ORDINANCE NO. 12

ORDINANCE TO PROMOTE THE PUBLIC HEALTH, SAFETY AND GENERAL WELFARE BY PROVIDING FOR THE EXAMINATION, LICENSURE AND REGISTRATION OF PERSONS, FIRMS, OR CORPORATIONS ENGAGED OR ENGAGING IN THE BUSINESS OR WORK OF PLUMBING OR HOUSE DRAINAGE IN EAST NORRITON TOWNSHIP AND PRESCRIBING CERTAIN RULES, REGULATIONS AND REQUIREMENTS FOR THE CONSTRUCTION OR INSTALLATION OF PLUMBING, HOUSE DRAINAGE AND CESSPOOLS, AND PROVIDING FOR THE INSPECTION THEREOF AND IMPOSING LICENSES AND INSPECTION FEES AND FINES AND PENALTIES FOR THE VIOLATION THEREOF.

The Supervisors of East Norriton Township hereby enact and ordain as follows:

PLUMBING CODE

PART 1

REGISTRATION REQUIREMENTS AND ADMINISTRATION OF CODE

1. LICENSURE REQUIREMENT

After the passage of this ordinance it shall be unlawful for a person to carry on or work at the business of plumbing or building drainage in East Norriton Township until a certificate or license to engage in or work at said business shall have been granted said persons by the plumbing official and until they have registered as such in the office of the plumbing official of East Norriton Township; provided, however, that nothing in these regulations shall be construed to prevent the employment of registered journeymen plumbers or the working of apprentices under the direction of duly registered and licensed master plumbers.

2. REGISTRATION

a. Registration of Master Plumbers

(1) Master plumbers, duly registered and licensed, having a bona fide place of business in East Norriton Township at the time of passage of this ordinance could not be required to undergo an examination, and they shall be entitled to registration for the year 1951 and annually thereafter before the thirty-first day of December of each year.

(2) All master plumbers who do not have a bona fide place of business in East Norriton Township and who desire to engage in the business of plumbing and/or building drainage in the township shall apply to the plumbing official for registration. All such master plumbers so duly registered and licensed in any municipality heretofore by the plumbing official, shall be entitled to be registered without examination or qualification.

(3) Plumbers who are not registered or licensed as master plumbers in this township nor any other approved municipality and who desire to become a master plumber engaged in the business of plumbing and building drainage in East Norriton Township shall apply to the plumbing official for registration, and they will be required to go before the Board of Examiners to take an examination before receiving such registration.

An applicant for Master Plumber must have been a journeyman plumber for at least two years before taking the East Norriton Township's examination for Master Plumber.

b. Registration of Journeyman Plumbers

All journeyman plumbers duly registered and licensed as such shall not be required to undergo an examination to work in East Norriton Township and they shall be entitled to register for the current year, and annually thereafter before the thirty-first day of December of each year.

All plumbers who are not registered or licensed as journeyman plumbers in this township or any other approved municipality and who desire to become journeyman plumbers in East Norriton Township shall apply to the plumbing official for registration and they will be required to go before the Board of Examiners to take an examination before receiving such registration.

An applicant for Journeyman Plumber must have been a registered apprentice for at least four years before taking the East Norriton Township examination for Journeyman Plumber.

c. Registration of Apprentice Plumbers

All individuals working as apprentice plumbers for a master plumber who has his business or lives in the Township, shall apply to the Plumbing Official for registration.

d. Examination Fees

Fees for examinations given by the Board of Examiners shall be as follows:

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|---|---|
| Master Plumber's Examination | $20.00 |
| Journeyman Plumber's Examination | $10.00 |

Upon passing the examination applicants shall pay the registration fees specified below to receive their license.

e. Registration Fees

The annual registration fees for plumbers shall be as follows:

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|---|---|
| Master Plumber | $10.00 |
| Sewage Disposal System Contractor | $ 5.00 |
| Journeyman Plumber | 2.00 |
| Apprentice Plumber | 1.00 |

Non-Resident Plumber - Reciprocal Job Registration Fee

A non-resident plumber must pay the standard permit fees and file a Master Plumber's Bond; and he must also pay a Reciprocal Job Registration fee, equal in amount to that amount charged by the municipality in which he lives.

