vent shall connect to the fixture drain of the most upstream fixture connected to that branch.

(3) Not more than 2 fixture drains having a total hydraulic load of not more than 6 fixture units may be connected to

(a) a vent for a range of fixtures,

(b) a relief valve, or

(c) a yoke vent. (AR 340/77; 295/80)

126. (1) A relief vent shall be connected to the wet vented branch downstream of the lowest connection, when the branch is connected to a soil or waste pipe which carries more than 15 fixture units.

(2) The cumulative horizontal change in direction in a wet vented branch shall not exceed 45 degrees between vent pipes.

(3) Not more than 8 wet vented traps may connect to the branch between vent pipe connections. (AR 340/77; 295/80)

Division 3
Vent Stack

127. (1) Fixture drains may be connected to a vent stack, if

(a) the total hydraulic load of the connected fixtures does not exceed 8 fixture units,

(b) at least one fixture is connected to a vertical portion of the vent stack upstream of any other fixture,

(c) no other fixture is connected downstream of a water closet,

(d) all fixtures are located in the lowest storey served by the vent stack, and

(e) the section of the vent pipe that becomes a wet vent meets the requirements of soil-or-waste pipes and wet vents. (AR 340/77; 295/80)

Division 4
Vent Pipes for Soil-or-Waste Stacks

128. (1) The upper end of every soil-or-waste stack shall terminate in a stack vent.

(2) A stack vent may serve as the vent pipe for 1 or 2 fixtures connecting at the same level.

(3) Every soil-or-waste stack which extends more than 4 storeys shall be protected with a vent stack, and the vent stack shall be connected to the soil-or-waste stack at or below the lowest soil-or-waste pipe connection, or at the junction of the soil-or-waste stack with a branch or the building drain. (AR 340/77)

Division 5
Yoke Vent

129. (1) Except as provided in section 3, where a soil-or-waste stack extends through 6 or more storeys, a yoke vent shall be connected to the soil or waste stack at every fifth storey, measured from the top storey downward and immediately above each change of direction from vertical to horizontal.

(2) The connection between every yoke vent and soil-or-waste stack shall be

(a) made with a Y,

(b) located below the lowest soil-or-waste pipe that is connected to the stack from the storey in which the connection is made, and

(c) the upper end of the yoke vent shall connect to the vent stack 1.3 m (4 feet) above the same floor level.

(3) A Yoke vent need not be installed if relief vents full size of the fixture branch are installed on every floor. (AR 340/77; 295/80)

Division 6

Arrangement of Vent Pipes

130. (1) Every vent pipe shall be installed without depressions in which moisture can collect.

(2) Every vent pipe shall be connected as directly as possible from its lower end to outside air, and where it is possible to do so the pipe shall be installed in a nominally vertical position.

(3) Except for wet vents, where a vent pipe is connected to a nominally horizontal soil-or-waste pipe the connection shall be above the horizontal centre line of the soil-or-waste pipe.

(4) Subject to subsections (5) and (6), a vent pipe that protects a fixture trap shall be located so that

(a) the developed length of the fixture drain is not less than twice the size of the fixture drain,

(b) the total fall of the fixture drain is not greater than the size of the fixture drain, and

(c) the fixture drain does not have a cumulative change of direction of more than 135 degrees.

(5) The fixture drain of water closets, S-trap standards of fixtures that depend on siphonic action for the proper functioning of the fixture that discharges vertically shall not have an accumulative change of direction of more than 225 degrees.

(6) The fixture drain of

(a) a water closet,

(b) an "S" trap standard, or

(c) any other fixture that depends on syphonic action,

shall not exceed 1 m (3 ft.) in the vertical plane. (AR 340/77; 295/80)

131. A vent pipe shall extend above the flood level rim of every fixture that it serves before being connected to another vent pipe. (AR 340/77)

132. A part of a plumbing system shall not be located in an exterior wall except a dry vent which is adequately insulated from freezing. (AR 340/77; 295/80)

133. A horizontal portion of a vent below the flood level of any fixture served by that vent, which could contain sewage in the event of a stoppage in a drain or trap, shall be graded back toward the drain pipe, and shall be fitted with a cleanout. (AR 340/77)

134. A vent which [illegible] which rises at an angle not exceeding 45 degrees from the vertical) need not be [illegible] with a cleanout. (AR [illegible])

135. A hood, screen, grill, extension pipe or other device may not be attached to a vent pipe roof terminal. (AR 340/77)

Division 7
Minimum Size of Vent Pipes

136. (1) Subject to subsections (2), (3) (4) and (5), the size of every dry vent pipe shall conform to Table K.

(2) A branch vent, stack vent, vent stack or header shall be of a size not less than the size of a vent pipe that is connected to it.

(3) A relief vent shall be not less than one size smaller than the smallest vent required to vent the horizontal branch that it serves.

(4) A yoke vent shall not be less than one size smaller than the size of the smaller pipe to which it is connected.

(5) A vent that serves a flushometer wall mounted water closet shall have a minimum size of 40 mm (1 1/2 in.) nominal pipe size. (AR 340/77; 295/80)

137. (1) Every sump that receives sewage shall be provided with a vent pipe.

(2) Subject to subsection (3), the size of the vent pipe for a sewage sump shall not be less than one size smaller than the size of the largest inlet pipe to the sump.

(3) The minimum size of every vent pipe for a sewage sump shall be 50 mm (2 in) but the vent pipe need not be larger than 100 mm (4 in).

(4) The minimum size of every vent pipe that serves the waste pipe from an oil interceptor shall be 50 mm (2 in). (AR 340/77)

138. Every building drain shall be provided with a stack vent not smaller than 80 mm (3 in) nominal pipe size. (AR 340/77; 295/80)

Divison 8
Sizing of Vent Pipes

139. (1) A single storey wet vent shall be sized in conformance with Table J.

