

APPENDIX L

ALTERNATE DESIGNED PLUMBING SYSTEMS

(APPENDIX L IS FOR INFORMATIONAL PURPOSES ONLY)

L101 GENERAL

L101.1 Scope

The provisions of this appendix shall govern the materials, design and installation of specially designed plumbing systems. These systems shall be designed by a Registered Professional Engineer.

L101.2 General System Provisions

Discharge pipe systems shall comprise the minimum of pipework necessary to carry away the foul water from the building quickly and quietly, with freedom from nuisance or risk of injury to health.

L102 DEFINITIONS

DISCHARGE PIPE - a pipe which conveys the discharges from plumbing fixtures or appliances.

DISCHARGE UNIT - a unit so chosen that the relative load-producing effect of plumbing fixtures can be expressed as multiples of that unit. The discharge unit rating of a fixture depends on its rate and duration of discharge and on the interval between discharges. It is not a simple multiple of a rate of flow and is a different method of assessment than the fixture unit applicable to other chapters of this code and the two (fixture unit and discharge unit) cannot be interchanged.

VENTILATING PIPE - a pipe provided to facilitate the circulation of air within the system and to protect trap seals from excessive pressure fluctuation.

L103 COMBINATION WASTE AND VENT SYSTEM

L103.1 Approval

Plans and specifications for each combination waste and vent system shall be submitted to the plumbing official, and approval shall be obtained before any installation is started.

L103.2 Limits

L103.2.1 A combination waste and vent system is limited to sinks, dishwashers, floor sinks, indirect waste receptors, floor drains or similar applications where the fixtures are not adjacent to walls or partitions. It consists of the installation of waste piping in which the trap of the fixture is not individually vented.

L103.2.2 Caution must be exercised to exclude appurtenances delivering large quantities of water or sewage such as pumps, etc., in a combination waste and vent system in order that adequate venting will be maintained.

L103.3 Dishwashers

Dishwashers and scullery sinks in commercial buildings shall drain through a grease interceptor sized in accordance

with this code and they shall discharge into a floor sink through a minimum air gap.

L103.4 General Design

L103.4.1 Every waste pipe and trap in this system shall be at least two pipe sizes larger than the size required in Chapter 7, and at least two pipe sizes larger than any fixture tail piece or connection, except that when "P" traps are installed above the floor, the "P" trap and horizontal fixture drain need not meet this requirement. The vertical waste pipe two sizes larger than the fixture outlet connection shall be extended above the floor to normal roughing height, and a cleanout shall be installed in top of the connecting waste tee. The fixture drain length shall be limited by Table 908.1. Floor sinks shall be connected through a running trap two pipe sizes larger than the sink outlet. Floor sink and waste piping from the floor sink to the trap shall be sized for the total fixture units draining thereto, based on Table 713.2, but in no case shall the line be less than 2-inch (51 mm) soil pipe when piping is underground.

L103.4.2 A vent shall be provided at the upstream end of each branch, washed over or under by the last fixture on the branch. No vent shall take off from the horizontal waste branch at an angle of less than 45 degrees (0.785 rad) from the horizontal unless washed by a fixture. A minimum size vent shall be located at all points where branches intersect. A vent shall be located downstream from all fixtures in the system, in addition to the upstream vent, separating this system from all other systems in the building. No fixtures other than those permitted in L104.2 shall discharge into any branch or portion of this system. (See Figure No. J6 and J7 of Appendix J.)

L103.4.3 Caution shall be used in the design of the system to assure that the vertical distance from fixture or drain outlet to trap weir does not exceed 24 inches (610 mm). Long runs shall be provided with additional relief vents located at intervals of not more than 100 ft (30.5 m) to equalize pressure in the system.

L103.5 Size of Vents

The size of vents shall be in accordance with requirements of 920.2 and Table 920.2, but the cross-sectional area shall be not less than one-half of the area of the waste pipe served, except that the vents shall be the same size as the waste branch to a point at least 6 inches (152 mm) above the flood level rim of the highest fixture connected before reduction, in accordance with Table 920.2.