This fee is to be paid for each job which a non-resident plumber wishes to do in East Norriton. If a plumber lives in a municipality where no such Job Registration Fee is charged of non-resident plumbers, then he shall be charged no such fee to work in East Norriton Township.

Delinquent Registration Fees

All plumbers who fail to re-register for the following year by the thirty-first day of December shall be considered as delinquent, and they shall pay an additional delinquency fee as follows prior to re-registering:

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|---|---|
| Delinquent Master Plumber | $10.00 |
| Delinquent Journeyman Plumber | $ 2.00 |
| Delinquent Apprentice Plumber | $ 1.00 |

f. Expiration of Licenses

At the expiration of each calendar year said certificate or license shall be null and void. A licensed master plumber and/or journeyman plumber desiring to continue in or work at the business of plumbing and building drainage for the ensuing year shall, before the thirty-first day of December of each year, surrender the said certificate or re-register his, their, or its name or names, and business or home address, upon such forms as may be furnished by said East Norriton Township.

g. Registration for Institutions, etc.

A person certified as competent by the Board of Examiners of East Norriton Township may be registered as a master plumber for the care, alteration, or addition of the drainage system of a designated manufacturing or mercantile establishment, institution, hotel, etc., where it is necessary to have continual service of a master plumber, and receive a certificate of registry, but in no case shall such person be permitted to do any plumbing or drainage work in any building or buildings other than that for which he is registered.

h. Certificates May Be Revoked

The certificate of registry granted under this ordinance may be suspended or revoked by the plumbing official when a master plumber, firm, or corporation, or the registered representative thereof shall violate any of these rules and regulations, and shall refuse or neglect to make the necessary corrections to work not approved by the plumbing official within a reasonable time after written notification, or who shall permit the use of his, their, or its name by a person or persons for the purpose of obtaining a permit or permits to do plumbing and drainage work or to do any work under his or their license.

i. Master Plumbers' Bond

Any person registering with the Plumbing Official pursuant to Section 2, Paragraph a of this code shall, upon registration, furnish an annual bond with

corporate surety in the amount of Twenty-Five hundred Dollars ($2,500.00) payable to the Township, conditioned on compliance with this code and all rules and regulations of the Township. This bond shall be in addition to any and all other bonds required under the terms of this code and the rules and regulations adopted hereunder.

j. Misrepresentation

It shall be unlawful for any person who does not have a master plumber's license issued by this Board to engage in or to represent himself as engaged in the business of plumbing in this Township, or to use the words "Master Plumber," "Plumber," or "Plumbing" in any form of advertising or to display a sign containing these words or any of them in the Township.

5. EXAMINATIONS

a. Applications

All plumbers desiring to engage in the business or work of plumbing and building drainage in this township shall apply in writing to the plumbing official for a certificate or license. The plumbing official will examine the application and determine if the applicant is qualified for certification or if he will be required to take the examination. If, after proper examination made by the Board of Examiners of said township, said person or persons shall be found competent, the same shall be certified to the plumbing official of East Norriton Township, which shall thereupon issue a certificate or license to such persons, which shall for the period of one calender year, or fractional part thereof, enbible him or them to engage in or work at the business or work of plumbing and building drainage.

b. Register

A register of all such applicants and the license or certificates issued will be kept in the office of the plumbing official, which register will be open to the inspection of all persons interested therein.

c. Board of Examiners

The Board of Supervisors of East Norriton Township will appoint a Board of Examiners to consist of the township plumbing official and two competent resident master plumbers in no way connected with the township government, who shall examine all applicants for license requiring an examination under the provisions of this ordinance. The said Board of Examiners shall make all reasonable rules and regulations governing examinations, which shall be subject to the approval of the Board of Supervisors. The master plumbers on the board shall serve for a period of two years. Appointments shall be made so that the term of one master plumber shall end on December 31 of each year. The master plumbers acting on said board shall receive the sum of Ten Dollars ($10.00) per day for each day or part thereof they are actually employed.

The Board shall also appoint or select a competent resident master plumber who shall act as an alternate in the event that one of the regular master plumbers cannot attend an examination.

The plumbing official will act as secretary for the Board of Examiners and will maintain all records and proceedings of such board.

The Board of Examiners shall sit for the purpose of examination within ninety (90) days of the date of application requiring such examination.