(2)

TABLE J

Size of Wet Vent		Maximum Hydraulic Load Connected to a
mm	(Inches)	Single Storey Wet Vent, Fixture Units
30	(1 1/4)	2
40	(1 1/2)	3
50	(2)	8
65	(2 1/2)	12
80	(3)	18
100	(4)	120
Column 1		Column 2

(3)

TABLE K

Minimum Size of Vent Piping		Maximum Number of Fixture Units	Maximum Developed Length	
mm	(Inches)		m	(Feet)
30	(1 1/4)	10	10	(35)
40	(1 1/2)	25	15	(50)
50	(2)	100	27	(90)
60	(2 1/2)	290	37	(120)
80	(3)	500	58	(190)
100	(4)	1000	88	(290)
125	(5)	1700	119	(390)
150	(6)	2000	152	(500)
	Column 1	Column 2		Column 3

(AR 340/77; 295/80)

140. (1) The length of a continuous vent for the purpose of Table K shall be its developed length from the vertical soil-or-waste pipe to a vent stack, stack vent, header or open air.

(2) The length of a circuit vent for the purpose of Table K shall be its developed length from the horizontal wet vent pipe to a vent stack, stack vent, header or open air.

(3) The length of a branch vent for the purpose of Table K shall be the developed length of vent piping from the most distant soil-or-waste pipe connection to a vent stack, stack vent, header or open air.

(4) The length of a header for the purpose of Table K shall be the developed length of vent piping from the most distant soil-or-waste pipe connection to open air. (AR 340/77)

PART 16
POTABLE WATER SYSTEM
Division 1
Arrangement of Piping

141. (1) Fixtures shall be supplied with water to ensure their effective operation.

(2) Every fixture supplied with separate hot and cold water controls shall have the hot water control on the left and the cold on the right.

(3) Buildings expected to be vacant or unheated during freezing weather shall have

(a) piping, except a water service pipe, graded or pitched so that any part of the system can be drained, and if it is not practicable to avoid a trap of a sag in a pipe, provision shall be made to drain it, and

(b) where a drain valve is installed it shall be adequate to drain completely the piping that it serves. (AR 340/77)

142. (1) Every water service pipe shall be provided with a shut-off valve and a drip valve, except that a stop-and-waste cock may be installed when the diameter of the pipe is 25 mm (1 in) or less.

(2) The valve or cock referred to in subsection (1) shall be located at the meter location. (AR 340/77)

143. (1) Branch water supply pipes shall not connect to the water service pipe on the pressure side of the shut-off valve.

(2) A water service pipe connected to a municipal water system shall have an accessible shut-off valve located outside each building.

(3) Except for a single family dwelling, every water supply riser pipe that extends through more than one storey shall be provided with a shut-off valve on the branch of the riser.

(4) The supply to every water closet shall be provided with a shut-off valve. (AR 340/77)

144. Except for a single-family dwelling

(a) shut-off valves shall be installed in a dwelling unit or in a suite in a motel or hotel as may be necessary to ensure that when the supply to one dwelling unit or suite is shut off the supply to the test of the building is not interrupted, or

(b) shut-off valves shall be installed for every fixture. (AR 340/77)

145. (1) Every pipe that is supplied from a water tank shall be provided with a shut-off valve.

(2) Every pipe that supplies a hot water tank shall be provided with a shut-off valve. (AR 340/77)

146. (1) Every water system shall be protected against freezing.

(2) Every pipe that passes through an exterior wall to supply water to the exterior of the building shall be provided with a frost-proof hydrant or a stop-and-waste cock located inside the building. (AR 340/77)

147. (1) In addition to the requirements of subsection (2), every hot water tank of a storage-type service water heater shall be equipped with a pressure relief valve designed to open when the water pressure in the tank reaches the rated working pressure of the tank and so located that the pressure in the tank shall not exceed the pressure at the relief valve by more than 35 kPa (5 psi) under any condition of flow within the distribution system.

(2) Every hot water tank of storage-type service water heater shall be equipped with

(a) a temperature relief valve with a temperature sensing element located within the top 150 mm (6 in) of the tank and designed to open and discharge sufficient water from the tank to keep the maximum temperature of the water in the tank at 99 degrees C (210 degrees F.) under all operating conditions, and

(b) a device that is designed to automatically shut off the electricity or fuel supply to the tank when the water in the tank reaches a predetermined temperature.

(3) Every tank equipped in accordance with subsections (1) and (2) shall bear the information in a clearly visible lcoation that it is so equipped. (AR 340/77)

148. (1) The outlet of a temperature relief valve, a pressure relief valve or a combined temperature and pressure relief valve on a service water heater shall be provided with a pipe having the same diameter as the diameter of the valve outlet and shall terminate within 300 mm (1 ft.) of the floor.

(2) A shut-off valve shall not be installed on the pipe between the tank and the relief valves and a restriction or reduction of pipe size shall not be placed on the outlet of the relief valve. (AR 340/77; 295/80)

149. A back-siphonage device shall be installed when required by an inspector. (AR 340/77)

150. Every valve shall be readily accessible for service or replacement. (AR 340/77)

151. Air chambers or shock stops shall be installed in conjuction with spring-action or quick-closing valves and taps to prevent water hammer. (AR 340/77)

152. Shock stops that are of a mechanical nature shall be lcoated in an accessible place. (AR 340/77)

Division 2

Protection of Potable Water Supply from Contamination

153. (1) A connection, or cross connection, may not be installed, or allowed to exist, which could, under any conditions, cause or allow a potable water supply system to be contaminated, polluted or infected.