L103.6 Receptor Drain Size

Indirect waste receptors shall be sized for the fixture units draining thereto, regardless of other requirements of this code.

L104 SINGLE STACK DISCHARGE AND VENTILATING SYSTEMS

L104.1 Approval

The purpose of this section is to make provisions for the design and installation of plumbing systems not otherwise in this code. The plumbing official shall require that necessary plans submitted under the section are signed by a Registered Professional Engineer.

L104.2 Tests

The single stack discharge and ventilating system shall be tested in accordance with 1203.3.

L104.3 General

L104.3.1 Trap Function. To prevent exchange of air between the discharge pipe system and the building, a trap having an adequate water seal shall be provided for each fixture (see L104.4). The discharge piping system shall be so designed as to retain adequate water seals in all traps under normal pressure fluctuations caused by discharge from fixtures (see 1203.3). For design purposes, the effects of the flow of water in the branch connecting the fixture to the stack, and the flow of water down the stack, shall be considered separately.

L104.3.2 Seal Loss (Branch Effect). Seal losses produced by flow in a branch depend on the following:

1. The design of the fixture (funnel shaped fixtures increase the chance of self-siphonage).
2. The length and fall (slope or gradient) and the diameter of the pipe. Branch effects are not affected by the height of the building and they can therefore be controlled by limiting the length and the fall of the branch.

L104.3.3 Seal Loss (Stack Effect)

L104.3.3.1 Seal losses produced by flow down the stack depend on the following:

1. The flow load (which depends on the number of fixtures connected to the stack and the frequency with which they are used).
2. The diameter of the stack.
3. The height of the stack.

L104.3.3.2 Excessive seal losses can be prevented by choosing a size of stack appropriate to the height of the building and to the number of fixtures connected to it.

L104.3.4 Fixture Layout. Where the layout of fixtures is suitable, careful design and installation can lead to considerable economies in pipework by eliminating the need for separate ventilating pipes (see L104.6). Where these requirements cannot be followed, traps shall be ventilated by pipes of adequate size as described in L104.7.

L104.3.5 System Design. Consideration shall be given in design to the following points which, in addition to being good general practice, will also obviate trouble from the foaming of detergents:

1. Where practicable, all fixtures shall be connected to one main stack which is at least 4 inches in diameter

- except for one story buildings where a 3-inch stack may be satisfactory (see L 104.6 and Table L104.5B).
2. Where sinks are connected to a separate stack, the stack shall be larger than normal (a minimum of 4-inch diameter for buildings over five stories) and connected directly to the building drain.
 3. For over two sinks, stacks shall be (when one sink is over another on separate floor levels) a minimum of 2 V₂-inch diameter.
 4. The interconnection of stacks is not permitted except when fixtures below such interconnection are vented as required elsewhere in this code.
 5. For buildings more than five stories high, ground floor fixtures shall be connected separately to the building drain, and vented back into the main discharge stack above the fixtures on the floor above, or the vent shall be connected with a main ventilating stack when such stack is required by Table L104.6C.
 6. Bends and offsets in vertical stacks are prohibited.

L104.3.6 Jointing and Support. The selection of materials, their jointing and support shall be in consideration of the effects of possible settlement, thermal movement and corrosion (see L104.9). Some materials may require protection against mechanical damage.

L104.3.7 Access. There shall be adequate provision for access to pipework, and the embedding of joints in the structure shall be avoided (see L104.8 and L104.10).

L104.4 Traps

L104.4.1 General. The entry of foul air from the drainage system into the building is prevented by the installation of suitable traps which are self-cleansing. A trap which is not an integral part of a fixture shall be attached to and immediately beneath the fixture outlet and the bore of the trap shall be smooth and uniform throughout.

L104.4.2 Diameters. The internal diameters of traps shall be not less than those given in Table L104.4.2.