An examination of any one member of a firm or corporation, or the superintendent or foreman thereof, shall be deemed sufficient.

## 4. PLUMBING BUSINESS REQUIREMENTS

### a. Place of Business

Every registered master plumber shall have a bona fide place of business and shall display on the front of his place of business and on his vehicle a sign "Registered Plumber" bearing the name of the person holding the registration, and shall give his business name, address, and telephone upon application for registration.

### b. Advertising

It shall be unlawful for any person, firm, or corporation to advertise themselves as registered master plumbers unless they hold a bona fide registration.

### c. Notice of Change of Place of Business

Every registered master plumber, firm, or corporation shall give immediate notice of any change in their place of business, and upon their retirement from business or upon their failure to continue to actively engage in the business of plumbing shall surrender their certificate of registry to the plumbing official.

## 5. SUBMISSION OF PLANS AND SPECIFICATIONS

### a. Plans and Specifications

(1) The drainage of all buildings, public or private, and all alterations extensions and additions to drainage systems shall be executed in accordance with plans and specifications approved in writing by the plumbing official.

No special equipment of any description for a hospital or institution of similar character, manufacturing establishment, chemical laboratory or other laboratory, or any place where special equipment is required which necessitates connections with the vent pipes or the general drainage system of a building shall be installed until plans of the proposed installation shall be submitted to and approved by the plumbing official.

(2) There shall be a separate plan placed on file in the office of the township for each building, public or private, or any addition thereto, or alterations thereof, accompanied by specifications describing the drainage of said buildings on the blanks prescribed and furnished for this purpose, showing the location, size and kind of pipes, traps, closets, and fixtures to be used, and must show partitions and method of ventilating water closet compartments. Plans must be drawn legibly in ink, and old work shall be shown in red ink. All applications for change in plans must be made in writing. In replacing and fixtures the master plumber shall file application for replacement before starting work.

Plans filed for the correction of any complaint must designate the approximate time for the completion thereof.

(3) Blanks for drawings and specifications for drainage will be furnished on application at the office of the plumbing official. One vertical drawing will be sufficient for a building where it can be made to show all the work; if the work is intricate and cannot be shown on one drawing, two or more shall be made.

A plot plan showing the location of building, together with the building sewer, walls, and all drainage piping of every description connected with the sanitary drainage system, shall in all cases be submitted.

When plans have been prepared by registered architects and engineers showing all drainage, venting, piping, and fixture location in a manner satisfactory to the plumbing official, these plans and specifications may be submitted for approval with the necessary application blank furnished for this purpose.

b. Approval of Plans and Specifications

A permit of approval will be issued in writing when a plan is deemed satisfactory by the plumbing official.

Under no circumstances whatever shall a verbal approval or permission given by anyone be considered a justification for any deviation from the approved plans, or the violation of any of the rules and regulations governing building drainage.

c. Plumbing Permit Fees

When a Plumbing permit is issued, based on the approved plans and specifications, the following fees will be charged:

| | |
|---|---|
| For removal or replacement of soil or waste piping either inside or outside | $ 3.00 |
| For each fixture or trap shown on the approved plans and specifications | 3.00 |
| For removal of each existing fixtures (this fee shall be charged whether or not the fixture or fixtures being removed are replaced with new or other fixtures at the same or other location) | 3.00 |

6. DUTIES AND POWERS OF PLUMBING OFFICIAL.

The plumbing official shall ascertain that all plumbers doing plumbing and drainage work in Bath Township are registered in accordance with this code to assure competent work.

He shall require, review, and check plans, specifications, descriptions and information submitted to him by any person applying for permission to do plumbing and drainage work, and upon approval thereof authorize the work to be done. He shall inspect all plumbing and drainage work authorized for the purpose of determining whether or not such work complies with the provisions of this code, approving or condemning the same in whole or in part as conditions may require, or he shall order such changes in workmanship and materials as will make the same conform thereto. All work shall be inspected prior to being covered or concealed. Inspections shall be made within forty-eight (48) hours of notice that the work is satisfactorily advanced for inspection.