(2) Where, in the opinion of the inspector there are abnormal conditions, or where the method of backflow prevention is not clearly indicated in these regulations, the method to be used to protect the potable water supply shall be approved in writing by an inspector.

(3) Subject to subsection (2), all backflow prevention devices shall be installed as specified in Table L. (AR 340/77)

154. All backflow prevention devices shall conform to the appropriate C.S.A. Standard. (AR 340/77)

155. A newly installed part of a potable water supply system shall be thoroughly cleaned and disinfected to the satisfaction of the inspector before such system is put into use. (AR 340/77)

156. (1) Subject to subsection (2), the water service from the public water supply system shall not be turned on at the curb cock for occupancy use if the authority operating the public water supply system is notified by the plumbing inspector that the plumbing system is not approved.

(2) The water service may be turned on for temporary use for construction purposes for a limited time if adequate provision is made to prevent backflow. (AR 340/77)

157. (1) A backflow prevention device shall be immediately accessible, and regularly inspected and maintained in operating condition by the owner.

(2) A by-pass, jumper, or other device shall not be installed which may reduce the efficiency of any backflow prevention device. (AR 340/77)

158. (1) All piping which distributes non-potable water shall be identified by distinct, easily recognizable, permanent markings.

(2) Piping which has distributed non-potable water shall not be connected in any way to a potable water system. (AR 340/77)

159. Non-potable water shall not be accessible for drinking or for the preparation of food or beverages. (AR 340/77)

160. A private water supply shall not be interconnected with a public water supply system. (AR 340/77)

161. One or more of the backflow prevention devices listed in Table L shall be used for the conditions stipulated for each. (AR 340/77)

162. (1) An air gap separation shall be used wherever practicable, and in preference to any other method of backflow prevention.

(2) An air gap separation shall be mandatory on the potable water supply to

(a) sewage handling piping or equipment, or

(b) a non-potable water system, or

(c) any lethal substance or condition. (AR 340/77)

163. An open tank water supply including a float operated inlet shall be

(a) located so as to provide an air gap, or

(b) provided with a back-siphonage preventer. (AR 340/77)

164. (1) The height of an air gap shall not be less than 25 mm (1 in.).

(2) Notwithstanding subsection (1), a drinking fountain shall have an air gap of not less than 20 mm (3/4 in.) in height. (AR 340/77; 295/80)

165. Backflow prevention devices which open to the atmosphere shall not be lcoated where

(a) they could contaminate the potable water, or

(b) where the opening to the atmosphere could be submerged in the event of spillage or flooding, or

(c) where spillage from the opening to the atmosphere would be dangerous or undesirable. (AR 340/77)

166. (1) The installation of a backflow prevention device in a potable water supply service pipe shall not eliminate the necessity of also providing backflow protection wherever required by these regulations.

(2) A reduced pressure backflow preventer shall be installed in the potable water supply service pipe (which does not have an air gap separation) to active treatment hospitals, chemical plants, fertilizer plants, abattoirs, meat packing plants and such other plants as may be prescribed by an inspector.

(3) A fire protection line connected to a potable water supply shall have an approved check valve installed as close as possible to the connection to the potable water supply system.

(4) Where any water from another source will be used as an alternate or supplementary supply for fire fighting or when any toxic substance is introduced into the fire protection system, two approved check valves shall be installed to prevent backflow into the potable water system. (AR 340/77)

TABLE L
SELECTION CHART FOR BACKFLOW PREVENTION DEVICES

Inspector to use this space to list approved devices available.

Column 1 One Fire Line Check Valve
Column 2 Two Fire Line Check Valves
Column 3 Hose Bibb Blackplolo Preventer
Column 4 Atmospheric Type Vacuum Breaker
Column 5 Pressure Tyupe Vacuum Breaker
Column 6 Atmospheric Type Back Pressure Backflow Preventer
Column 7 Double Check Valve Assembly
Column 8 Reduced Pressure Backflow Preventer
Column 9 Air Gap

POTABLE WATER USERS	1	2	3	4	5	6	7	8	9
Abattoir								0	0
Animal Watering					0	0	0	0	0
Aspirators					0	0	0	0	0
Autopsy Equipment					0	0	0	0	0
Autoclave						0	0	0	0
Boiler Feeds						0	0	0	0
Bed Pan Washers						0	0	0	0
Chemical Plants								0	0
Canopy Washers						0	0	0	0
Cuspidors, Open Outlet				0	0	0	0	0	0
Cuspidors, Valved Outlet					0	0	0	0	0

	1	2	3	4	5	6	7	8	9
Dishwashers				0	0	0	0	0	0
Fire Line (safe)	0								0
Fire Line (dangerous)		0							0
Fertilizer Plants								0	0
Flushometer Valves				0	0	0	0	0	0
Flush Tanks				0	0	0	0	0	0
Garbage Can Washers					0	0	0	0	0
Heat Exchangers							0	0	0
High Rise Buildings								0	0
Hose Bibbs			0						
Piping to Hose Bibbs					0	0	0	0	0
Hospitals								0	0
Lab Sink Faucets				0	0	0	0	0	0
Lab Supply Mains					0	0	0	0	0
Lethal Substance									0
Laundry Machine				0	0	0	0	0	0
Mobile Home Parks						0	0	0	0
Mobile Housing			0			0	0	0	0
Meat Packing Plants								0	0
Mixing Tees with Steam & Water						0	0	0	0
Non Potable Water									0
Oil Refinery								0	0
Private Water Source								0	0
Sewage Piping or Plants									0
Shampoo Sprays					0	0	0	0	0
Sterilizers					0	0	0	0	0
Steam Cookers							0	0	0
Swim Pools, Hose Filled			0						
Swim Pools, Direct Connect							0	0	0
Swim Pools, Make Up Tank					0	0	0	0	0
Tanks & Vats, Open Top, No. Valve on Inlet				0	0	0	0	0	0
Tanks & Vats, Open Top, Valved Inlet					0	0	0	0	0
Tanks, Closed						0	0	0	0
Urinals					0	0	0	0	0
Water Cooling or Heating Coils									
Open End									
Valved Outlet				0	0	0	0	0	0
Water Closets					0	0	0	0	0
Water Storage Tanks				0	0	0	0	0	0
Wash Racks				0	0	0	0	0	0
Sprinkler Irrigation, Valved Outlets					0	0	0	0	0
no valve downstream				0	0	0	0	0	0
with chemical or fertilizers added									0