Table L104.4.2

Minimum Internal Diameters of Traps

Type of Domestic Appliance	Min. Internal Diameter (in.)
Lavatory	1 ¹ / ₄
Sink	1 ¹ / ₂
Bathtub	1 ¹ / ₂ or 2 ¹
Shower	2
Wash tub	1 ¹ / ₂
Kitchen waste disposal unit (tubular trap is essential)	>1 ¹ / ₂

1 in = 25.4 mm

Note:

1. See Figures L104.5A and L104.5B and Table L104.5A.

L104.4.3 Depth of Seals. Traps of water closets shall have a minimum water seal of 2 inches (51 mm); traps of other fixtures shall have a minimum water seal of 3 inches (76 mm)

for pipes up to and including 2 inches in diameter and 2-inch minimum water seal for pipes over 2 inches in diameter.

L104.5 Discharge Pipes

L104.5.1 Diameters. The internal diameter of a horizontal discharge pipe (fixture drain) shall normally be that of the trap to which it is attached, and in no case less, except that no fixture drain shall be less than 1 1/2-inch diameter.

L104.5.2 Branch Gradients. The fall of discharge pipes shall be adequate to drain the pipe efficiently and in no case less than shown in Table L104.5C (see L104.5.5).

L104.5.3 Bends, Branches and Offsets. All bends, branches and offsets shall be of easy radius and there shall be no restriction in the bore of the pipe.

L104.5.4 Prevention of Cross Flow. To prevent water closet discharge from backing up a bath waste line, the latter shall be connected to the stack with its center line either at, above, or at least 8 inches (203 mm) below the center line of the water closet branch (see Figure L104.5A). Where this cannot be achieved, a parallel branch may be used (see Figure L104.5B). Alternatively, the level of the water closet branch connection may be modified as above by dotted lines in Figure L104.5B.

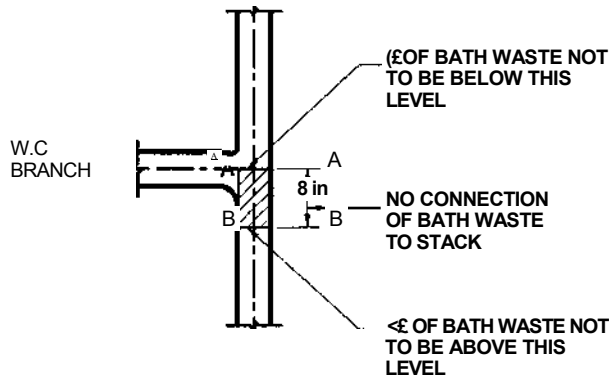
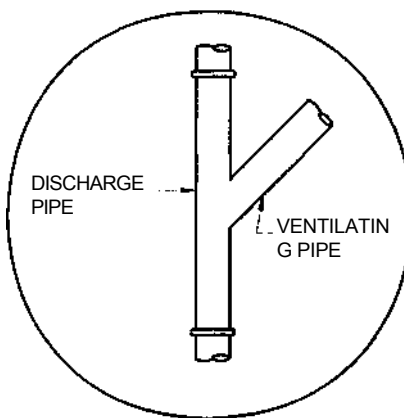


Figure L104.5A
Connections of Bath Waste to Stack

VENTILATION PIPES CONNECTING TO THE DISCHARGE STACK AT INTERMEDIATE LEVELS SHALL CONNECT IN A DOWNWARD DIRECTION 45° FROM THE VERTICAL