Whenever the plumbing official shall find any building or premises in or upon which there is being maintained a plumbing or drainage system in a defective, leaking, or unsanitary condition, it shall be his duty to notify in writing the owner of the premises in which such condition exists to correct such condition within a specified time after receipt of notice. Should any person served by such notice fail or refuse to comply with the order contained therein within the time specified, or fail to commence in good faith to comply with such order, the plumbing official shall institute proceedings to force compliance with such order.

The plumbing official, or his representative, in the discharge of his duties shall have authority to enter any building, structure, or premises at any reasonable hour.

7. PENALTIES.

Any person or persons who shall fail to comply with any of the provisions of Part I of this Ordinance covering registration requirements and administration of code shall be liable upon conviction for first offense to a fine of not less than $25 nor exceeding $50 for each and every day he or they shall engage in or work at such business, without first having obtained proper certificates or license, and for a second offense, in a like manner, to a fine of not less than $50 nor exceeding $100 for each and every day, and for a third offense to a like fine or for a second offense, or to imprisonment in the County Jail for a period not exceeding 30 days, or both, at the discretion of the Justice of the Peace, together with costs of prosecution in each case.

# RULES AND REGULATIONS

## PART II

## REQUIREMENTS FOR THE CONSTRUCTION, REPAIR, REPLACEMENT, OR REMOVAL OF PLUMBING AND BUILDING DRAINAGE

### 1. INTENT AND BASIC PRINCIPLES

The basic principles of this code are given as basic goals in environmental sanitation worthy of accomplishment through properly designed, acceptably installed, and adequately maintained plumbing systems. Some of the details of plumbing construction must vary, but the basic sanitary and safety principles are the same. The results desired and necessary to protect the health of the people are the same everywhere. While the following principles are not all a legal part of the code, they merit serious study. Furthermore, as unforeseen situations arise which are not covered in the body of the code, the principles may serve to define the intent.

Principle No. 1. All premises intended for human habitation, occupancy, or use shall be provided with a supply of pure and wholesome water, neither connected with unsafe water supplies nor subject to the hazards of backflow or back-siphonage.

Principle No. 2. Plumbing fixtures, devices, and appurtenances shall be supplied with water in sufficient volume and at pressures adequate to enable them to function satisfactorily and without undue noise under all normal conditions of use.

Principle No. 3. Plumbing shall be designed and adjusted to use the minimum quantity of water consistent with proper performance and cleaning.

Principle No. 4. Devices for heating and storing water shall be designed and installed as to prevent dangers from explosion through overheating.

Principle No. 5. Every building having plumbing fixtures installed and intended for human habitation, occupancy, or use on premises abutting on a street, alley, or easement in which there is a public sewer shall have a connection with the sewer.

Principle No. 6. Each family dwelling unit on premises abutting on a sewer or with a private sewage-disposal system shall have at least one water closet and one kitchen-type sink. It is further recommended that a lavatory and bathtub or shower shall be installed to meet the basic requirements of sanitation and personal hygiene.

All other structures for human occupancy or use on premises abutting on a sewer or with a private sewage-disposal system shall have adequate sanitary facilities but in no case less than one water closet and one other fixture for cleansing purposes.

Principle No. 7. Plumbing fixtures shall be made of smooth, non-absorbent materials, shall be free from concealed fouling surfaces, and shall be located in ventilated enclosures.

Principle No. 8. The drainage system shall be designed, constructed, and maintained so as to guard against fouling, deposit of solids, and clogging, and with adequate cleanouts so arranged that the pipes may be readily cleaned.

Principle No. 9. The piping of the plumbing system shall be of durable material, free from defective workmanship and so designed and constructed as to give satisfactory service for its reasonable expected life.

Principle No. 10. Each fixture directly connected to the drainage system shall be equipped with a water-seal trap.

Principle No. 11. The drainage system shall be designed to provide an adequate circulation of air in all pipes with no danger of siphonage, aspiration, or forcing of trap seals under conditions of ordinary use.

Principle No. 12. Each vent terminal shall extend to the outer air and be so installed as to minimize the possibilities of clogging and the return of foul air to the building.

Principle No. 13. The plumbing system shall be subjected to such tests as will effectively disclose all leaks and defects in the work.

Principle No. 14. No substance which will clog the pipes, produce explosive mixtures, destroy the pipes or their joints, or interfere unduly with the sewage-disposal process shall be allowed to enter the building drainage system.