(AR 340/77)

168. A water service or distribution main which supplies potable water to

(a) a recreation vehicle park, or

(b) a separate lot which could accommodate itinerant mobile homes or recreation vehicles, or

(c) a separate lot which will or does accommodate any mobile home or recreational vehicle or mobile housing which does not have an approved plumbing system

shall be protected from backflow by at least one of the following backflow prevention devices installed in accordance with these regulations

(d) air gap separation, or

(e) reduced pressure backflow preventer, or

(f) atmospheric type backpressure backflow preventer, or

(g) a double check valve assembly. (AR 340/77)

PART 17
TANKS AND PIPES
Division 1
Tanks

169. (1) Every tank shall be supported independent of the piping that is connected to it.

(2) Every tank that is not under pressure shall

(a) not be located under drainage or non-potable water piping,

(b) be provided with a cover that prevents the entrance of foreign matter, and

(c) be provided with an overflow pipe that will prevent flooding when all inlets to the tank are open and all outlets except the overflow are closed.

(3) A cover of a tank that is under pressure shall not be located under drainage or non-potable water piping. (AR 340/77)

Division 2
Water Piping

170. (1) The capacity of every potable water system shall be sufficient to provide a positive pressure at every supply opening.

(2) Every water service pipe shall have a capacity not less than the peak demand flow and a diameter not less than 20 mm (3/4 in).

(3) The capacity of every pipe that supplies a fixture shall be not less than the flow that will flush the fixture and keep it in a sanitary condition. (AR 340/77)

171. (1) Water distributing piping downstream from the main shutoff valve in a building may not be buried in or under a concrete slab-on-fill type of floor unless

(a) the water piping is continuous with no buried joints, or

(b) it is sleeved in such a manner that the pipe can move freely, and so that any leakage from the pipe will be evident above the floor.

(2) The water piping referred to in subsection (1) shall be not lighter than Type L soft copper pipe.

(3) Copper pipe that is lighter than Type "L" shall not be bent. (AR 340/77)

172. Repealed (AR 295/80)

173. All joints in buried copper service pipe or copper distribution pipe shall be of the flared type or other approved type of joint. (AR 340/77)

174. Water service piping entering a building through a foundation wall shall be provided with a sleeve at least 50 mm (2 in) larger than the pipe and the annular space around the pipe shall be filled with waterproof pliable material. (AR 340/77)

175. (1) The quantity of water required to be supplied to every fixture shall be represented by units equivalent to fixture units as shown in Table M.

(2)

TABLE M

Fixture	Number of fixture Units	
	Private Use	Public Use
Lavatory	1	2
Flush Valve Water Closet	6	10
Urinal (Flush Valve)	3	5
Flush Tank (W.C. or Urinal)	2	5
Bath Tub or Shower	2	4
Kitchen Sink	2	4
Laundry Tray (1 to 3)	3	3
Hose Connection	3	5
Other Outlets		
10 mm (3/8-inch)	1	2
15 mm (1/2-inch)	2	4
20 mm (3/4-inch)	3	6

(3) For the purposes of Table M, each lawn sprinkler head shall be counted as one-half fixture unit.

(4) The minimum size of pipe in every water supply system shall be determined in accordance with Table N and "Maximum length from main" means the actual length of pipe from the water main to the furthest fixture in the building.

(5) In using Table N for multi-storied buildings, the "equivalent pressure in main" means the actual pressure in pounds per square inch less 35 kPa (5 pounds per square inch) for each floor above grade level.

(6) A fixture supply tail piece or connector shall not be longer than 750 mm (30 in.) and shall not have an inside diameter of less than 6 mm (1/4 in.). (AR 340/77)

176. (1) A water meter connector shall be not smaller than the water service pipe unless the person installing the meter satisfies the inspector that a smaller meter will be adequate.

(2) A connection which could supply water to an outlet shall not be installed on a water service between the curb-cock and the water meter. (AR 340/77)

177. (1) Where water pressure is below 100 kPa (15 psi) or where the volume of water is inadequate to satisfactorily supply the plumbing system with water during periods of peak demand, the owner shall provide such equipment as may be necessary to adequately supply the fixtures and water outlets.

(2) Where the water pressure is in excess of 700 kPa (100 psi) the owner shall provide approved pressure reducing equipment to maintain the pressure between 100 kPa (15 psi) and 700 kPa (100 psi). (AR 340/77)

178. (1) Water service piping shall have a minimum of 2 m (6 ft.) of cover, and more cover or protection where it is considered necessary to prevent freezing of the service.

(2) Water service piping shall not be extended from one property to another without the prior written permission of the inspector. (AR 340/77)

PART 18
NON-POTABLE WATER SYSTEM CONNECTION

179. A non-potable water system shall not be connected to a potable water system. (AR 340/77)

180. (1) Non-potable water piping shall be identified by markings that are permanent, distinct and easily recognized.