ON TOP FLOOR ONLY ABOVE HIGHEST FIXTURE BRANCH VENT FITTING TO BE REVERSE OF THAT SHOWN, i.e., USE INVERTED Y-BRANCH

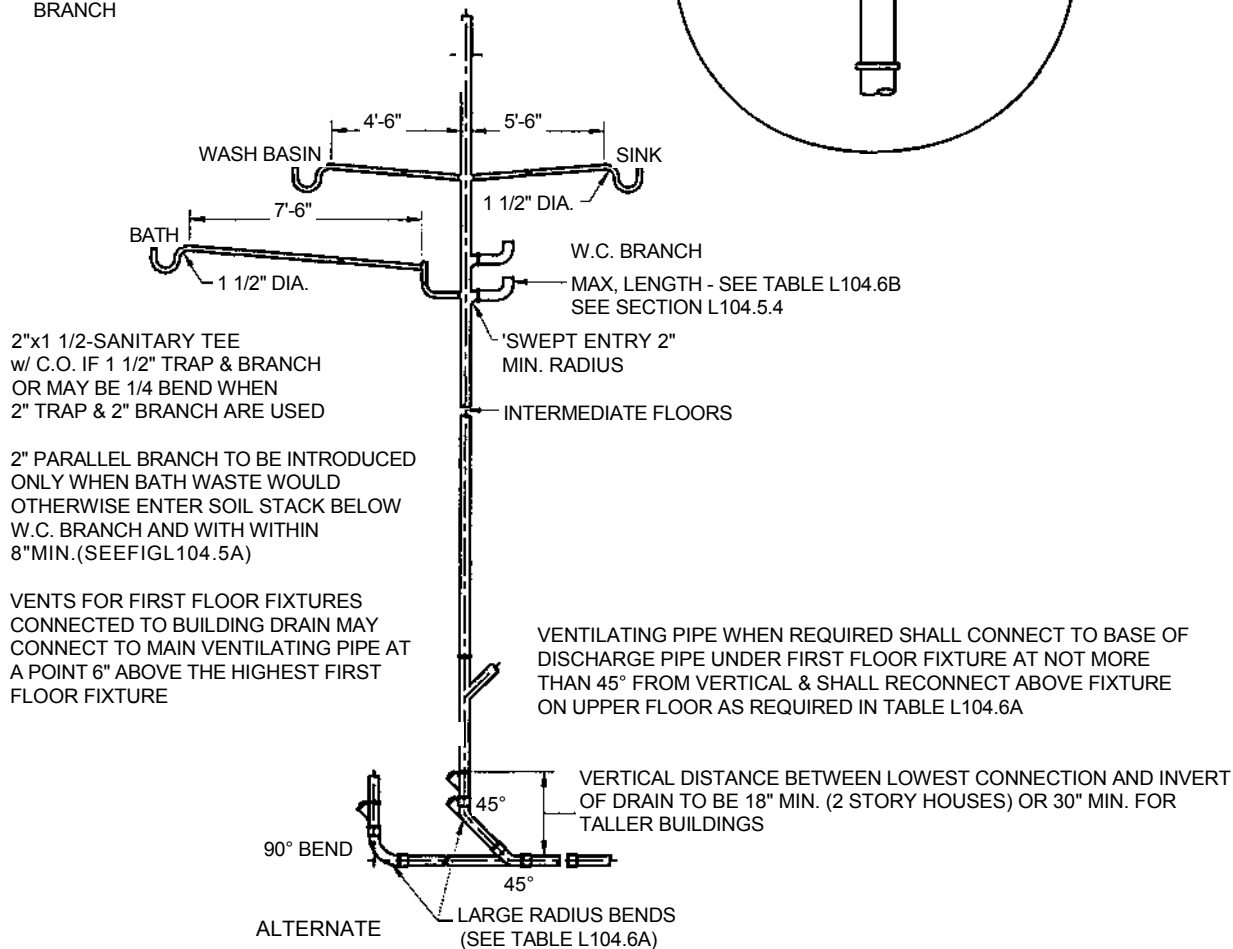


Figure L104.5B Main Features of Single Stack System

1. FOR DEPTH OF TRAP SEALS SEE SECTION L104.4
1. NO OFFSETS ARE PERMITTED BELOW THE CONNECTION OF THE TOPMOST FITTING OF THE STACK.
2. FALL OF BRANCH DISCHARGE PIPE VARIES WITH LENGTH.

L104.5.5 Pipe Capacities. Discharge unit values for plumbing fixtures are given in Table L104.5A. For other fixtures the discharge unit value shall be taken as that given in Table L104.5A for a fixture with the same diameter trap with a comparable use interval. Where other intervals are expected, the appropriate discharge unit value may be determined since the values given in Table L104.5A show that the discharge unit value is inversely proportional to the use interval, i.e., if the interval is doubled, then the discharge unit value is halved. The discharge unit values of all fixtures contributing to flow in a pipe shall be added and the appropriate pipe size (and fall) chosen from Table L104.5B for vertical stacks or Table L104.5C for the building drain or its horizontal branches.