Principle No. 15. Proper protection shall be provided to prevent contamination of food, water, sterile goods, and similar materials by backflow of sewage. When necessary, the fixture, device, or appliance shall be connected indirectly with the building drainage system.

Principle No. 16. No water closet shall be located in a room or compartment which is not properly lighted and ventilated.

Principle No. 17. If water closets or other plumbing fixtures are installed in buildings where there is no sewer within a reasonable distance, suitable provision shall be made for disposing of the building sewage by some accepted method of sewage treatment and disposal.

Principle No. 18. Where a plumbing drainage system may be subjected to backflow of sewage, suitable provisions shall be made to prevent its overflow in the building.

Principle No. 19. Plumbing systems shall be maintained in a sanitary and serviceable condition. See definition "Plumbing."

Principle No. 20. All plumbing fixtures shall be so installed with regard to spacing as to be reasonably accessible for their intended use.

Principle No. 21. Plumbing shall be installed with due regard to preservation of the strength of structural members and prevention of damage to walls and other surfaces through fixture usage.

Principle No. 22. Sewage or other waste, from a plumbing system which may be deleterious to surface or subsurface water shall no be discharged into the ground or into any waterway unless it has first been rendered innocuous through subjection to some acceptable form of treatment.

2. DEFINITION OF TERMS

Board. The Plumbing Board of Examiners of East Norriton Township.

Branch. The branch of any system of piping is that part of the system which extends horizontally at a slight grade, with or without lateral or vertical extensions or vertical arms, from the main to receive fixture outlets not directly connected to the main.

Building Drain. The building drain is that part of the lowest horizontal piping of a building drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of any building and conveys the same to the building sewer beginning 10 feet outside the inner face of the building wall.

Building Sewer. The building sewer is that part of the horizontal piping of a building drainage system extending from the building drain 10 feet outside of the inner face of the building wall to its connection with the main sewer or sanitary sewage disposal system and conveying the drainage of but one building site.

Circuit Vent. A circuit vent is a branch vent that serves two or more traps extending from in front of the last fixture connection of a horizontal branch to the vent stack.

Cross Connection. A cross connection may be defined as a point in a plumbing system where the potable water supply may come in contact with a potential source of contamination.

Dead End. A dead end is a branch leading from a soil, waste, vent, building drain, or building sewer, which is terminated at a developed distance of 2 feet or more by means of a cap, plug, or other fitting not used for admitting water to the pipe.

Fixtures. See, "Plumbing Fixtures."

Lateral. The term "lateral" shall mean that portion of sewer line required to carry the sewage of any premises from the curb line to the main sewer.

Length. The developed length of a pipe is its length along the center line of pipe and fittings.

Local Ventilating Pipe. A local ventilating pipe is a pipe through which foul air is removed from a room or fixture.

Loop Vent. A loop vent is the same as a circuit vent except that it loops back and connects with a stack vent instead of a vent stack.

Main. The main of any system of horizontal, vertical, or continuous piping is that part of such system which receives the wastes, vent or back vents, from fixture outlets or traps, direct or through branch pipes.

Plumbing. Plumbing is the art of installing in buildings the pipes, fixtures, and other apparatus for bringing in the water supply and removing liquid and water-carried wastes.

Plumbing Fixtures. Plumbing fixtures are receptacles intended to receive discharge water, liquid, or water-carried wastes into a drainage system with which they are connected.

Plumbing System. The plumbing system of a building includes the water supply distributing pipes; the fixtures and fixture traps; the soil, waste, and vent pipes; the building drain and building sewer; the storm-water drainage, with their devices, appurtenances, and connections all within or adjacent to the building.

Size. The given caliber or size of pipe is for nominal internal diameter, except that brass tubing is measured by its outside diameter.

Soil Pipe. A soil pipe is any pipe which conveys the discharge of water closets, with or without the discharges from other fixtures, to the building drain.

Special Waste. See, "Waste Pipe and Special Waste."

Stack. Stack is a general term for any vertical line of soil waste, or vent piping.

Stack Vent. A stack vent is the extension of a soil or waste stack above the highest horizontal drain connected to the stack.

Trap. A trap is a fitting or device so constructed as to prevent the passage of air or gas through a pipe without materially affecting the flow of sewage or waste water through it.