(2) Non-potable water piping shall not be located

(a) where food is prepared in a food processing plant, or

(b) above food-handling equipment, or

(c) above a non-pressurized potable water tank, or

(d) above a cover of a pressurized potable water tank.

(3) An outlet from a non-potable water system shall not be located where it can discharge into

(a) a sink or washbasin, or

(b) a fixture into which an outlet from a potable water system is discharged, or

(c) a fixture that is used for a purpose ralted to the preparation, handling or dispensing of food, drink, or products that are intended for human consumption. (AR 340/77)

PART 19

PLUMBING IN SUMMER COTTAGES

181. (1) Buildings which are constructed for summer occupancy only shall comply with these regulations except that

(a) piping may be installed externally or in an external wall,

(b) all vents must be properly finished with a suitable flashing, but need not be increased in size at the roof, and

(c) all water piping, hot water tanks and pressure tanks shall be provided with accessible drain plugs or valves, to ensure complete drainage of the water system.

(2) (See Table "N").

(3) The sewer service to a mobile home or recreational vehicle that is not C.S.A. certified shall include a 100 mm (4 in.) vented P trap.

(4) The water service to a mobile home or recreational vehicle that is not C.S.A. certified shall include a pressure type of back-flow preventer. (AR 340/77; 295/80)

(2)

TABLE N

WATER SERVICE AND DISTRIBUTION PIPING SIZING

main in metres & (feet)	Pressure in Main kPa (Pounds/sq. in.)			Size of Service Pipe mm (in.)	Water Distribution Piping mm (in.)
	140–300 kPa (20–45*)	300–400 kPA (46–60)	400–500 kPa (61–75)		
	Fixture Units	Fixture Units	Fixture Units		
15.0 m (50)	4	7	11	20 (3/4 in.)	15 (1/2 in.)
30.0 m (100)	4	6	9	20 (3/4 in.)	15 (1/2 in.)
45.0 m (150)	3	4	5	20 (3/4 in.)	15 (1/2 in.)
15.0 m (50)	17	26	35	20 (3/4 in.)	20 (3/4 in.)
30.0 m (100)	13	18	24	20 (3/4 in.)	20 (3/4 in.)
45.0 m (150)	10	15	17	20 (3/4 in.)	20 (3/4 in.)
15.0 m (50)	34	50	66	20 (3/4 in.)	25 (1 in.)
30.0 m (100)	28	41	54	20 (3/4 in.)	25 (1 in.)
45.0 m (150)	20	35	42	20 (3/4 in.)	25 (1 in.)
15.0 m (50)	42	61	89	25 (1 in.)	25 (1 in.)
30.0 m (100)	32	42	56	25 (1 in.)	25 (1 in.)
45.0 m (150)	23	38	46	25 (1 in.)	25 (1 in.)
15.0 m (50)	62	112	162	25 (1 in.)	30 (1 1/4 in.)
30.0 m (100)	46	80	115	25 (1 in.)	30 (1 1/4 in.)
45.0 m (150)	38	63	90	25 (1 in.)	30 (1 1/4 in.)
15.0 m (50)	91	180	250	30 (1 1/4 in.)	30 (1 1/4 in.)
30.0 m (100)	58	108	154	30 (1 1/4 in.)	30 (1 1/4 in.)
45.0 m (150)	45	78	110	30 (1 1/4 in.)	30 (1 1/4 in.)
15.0 m (50)	164	288	410	40 (1 1/2 in.)	40 (1 1/2 in.)
30.0 m (100)	110	202	288	40 (1 1/2 in.)	40 (1 1/2 in.)
45.0 m (150)	84	156	220	40 (1 1/2 in.)	40 (1 1/2 in.)

(2) maximum length from main in metres & (feet)	Pressure in Main kPa (Pounds/sq. in.) 140-300 kPa (20-45*) Fixture Units	300-400 kPA (46-60) Fixture Units	400-500 kPa (61-75) Fixture Units	Size of Service Pipe mm (in.)	Water Distribution Piping mm (in.)
15.0 m (50)	246	432	556	40 (1 1/2 in.)	50 (2)
30.0 m (100)	211	381	456	40 (1 1/2 in.)	50 (2)
45.0 m (150)	186	326	414	40 (1 1/2 in.)	50 (2)
15.0 m (50)	420	648	816	50 (2)	50 (2)
30.0 m (100)	318	516	672	50 (2)	50 (2)
45.0 m (150)	260	442	574	50 (2)	50 (2)
15.0 m (50)	501	690	980	50 (2)	65 (2 1/2 in.)
30.0 m (100)	444	510	715	50 (2)	65 (2 1/2 in.)
45.0 m (150)	390	460	660	50 (2)	65 (2 1/2 in.)
For Installations Using Flush Valve Water Closets					
15.0 m (50)	10	16	30	25 (1 in.)	25 (1 in.)
30.0 m (100)	8	12	19	25 (1 in.)	25 (1 in.)
45.0 m (150)	6	10	13	25 (1 in.)	25 (1 in.)
15.0 m (50)	12	40	66	25 (1 in.)	30 (1 1/4 in.)
30.0 m (100)	10	23	41	25 (1 in.)	30 (1 1/4 in.)
45.0 m (150)	8	14	29	25 (1 in.)	30 (1 1/4 in.)
15.0 m (50)	30	68	115	30 (1 1/4 in.)	30 (1 1/4 in.)
30.0 m (100)	13	25	56	30 (1 1/4 in.)	30 (1 1/4 in.)
45.0 m (150)	10	23	37	30 (1 1/4 in.)	30 (1 1/4 in.)
15.0 m (50)	66	150	246	40 (1 1/2 in.)	40 (1 1/2 in.)
30.0 m (100)	37	84	144	40 (1 1/2 in.)	40 (1 1/2 in.)
45.0 m (150)	25	59	101	40 (1 1/2 in.)	40 (1 1/2 in.)
15.0 m (50)	252	390	491	50 (2)	50 (2)
30.0 m (100)	192	310	403	50 (2)	50 (2)
45.0 m (150)	156	264	344	50 (2)	50 (2)

NOTE: Number of Fixture Units will be reduced by 10% when galvanized pipe is used.
*NOTE: Where the water pressure is less than 140 kPa (20 psi), the fixture unit load shall be half that for 140-300 kPa (20-45 psi).