L104.5.6 Waste Disposal Units. Special precautions are necessary where kitchen or food waste disposal units are connected to the discharge pipe system. The discharge pipe from such a unit shall connect directly to the main discharge pipe without intermediate connection with any other discharge pipe. Tubular traps shall always be used and any instructions as to installation given by the manufacturer shall be observed. To avoid hot grease being carried into discharge pipes and drains, where it might build up and cause blockage, waste disposal units shall always be automatically flushed with cold water in order to solidify grease before it enters the drainage system.

**Table L104.5A
Plumbing Fixture Discharge Unit Values**

Type Fixture	Intervals between use in minutes	Discharge unit values
Tank Type W.C.	20	15
Sink	25	8
Wash Basin	25	3
Bathtub	75	8
Shower Stall	75	4
Garbage Disposal	25	4
1 fixture group consisting of 1 W.C., 1 Sink, 1 Tub and 1 Lavatory		20

**Table L104.5B
Maximum Number of Discharge Units
Allowed on Vertical Stacks^{1,2}**

Nominal Internal Diameter of Pipe (in.)	Discharge Units
2	20 (No W.C.)
3	200 (No W.C.)
4	850
5	2700
6	6500

1 in = 25.4 mm

Notes:

1. The capacity of a vertical discharge pipe (stack) is limited by the need to preserve a large air core to prevent excessive pressure fluctuation. The flow capacity of a stack may therefore be less than that of a pipe of the same diameter laid at a steep fall.
2. Discharge pipes sized by this method give the minimum size necessary to carry the expected flow load. Separate ventilation pipes may be required (see L104.7). It may be worthwhile to consider oversizing the discharge pipes to reduce the ventilating pipework required.

**Table L104.5C
Maximum Number of Discharge Units
Connected to Building Drain or Building Sewer^{1*2}**

Nominal internal Diameter of pipe (in.)	Fall Per Foot (in.)		
	1/8	1/4	1/2
2	—	10	26
3	40	100	230
4	30	430	1,050
5	780	1,500	3,000
6	2,000	3,500	7,500

1 in = 25.4 mm

Notes:

1. Discharge pipes sized by this method give the minimum size necessary to carry the expected flow load. Separate ventilation pipes may be required (see L104.7). It may be worthwhile to consider oversizing the discharge pipes to reduce the ventilating pipework required.
2. Building sewer sizes start at 4 inches.

L104.6 Design of Pipe Systems for Dwellings

L104.6.1 General. In dwellings only, the choice and layout of fixtures and their waste pipes may follow the recommendations for simplified systems as provided in this section. Simplified systems for other types of buildings may be possible but are not provided for in this code.

L104.6.2 Design of Single Branches and Fittings

L104.6.2.1 Branch discharge waste pipes (fixture drains) serving plumbing fixtures shall have a uniform shallow fall and the inlet to the stack shall be of a sanitary pattern and have a sweep of not less than 1 inch (25.4 mm) radius. Any horizontal change of direction in a fixture drain shall be of long radius and vertical changes of direction are prohibited.

L104.6.2.2 Water closet branch inlets to the stack shall be swept in the direction of flow with a radius at the invert of not less than 2 inches (51 mm). Entries at 45 degrees (0.785 rad) from the vertical are considered equivalent.

L104.6.2.3 Detailed provisions for the design of single fixture branch pipes (fixture drains) and fittings are given in Table L104.6A and Table L104.6B.