Trap Seal. The trap seal is the vertical distance between the crown weir and the dip of the trap.

Vent Pipe. A vent pipe is any pipe provided to ventilate a house-drainage system and to prevent trap siphonage and back pressure.

Vent Stack. A vent stack is a vertical pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system.

Waste Pipe and Special Waste. A waste pipe is any pipe which receives the discharge of any fixture, except water closets, and conveys the same to the building drain, soil, or waste stacks. When such pipe does not connect directly with a building drain or soil stack, it is termed a special waste.

Water-Distribution Pipes. The water-distribution pipes are those which convey water from the service pipe to the plumbing fixtures.

Water-Service Pipe. The water-service pipe is the pipe from the water main to the building served.

Wet Vent. A wet vent is a vent which receives the discharge from wastes other than water closets.

Yoke Vent. A yoke vent is a pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stack.

3. GENERAL REGULATIONS

a. Grade of Horizontal Piping.

Horizontal drainage piping shall be run in practical alignment at a uniform grade, and at the slopes given hereinafter to maintain velocities in excess of two (2) feet per second.

In general, the slope for pipes three (3) inches in diameter and less should be ¼ inch fall per foot or greater, and for pipes four (4) inches or more in diameter shall be 1/8 inch fall per foot or greater unless otherwise approved by the plumbing official.

b. Change in Direction

Changes in direction in drainage piping shall be made by the appropriate use of 45 degree wyes, long-or short sweeps, sixth, eighth, or sixteenth bends, or by a combination of these or equivalent fittings. Single sanitary tees and quarter bends may be used in drainage lines only where the direction of flow is from the horizontal to the vertical.

c. Fittings and Connections.

No double hub, double T, or double sanitary T branch shall be used on soil or waste lines or vent lines. The use of saddle hubs and bands are prohibited. The drilling and tapping of house drains, waste or vent pipe shall be at the discretion of the plumbing inspector.

A heel or side-inlet quarter bend shall only be used as a vent or drain when the inlet is placed in a position to prevent stoppage.

No fitting, connection, device, or method of installation which obstructs or retards the flow of water, wastes, sewage, or air in the drainage or venting systems in an amount greater than the normal frictional resistance to flow, shall be used unless it is indicated as acceptable in this code or is approved by the administrative authority as having a desirable and acceptable function and is of ultimate benefit to the proper and continuing functioning of the plumbing system. The enlargement of a 3-inch closet bend or stub to 4 inches shall not be considered an obstruction.

d. Repairs and Alterations

In existing buildings or premises in which plumbing installations are to be altered, repaired, or renovated, deviations from the provisions of this code are permitted, provided such deviations are found to be necessary, conform to the intent of this code, and are approved in writing by the plumbing official.

Wherever compliance with all the provisions of this code fails to eliminate or alleviate a nuisance which may involve health or safety hazards, the owner or his agent shall install such additional plumbing or drainage equipment as may be found necessary by the plumbing official.

e. Sewer and Water Pipes

Water service pipes, or any underground water pipes, shall not be run or laid in the same trench as the building sewer or drainage piping.

f. Trenching, Excavation, and Backfill

Buried piping shall be supported throughout its entire length. Tunneling may be done in yards, courts, or driveways of any building site. When pipes are driven, the drive pipe shall be at least one size larger than the pipe to be laid.

All excavations required to be made for the installation of a building drainage system, or any part thereof within the walls of a building, shall be open trench work and shall be kept open until the piping has been inspected, tested and accepted. Mechanical means of excavation may be used.

Adequate precautions shall be taken to insure proper compactness of backfill around piping without damage to such piping.

Trenches shall be backfilled in thin layers to 12 inches above the top of the piping with clean earth which shall not contain stones, boulders, cinder-fill, or other materials which would damage or break the piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc., may then be used to complete backfill to grade. Fill shall be properly compacted.

g. Structural Safety

In the process of installing or repairing any part of a plumbing and drainage installation, the finished floors, walls, ceilings, tile work, or replacements shall be left in a safe structural condition as determined by the proper administrative authority.

h. Workmanship

Workmanship shall conform to generally accepted good practice.

i. Protection of Pipes

Pipes passing under or through walls shall be protected from breakage. Pipes passing through or under cinder or concrete or other corrosive material shall be protected against external corrosion by protective coating, wrapping, or other means which will prevent such corrosion.