PART 21

SEWAGE DISPOSAL

Division 1

General

182. (1) The owner of a building who installs a plumbing system shall ensure that sewage from the system is disposed of into a public sewer or into an approved private sewage disposal system.

(2) A private sewage disposal system shall serve only the property on which it is placed. (AR 340/77)

183. (1) A person shall not cover, or place into operation, any part of a sewage disposal system until that action has been authorized by an inspector.

(2) A private sewage disposal sytem shall be designed to receive all domestic sewage including laundry, bathing, toilet and kitchen wastes.

(3) Storm water, sub-soil seepage, waste water from a commercial water softener, water filter, or other commercial water treatment device, or commercial or industiral process wastes shall not be discharged into a subsurface disposal system designed to receive sanitary sewage.

(4) Sewage shall not bypass the septic tank and be discharged raw into the ground absorption effluent disposal system.

(5) Except for sewage lagoons all components of a private sewage disposal system shall have adequate protection from freezing.

(6) Septic Tanks and sewage holding tanks shall be tested in accordance with Section 25(1). (AR 340/77)

Division 2

Location of Sewage Disposal Systems

184. (1) Repealed (295/80)

(2) Septic, biological or other sewage treatment and disposal tanks may be used where no public sewerage system is available within 50 m (150 ft) or likely to become available within a reasonable time.

(3) A private sewage disposal system shall not be constructed on any premises once a public sewer is made available within 50 m (150 ft) of the premises. (AR 340/77)

185. (1) Water-tight spetic tanks or sewage holding tanks shall be located not less than

(a) 1 m (3 ft) from any property line; and

(c) 10 m (30 ft) from any water source; and

(d) 1 m (3 ft) from any building.

(2) A leaching cesspool or seepage pit, or an effluent filter system shall be located not less than

(a) 3 m (10 ft) from any property line;

(b) 15 m (50 ft) from any basement or cellar;

(d) 30 m (100 ft) from any water source;

(e) 10 m (30 ft) from any non-basement building.

(3) A sub-surface weeping tile effluent disposal field or an evaporation mound shall be located not less than

(a) 1.5 m (5 ft) from any property line;

(b) 15 m (50 ft) from any water source;

(c) 3 m (10 ft) from a spetic tank;

(d) 10 m (30 ft) from any basement or cellar;

(e) 3 m (10 ft) from any (non-basement) building.

(4) A sewage effluent discharge to the ground surface shall be located not less than

(a) 50 m (150 ft) from any water source;

(c) 50 m (150 ft) from a dwelling;

(d) 50 m (150 ft) from any boundary property line.

(5) A sewage lagoon shall be located not less than

(a) 50 m (150 ft) from a dwelling;

(b) 30 m (100 ft) from any property line;

(c) 100 m (300 ft) from any water source. (AR 340/77; 295/80)

186. Part of a private sewage disposal system shall not be located within a 1.5 m (5 ft) vertical distance of an impervious layer of rock or water table. (AR 340/77)

187. Where the mninimum required distances under this Part cannot be provided, the applicant shall apply for a permit to install an alternate system of private sewage disposal system. (AR 340/77)

Division 3
Protection of Water Supplies

188. Sewage or sewage effluent shall not be discharged into any drilled, bored, or dug well, or into an aquifer, or into any excavation of cesspool deeper than 4 m (12 ft.) from the surface, or into any abandoned water well, or where there is a danger of contaminating a water supply, well, pond, lake or stream. (AR 340/77)

Division 4
Operation of a Sewage Disposal System

189. (1) Surface water, storm water, process water, gasoline, oil, cleaning fluid, abattoir waste, chemicals, mud or other material which could adversely affect the operation of the private sewage disposal system shall not be permitted in the system.

(2) Surface water and run-off water shall be directed away from the disposal area. (AR 340/77)

Division 5

Sizes and Capacities

190. (1) A septic tank for a single family dwelling or duplex shall be of a size as prescribed in Table O.

(1.1) A septic tank shall, if subsection (1) does not apply, be of a size equal to the expected volume of sewage per day.

(1.2) A disposal field shall be of a size as calculated under section 192 or as prescribed in Table P.

(2)

TABLE O

Septic Tanks for Houses and Duplexes

Number of Bedrooms	Minimum Working Capacity of Septic Tanks in litres (gallons)
2 or less	1800 (400)
3	2045 (450)
4	2700 (600)
5	3400 (750)
6	4000 (900)

TABLE P

(3) Length of Weeping Laterals for Houses and Duplexes

Percolation rate in mins/25mm (mins/in)	0-10	10-20	20-30	30-60	over 60	over 90
Minimum number of m(ft) of weeping lateral/bedroom	30 (100)	50 (150)	60 (200)	100 (300)	120 (400)	150 (500)

(4) A subsurface disposal field shall have not less than 60 m (200 ft.) of approved weeping laterals.

(4.1) Expected volume of sewage flow in litres (gallons) per day shall be determined in accordance with Table Q.