Table L104.6A Design of Single Branches and Fittings

Component	Design Requirements	Possible Problem
Bend at foot of stack	Bend to be of "large radius", <i>i.e.</i> , 6-inch minimum root radius or, if adequate vertical distance is available, two "large radius" 45 bends are to be preferred. Vertical distance between lowest branch connection and invert of drain to be at least 18 inches for a two story house and 30 inches for taller dwellings. Where this distance cannot be achieved, ground floor fixtures shall be connected directly to the building drain and vented as provided for in other chapters of this code. See Figure L104.5B.	Back pressure at lowest branch, foaming of detergents
W.C. branch connection to stack	Water closet connections shall be swept in the direction of flow with radius at the invert of not less than 2 inches. Fittings in other materials shall have the same sweep as cast iron fittings. The length of unvented water closet is closet branches shall be limited by the diameter of the branch piping: 6 ft for 3-inch diameter, 10 ft for 4-inch diameter.	Induced siphonage at lower level in the stack when water closet is discharged
Lavatory waste 1 1/4-inch trap and 1 1/2-inch minimum waste pipe. Lavatories with 1 1/2-inch P.O. plugs may be installed as provided for sink waste.	"P" traps shall be used. The maximum fall of the waste pipe shall not exceed the hydraulic gradient of the pipe. For the maximum distance between the stack and trap weir see Table L104.5 B. Any bends on plan shall be of not less than 3-inch radius at the center line. Waste pipes longer than the recommended maximum length shall be vented. As an alternative, 2 inch diameter waste pipes may be used so long as the hydraulic gradient is not exceeded, but additional maintenance may be necessary to maintain the bore.	Self-siphonage
Bath waste 1 1/2-in. trap and 1 1/2-in. waste pipe	"P" traps shall be used (a 2-inch parallel branch, when required shall not be considered a violation of requirements of other sections of this code, when its vertical length does not exceed 12 1/2 inches, and the center line of the parallel branch is not more than 12 1/2 inches from the stack). Owing to the flat bottom of a bath, the trailing discharge normally refills the trap and the risk of self-siphonage is much reduced. Waste pipes 7 ft 6 in. long at a fall of 1/4 in./ft have been used successfully. Position of entry of bath waste into stack to be as shown in Figure L104.5 A.	Self-siphonage
Sink Waste 1 1/2-in trap and 1 1/2-in waste pipe	"P" traps shall be used. Owing to the flat bottom of a sink, the trailing discharge normally refills the trap and the risk of self-siphonage is much reduced. Fall of 1/4 in./ft shall be maintained. For maximum length, see Table L104.5B. A sink with 1 1/2-inch tail piece may be drained with 2-inch horizontal branch not exceeding 8 feet in length. When a 2-inch branch is used, the trap outlet shall connect to a 2 x 1 1/2 inches reducing fitting. An opening into the branch larger than 1 1/2 inches will not be permitted except for a cleanout.	Self-siphonage

1 in = 25.4 mm

Note: Where the length or fall of the discharge pipe serving a waste fixture is greater than the recommended maximum in this table, the discharge pipe shall preferably be vented (see L 104.7) or a larger diameter discharge pipe shall be used. This may have a maximum length of 10 ft.

**Table L104.6B
Distance From Trap Weir to Stack or
Other Ventilating Pipe**

Size of Fixture ¹ Drain (in.)	Distance Trap to Stack or Vent
Note 4	4 ft 6 in.
1 ½	5 ft 6 in. ²
2	7 ft 6 in. ³

1 in = 25.4 mm

Notes:

1. Minimum size.
2. Other than bath waste.
3. For bathtubs see Table L104.6A.
4. 1 ½-inch fixture drains required for lavatories with 1 ¼-inch traps.

L104.6.3 Design of Main Pipework

L104.6.3.1 Design details for stacks of various diameters are given below. The choice of design will depend on the space taken up by the pipes and the ease with which they can be accommodated in the building.

L104.6.3.2 An offset in the stack above the topmost connection to the stack has little effect on the performance of the system. Offsets below the topmost connection should be avoided lest extra ventilating pipes be necessary to maintain adequate water seals.

L104.6.4 3-Inch Stacks. 3-inch stacks in a single stack system are limited to fixtures other than water closets and to fixtures with maximum drain sizes of 2 inches.

L104.6.5 4-Inch Stacks. For details of ventilating pipes see Table L104.6C.