No structural member shall be weakened or impaired by cutting, notching, or otherwise, except to the extent permitted by the proper administrative authority.

A soil or waste pipe, or building drain passing under a footing or through a foundation wall shall be provided with a relieving arch; or there shall be built into the masonry wall an iron pipe sleeve two pipe sizes greater than the pipe passing through or equivalent protection shall be provided as may be approved in writing by the administrative authority.

No water, soil, or waste pipe shall be installed or permitted outside of a building or in an exterior wall unless adequate provision is made to protect such from freezing where necessary.

j. Damage to Drainage System or Public Sewer

It shall be unlawful for any person to deposit by any means into the building drainage system or sewer any ashes; cinders; rags; inflammable, poisonous, or explosive liquids; gases; oils; grease; or any other material which would or could obstruct, damage, or overload such system or sewer.

k. Industrial Wastes

Wastes detrimental to the public sewer system or detrimental to the functioning of the sewage-treatment plant shall be treated and disposed as found necessary and directed by the administrative authority or other authority having jurisdiction.

l. Sleeves

Annular space between sleeves and pipes shall be filled or caulked with coal tar or asphaltum compound, lead, or other material found equally effective and approved as such by the administrative authority.

m. Ratproofing

All exterior openings provided for the passage of piping shall be properly sealed with snugly fitting collars of metal or other approved ratproof material securely fastened into place.

Interior openings through walls, floors, and ceilings shall be ratproofed as found necessary by the administrative authority.

n. Used or Second-hand Equipment

It shall be unlawful to purchase, sell, or install used appliances or material for plumbing installation unless it complies with the minimum standards set forth in this code.

o. Condemned Equipment

Any plumbing equipment condemned by the administrative authority because of wear, damage, defects, or sanitary hazards, shall not be reused for plumbing purposes.

p. Depth of Building Sewer and Water Service (Outside of Building)

Sewers and water-service piping shall be installed below the recorded frost penetration, but in no case less than two (2) feet six (6) inches for sewer and three (3) feet six (6) inches for water piping below grade.

q. Piping in Relation to Footings

No piping shall be laid parallel to footings or outside bearing walls closer than three (3) feet, except as may be approved by the plumbing official, upon a finding that a less distance is safe. Piping installed parallel to and deeper than footings or bearing walls shall be forty-five (45) degrees therefrom, except as may be approved by the plumbing official upon a finding that a greater angle is safe.

r. Connections to Plumbing System Required

All plumbing fixtures, drains, appurtenances, and appliances used to receive or discharge liquid wastes or sewage shall be connected properly to the drainage system of the building or premised, in accordance with the requirements of this code.

s. Sewer Required

Every building in which plumbing fixtures are installed shall have a connection to the public sewer except as provided in paragraph "t" of this section.

t. Individual or Private Sewage-Disposal System

When a public sewer is not available for use, sewage and drainage piping shall be connected to an individual sewage disposal system as specified under Part III of this code.

u. Location of Fixtures

Plumbing fixtures, except drinking fountains and single lavatories, shall be located in compartments or rooms provided with natural or mechanical ventilation. Piping, fixtures or equipment shall not be located in such a manner as to interfere with the normal operation of windows, doors, or other exit openings.

v. Piping Measurements

Except where otherwise specified in this code all measurements between pipes or between pipes and walls, etc., shall be made to the center lines of the pipes.

w. Venting

The drainage system shall be provided with a system of vent piping which will permit the admission or emission of air so that under no circumstance of normal or intended use shall the seal of any fixture trap be subject to a pressure differential of more than one (1) inch of water.

x. Ventilation Ducts

Ventilation ducts from washrooms and toilet rooms shall exhaust to the outer air or form an independent system.

y. Water Closet Connections

Three-inch lead bends and stubs may be used on water closets or similar connections, provided the inlet is dressed or expended to receive a 4-inch floor flange.

Three-inch iron bends may be used on water closets or similar connections, provided a 4-inch or 4 x 3-inch floor flange is used to receive the Picture horn.