TABLE Q

(5) Expected Minimum Daily Sewage Flow

Place	Estimate Sewage Flow litres (gallons) per day
Assembly Hall	9 (2) per seat
Boarding House	338 (75) per person

Bowling Alleys (no food service)	335 (75)	per lane
Churches (small)	22 (5)	per sanctuary seat
Churches (large, with kitchen)	31 (7)	per sanctuary seat
Construction Camp	225 (50)	per person
Country Clubs	220 (50)	per member
Dance Halls	9 (2)	per person
Drive-In Theatres	22 (5)	per car space
Factories (no showers)	110 (25)	per employee
Factories (with showers)	150 (35)	per employee
Food Service Operations		
Ordinary Restaurant (not 24-hr.)	150 (35)	per seat
24-hr. Restaurant	225 (50)	per seat
Restaurant along Freeway (24-hr.)	310 (70)	per seat
Tavern (very little food service)	90 (20)	per seat
Curb service (drive-in)	220 (50)	per car space
Vending Machine Restaurants	310 (70)	per seat
Golf Club		
with Bar and Restaurant	113 (25)	per member
without Bar or Restaurant	45 (10)	per member
Hospital (no resident personnel)	890 (200)	per bed
Houses	338 (75)	per person
1 & 2 bedroom house (figure 2 persons per bedroom)		
3 bedroom & Larger Houses (figure 1.5 persons per bedroom)		
Institutions (resident)	450 (100)	per person
Laundries (coin operated)	1700 (400)	per machine
Laundry wastes require special consideration	Consult Plumbing Inspector	
Motels	Minimum of 180 (40)	per unit
	90 (20)	single bed
Nursing and Rest Homes	450 (100)	per person
Office Buildings	90 (20)	per employee
Schools		
Elementary	45 (10)	per pupil
High and Junior High	70 (15)	per pupil
Service Stations	563 (125)	per gasoline pump outlet
(exclusive of cafe)	2250 (500)	each additional bay
Shopping Centers (without food, service or laundries)	0.5 (0.1)	per m^2(ft^2) of floor space
Swimming Pool (average)	22 (5)	per swimmer (design load)
with hot water shower)	31 (7)	per swimmer (design load)
Mobile Home Parks		
(without service building)	670 (150)	per mobile home space
(with service building)	780 (175)	per mobile home space
Recreation Vehicle Parks	180 (40)	per recreational vehicle space
Vacation Cottages	90 (20)	single bed
Youth and Recreation Camps	90 (20)	per camper

(AR 340/77; 295/80)

191. Private sewage disposal systems for buildings other than houses and duplexes shall be approved in writing by an inspector before they are installed. (AR 340/77)

192. The total length of weeping laterals for private sewage disposal field to serve other than single family dwellings or duplexes shall be determined from the following formulas:

$$m = \frac{L \times P}{133}$$

Where m = length in metres
L = litres/day expected volume of sewage
P = percolation time in minutes per 25 mm

Feet & gallons

$$f = \frac{G \times P}{9}$$

Where f = Length in feet
G = Gallons per day expected volume of sewage
P = Percolation time in minutes per inch

(AR 340/77)

Division 6
Septic Tanks

193. (1) A person shall not sell or install a steel septic tank in Aberta unless it is constructed of material not less than 5 mm (3/16 in) thick steel plate.

(2) No person shall install a septic tank or sewage holding tank unless it meets or exceeds these regulations. (AR 340/77)

194. No person shall install a prefabricated septic tank or sewage holding tank unless it

(a) meets or exceeds the requirements of CSA Standard B.66 and these regulations, and is certified by Canadian Standards Associations, as the case may be, or

(b) it is approved by the chief inspector and tested in accordance with Section 25(1). (AR 340/77; 295/80)

195. (1) A septic tank shall have a minimum working capacity of 1800 litres (400 gal).

(2) Prefabricated septic tanks and sewage holding tanks shall be clearly and permanently labelled on the top of each tank, and with a label or a facsimile of a label and on each extended manhole cover.

(3) A manhole cover for a septic tank shall be installed so that it is located not less than 150 mm (6 in.) and not more than 600 mm (24 in.) below grade.

(a) "CSA Certified to B.66 and Alberta Standards", or "Alberta Government Accepted to CSA B.66 and Alberta Standards";

(b) the manufacturer's name or trademark;

(c) the working capacity and all other capacities;

(d) the maximum depth of burial if for use underground;

(e) the manufacturer's serial number or date of manufacture;

(f) the liquid depth; and

(g) the volume per flush in litres (gallons) (if applicable).
(AR 340/77; 295/80)

Division 7
Piping Materials

196. (1) The piping used for an effluent sewer, or field header shall be approved, rigid, straight, smooth, water-tight piping which meets or exceeds the standards for building sewers, and if plastic, the piping shall be labelled "CSA Certified".

(2) Piping for gravity effluent sewers shall not be smaller than 100 mm (4 in) nominal pipe size.

(3) All piping shall be laid with the label on top of the pipe.
(AR 340/77; 295/80)

197. (1) The piping used for weeping laterals shall not be smaller than 100 mm (4 in.) nominal pipe size and shall be approved for that purpose and shall be

(a) clay weeping tile with adequate covers over the open joints, or

(b) perforated, straight, rigid plastic pipe properly labelled "CSA Certified Perforated Sewer Pipe", or

(c) heavy duty, rigid straight lengths of perforated corrugated plastic pipe properly labelled as meeting the standards of CGSB 41 GP 31, or

(d) other piping approved by the chief inspector.

(2) Any plastic piping connected to a septic tank or sewage holding tank shall be not lighter than D.W.V. piping to a point at least 2 m (6 ft) from the tank and to a solid base.