L104.6.6 5-Inch Stacks with No Vents (Single Stack System). Suitable for buildings up to 12 stories high where the stack serves one group of fixtures on each floor, or up to 10 stories high where the stack serves up to two groups of fixtures on each floor.

L104.6.7 6-Inch Stacks with No Vents (Single Stack System). Suitable for buildings up to at least 20 stories high with not more than two groups of fixtures on each floor.

**Table L104.6C
Ventilating Pipes Required for Various Loading Conditions
4-inch Discharge Stack**

Number of stories	Stack serving one group ¹ on each floor	Stack serving two groups ¹ on each floor
Flats ² , 1 to 5	No separate venting required	No separate venting required
6-11	2-inch vent stack connected to the discharge stack on alternate floors	2-inch vent stack connected to the discharge stack on alternate floors
12-15	2-inch vent stack connected to the discharge stack on each floor	2-inch vent stack connected to the discharge stack on each floor
16-20	2 ½-inch vent stack connected to the discharge stack on each floor	3-inch vent stack connected to the discharge stack on each floor
Maisonettes ³ , 1 to 4	Single stack system	Single stack system
5-8	Single stack system	2-inch vent stack connected to the discharge stack on alternate (bathroom) floors
9-15	2-inch vent stack connected to the discharge stack on alternate (bathroom) floors	2-inch vent stack connected to the discharge stack on alternate (bathroom) floors
16-20	2 ½-inch vent stack connected to the discharge stack on alternate (bathroom) floors	3-inch vent stack connected to the discharge stack on alternate (bathroom) floors

1 in = 25.4 mm

Notes:

1. Each group consists of a water closet, a bath, a basin and a sink. Where dwellings contain more fixtures it may be necessary to provide additional vents.
2. Each complete living unit is on one floor.
3. Each complete living unit occupies space on two floors, with baths on one floor of the unit.

L104.7 Ventilating Pipes

L104.7.1 General. The purpose of a ventilating pipe is to maintain equilibrium of pressure within the system and thus prevent the destruction of trap seals by siphonage or compression. It will also assist in preventing undue accumulation of foul air by facilitating air movement in the pipe system.

L104.7.2 Installation. Ventilating pipes shall be so installed that there is a continuous fall back into the discharge pipe system to prevent any possibility of a waterlock preventing free movement of air through the ventilating system and to minimize the risk of internal corrosion. Short turn fittings in the pipework shall be avoided.

L104.7.3 Branch Vents. Branch ventilating pipes may be connected to a main ventilating pipe or be carried upward either individually or in combination with one another. Such connections shall be above the flood level of the highest fixture served.

L104.7.4 Sizes. The diameter of a branch ventilating pipe or of a ventilating stack shall be as given in Table L 104.7. For extremely long ventilating stacks, a larger diameter pipe shall be used. (See Table L104.7, Note 1.)

L104.7.5 Arrangement. Branch ventilating pipe when required shall be connected to the individual fixture discharge pipe (fixture drain) not less than 3 inches (76 mm) from the crown weir of the trap. A fixture may be connected to the bottom of a fixture vent, or at the base of a main ventilating stack to assure its being kept clear.

L104.7.6 Purpose. The purpose of the ventilating pipes is to reduce the pressure fluctuations in the discharge stack by allowing air to enter the stack. Where venting is necessary, therefore, it is often convenient to do so by cross connecting the ventilating stack and the discharge stack directly, preferably above the highest fixtures as appropriate. To prevent cross flow into the ventilating stack, the branch ventilating pipe shall slope upward from the discharge stack at an angle of not less than 45 degrees (0.785 rad) until it reaches a point 6 inches (152 mm) above the flood level of the highest fixture serving the floor, at which point it may run at a horizontal angle until connecting with the vertical vent.

**Table L104.7 Branch
Ventilation Pipe or Ventilating Stack**

Diameter of branch discharge pipe or discharge stack, D (in.)	Diameter of ventilating pipe ¹
Smaller than 3	2/3 D
3 to 4 inclusive	2 in.
Larger than 4	1/2 D

1 in. = 25.4 mm

Notes:

1. When the vent length exceeds the length of the discharge stack, the vent shall be at least one pipe size larger than required in Table L104.7 except for individual fixture vents.

L104.7.7 Discharge Point. The outlet of every ventilating pipe system to the open air shall be at such a height and position as will effectively prevent the entry of foul air into the building (see 905).

L104.8 Pipe Chases and Enclosures, Etc.

Pipework enclosures, e.g., ducts, casings, etc., shall be of adequate size and shall have access provisions for maintenance, painting, testing and cleaning. They shall be constructed appropriately for fire resistance in accordance with requirements of the Standard Building Code.

L104.9 Choice of Materials

Materials shall conform to the applicable requirements of other sections and chapters of this code. Fittings used in the construction of single stack plumbing systems shall in no case be designed with inlet radii less than provided for in this section.

L104.10 Access to Interior of Pipework

Sufficient access shall be provided to enable all pipework to be tested and to provide reasonable access for cleaning and other necessary maintenance. All access points for clearing purposes shall be carefully sited to allow the entry of clearing apparatus or the insertion of testing apparatus and, where these are in ducts, consideration shall be given to the other services accommodated in the duct.

L104.11 Simultaneous Discharge

L104.11.1 The system of discharge pipes shall be capable of withstanding satisfactorily the effects of the probable maximum simultaneous discharge of fixtures which will occur in practice. The number of fixtures to be discharged together to simulate this effect is given in Table L104.11.

L104.11.2 For example, for a block of flats nine stories high with the stack serving one water closet, one lavatory, one sink and one bath of each floor, the test discharge is one water closet, one lavatory and one sink discharged simultaneously. Where the stack serves two water closets, two lavatories and two sinks on each floor, the test discharge is one water closet, one lavatory and two sinks. For the purpose of this test, baths are ignored as their use is spread over a period and consequently they do not add materially to the normal peak flow on which Table L104.11 is based. Where a stack serves baths only, the number to be discharged simultaneously in a discharge should be taken to be the same as for sinks.

L104.11.3 All traps shall be fully charged and the appropriate combination of fixtures discharged simultaneously. Trap seals shall be measured at the end of the discharge. The worst conditions occur when fixtures on the upper floor are discharged. A reasonable test, therefore, would be to discharge up to one water closet, one lavatory and one sink from the top of the building, distributing any additional fixtures along the stack.

**Table L104.11
Number of Fixtures to be Discharged
Simultaneously for Testing Stability of Trap Seals**

Number of fixtures of each kind on the stack	Water Closet	Wash Basin	Kitchen Sink	Misc. (ea. type)²
1-9	1	1	1	1
10-18	1	1	2	2
19-26	2	2	3	3
27-50	2	3	3	3
51-78	3	4	4	4
79-100	3	5	5	4

Notes:

1. When the miscellaneous fixture is a washer drain, omit one sink from test for each washer drain, except when washers only are connected to the stack.
2. For washing machine drains (no washers connected) test shall be conducted with hoses connected to both the hot and cold water supply outlets and with outlets fully opened. (This is in lieu of discharge from washers.) Test should be of 5 minutes duration, one-half of one cup of liquid detergent shall be dispensed into the washer drain pipe at approximately one-third cup per minute along with the water during the last 3 minutes of each test.



L105 SINGLE STACK PLUMBING SYSTEM

L105.1 Approval

The plumbing official shall require that necessary plans submitted under this section are signed by a Registered Professional Engineer.

L105.2 Tests

The single stack discharge and ventilating system shall be tested in accordance with 1203.3.

L105.3 Sovent Single Stack Plumbing System

Design and installation shall be in accordance with design criteria contained in CDA Handbook No. 402/0. Materials shall meet standards and specifications listed in Table 703 for drain, waste and vent pipe and fittings.

L106 APPENDIX REFERENCES

Additional provisions for Alternate Designed Systems are contained in Appendix J - Illustrations. These provisions are applicable only where specifically included in the body of the code sections or in the adopting ordinance.