(3) An effluent sewer shall be laid with the barrel of the pipe evenly and continuously supported on a bed of solid undisturbed earth or tightly compacted clay.
(AR 340/77)

Division 8
Supports

198. (1) The excavation for a septic tank installation shall provide a solid undisturbed earth (or equal) base to within 150 mm (6 in.) of a septic tank, to support the inlet and outlet piping connected to the septic tank.

(2) The excavation for a buried septic tank or sewage holding tank shall

(a) provide a smooth, level support base of tamped sand or undisturbed earth, and

(b) make provision for an elevation which will provide 300 mm (12 in) to 600 mm (24 in) of cover over the disposal field. (AR 340/77)

199. (1) Effluent sewer piping shall

(a) meet the requirements for building sewers,

(b) be CSA Certified Sewer Pipe (not corrugated pipe),

(c) be laid with the identification clearly along the top of the pipe,

(d) be totally water-tight, and

(e) have a minimum grade of 1%.

(2) An effluent sewer having less than 1.2 m (4 ft) of soil cover, where it crosses under a ditch, driveway, path or bare yard, shall be protected from sagging and freezing by an approved frost box, culvert, or other approved means. (AR 340/77)

Division 9

Sub-Surface Effluent Disposal

200. (1) A sub-surface effluent disposal system shall be installed by using

(a) a sub-surface weeping tile or perforated pipe absorption field, or

(b) two absorption fields designed for alternate use, or

(c) an evaporation mound, or

(d) a filter bed, or

(e) such other manner of effluent disposal which has the prior written approval of an inspector.

(2) If it is required to be performed a percolation test shall be conducted in the following manner

(a) minimum of two tests must be done at each effluent disposal site,

(b) excavate a round hole to a depth of 1 m (36 in), carefully picking off the surface of the walls of the hole so no glazing or packing can affect the percolation of the water through the soil interface,

(c) the finished diameter of the test hole must be 200 mm (8 in),

(d) admit water to the hole through a hose, slowly and carefully so as not to disturb the soil,

(e) saturate the bottom half of the test hole,

(f) add water until the rate of drop becomes constant, and

(g) fill to 450 mm (18 in), and

(h) determine the rate of drop of the water in the test hole and record it in mins/25 mm (mins per in) of drop. (AR 340/77)

Division 10

Subsurface Private Sewage Disposal System Fields

201. (1) A subsurface private sewage disposal system shall include a septic tank, a sewage effluent chamber and an automatic "syphon" or a sewage effluent pump especially made for the purpose to intermittenly flush the effluent into the disposal field.

(2) The volume per flush shall provide 2.3 litres (1/2 gal) of effluent for each lineal 300 mm (ft) of weeping tile. (AR 340/77)

202. (1) Weeping laterals shall be at least 1.5 m (5 ft) apart.

(2) A weeping tile trench shall be

(a) from 600 mm (24 in) to 750 mm (30 in) deep with a minimum width 450 mm (18 in), and have a level bottom.

(b) backfilled with a minimum of 300 mm (12 in) of gravel, the lower 150 mm (6 in) of which may be pit-run gravel, and the upper 150 mm (6 in) of which shall be 15 mm (1/2 in) to 40 mm (1 1/2 in) particle size and shall contain no fines, sand, silt or clay.

(3) A weeping tile lateral shall

(a) be laid level on the gravel as described in section 202, subsection (2), clause (b) at a maximum depth of 600 mm (24 in)

(b) be covered by 80 mm (3 in) of straw, and

(c) be backfilled with porous topsoil suitable to the inspector, or as otherwise approved by the inspector.

(4) Where Tees or Y's are used to connect weeping laterals to a field header all piping in the ground absorption area shall be installed at the same level.

(5) Where approved bi-level distribution crosses are used to connect the weeping piping to the underside of the distribution header.

(a) the disposal field may be installed on sloping ground,

(b) the size of the feeder holes in the underside of the header shall be selected to provide equal distribution of effluent to each weeping lateral, and

(c) no gravel shall be used under a distribution header unless the ground surface and disposal field are level. (AR 340/77; 295/80)

203. An absorption field shall not be located

(a) under a roadway, or driveway, or

(b) under a paved area or bare yard, or

(c) under a vehicle parking lot, or

(d) under any building. (AR 340/77)

Division 11
Leaching Cesspools

204. (1) A leaching cesspool shall be used for effluent disposal only, but not for raw sewage.

(2) A leaching cesspool may not be used as the only means of effluent disposal unless the person installing it obtains the specific prior written approval of the inspector.

(3) An inspector may designate special areas of Alberta where an adequately sized, pumpout type of leaching cesspool may be required to supplement a disposal field. (AR 340/77)

Division 12
Surface Discharge

205. (1) A person who designs or installs a disposal system which discharges sewage effluent onto the ground surface, shall ensure that

(a) complete details of the system have been approved by an inspector,

(b) the point of effluent disposal agrees with or exceeds the minimum distance requirements of section 185, subsection (4),

(c) the ground surface does not slope from the point of effluent disposal towards a water source,

(d) there is no possibility of contaminating a water source or of creating a nuisance,

(e) Repealed (RA 295/80)

(f) the point of effluent disposal does not discharge onto any ground growing garden vegetables, and

(g) the piping is protected from freezing.

(2) The installation of a sewage lagoon to serve a single family dwelling shall

(a) meet or exceed the minimum distance requirements of section 185, subsection (5),

(b) provide a minimum of one year detention at a working depth of not greater than 2 m (6 ft),

(c) provide a minimum berm slope of 1 vertical to 3 horizontal,

(d) be built to an approved design, and

(e) provide a 2 m (6 ft.) wide berm at the top. (AR 340/77; 295/80)

PART 22

206. The Plumbing and Drainage Regulations (Alta. Reg. 381/72), as amended, is repealed.