Four by three-inch reducing bends are permitted.

z. Dead Ends

In the installation or removal of any part of a drainage system, dead ends shall be avoided except where necessary to extend a cleanout so as to be accessible.

aa. Protection of Water Tanks

Drainage piping shall not pass directly over water supply tanks or reservoirs, unless such tanks or reservoirs are tightly closed or suitably covered.

bb. Protection of Electrical Machinery

No water or drainage piping shall be located over electrical machinery or equipment unless adequate protection is provided against drip caused by condensation on the piping.

cc. Toilet Facilities for Workmen

Suitable toilet facilities shall be provided and maintained in a sanitary condition for the use of workmen during construction.

4. QUALITY AND WEIGHT OF MATERIALS

a. Standards of Quality

The materials listed in this section shall conform to the standards cited herein and shall be further governed by the requirements imposed in other sections of the code. All materials used shall be free from detrimental defects.

b. Specifications for Materials

The following standard specifications shall be used for the control of materials:

ASA--American Standards approved by the American Standards Association, 70 East 45th Street, New York 17, New York.

ASTM--Standards and Tenative Standards published by the American Society for Testing and Materials, 1916 Race Street, Philadelphia 3, Pennsylvania.

FS--Federal Specifications published by the Federal Specifications Board and sold by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

AWWA--Standards and Tenative Standards published by the American Water Works Association, 500 Fifth Avenue, New York 18, New York.

CS--Commercial Standards representing recorded voluntary recommendations of the trade, issued by the U. S. Department of Commerce and sold by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

The latest edition, together with any supplements or amendments of the above specifications or standards shall govern the control of materials.

c. Identification of Materials

Each length of pipe and each pipe fitting, trap, fixture, and device used in a plumbing system shall have cast, stamped or indelibly marked on it the maker's mark or name, the weight, type, and classes of the product, when such marking is required by the approved standard that applies.

d. Special Materials

(1) Lead. Sheet lead shall be not less than the following:
For safe pans--not less than 4 pounds per square foot; for flashings of vent terminals--not less than 3 pounds per square foot; lead bends and lead traps shall be not less than 1/8 inch wall thickness.

(2) Copper. Sheet copper shall be not less than the following:
Safe pans--12 ounces per square foot; vent-terminal flashings--8 ounces per square foot.

(3) Caulking ferrules shall be manufactured from red brass and shall be in accordance with the following:

| Pipe Sizes Inches | Inside Diameter (Inches) | Length Inches | Minimum Weight Each Lb. | Oz. |
|---|---|---|---|---|
| 2 | 2⅛ | 4½ | 1 | 0 |
| 3 | 3¼ | 4½ | 1 | 12 |
| 4 | 4¼ | 4½ | 2 | 8 |

(4). Soldering bushings shall be of red brass in accordance with the following:

| Pipe Sizes (Inches) | Minimum Weight Each Lb. | Oz. | Pipe Sizes | Minimum Weight Each Lb. | Oz. |
|---|---|---|---|---|---|
| 1¼ | 0 | 6 | 2½ | 1 | 6 |
| 1½ | 0 | 8 | 3 | 2 | 0 |
| 2 | 0 | 14 | 4 | 3 | 8 |

(5). Floor Flanges. Floor flanges for water closets or similar fixtures shall be not less than 1/8-inch thick for brass, 1/4-inch thick and not less than 2-inch caulking depth for cast iron or galvanized malleable iron. If of hard lead, they shall weigh not less than 1 pound 9 ounces and be composed of lead alloy with not less than 7.75 per cent antimony by weight.

Flanges shall be soldered to lead bends or shall be caulked, soldered, or screwed to other metal.

(6). Cleanouts. Cleanout plugs shall be of brass and shall conform to Federal Specification WW-P 401. Plugs may have raised square or countersunk heads. Countersunk heads should be used where raised heads may cause a hazard.

e. Approved Materials

The following table lists approved materials, together with the applicable controlling specification:

## CONTROLLING SPECIFICATION

| | ASA | ASTM | FS | Other Standards |
|---|---|---|---|---|
| Clay Sewer Pipe (Std. Strength).... | | C 13 | SS-P-361a | |
| Clay Sewer Pipe (Extra Strength)... | | C 200 | | |
| Concrete Sewer Pipe.. | | C 14 | SS-P-371 | |
| Cast-Iron Soil Pipe and Fittings. . . | A 40 | A 74 | WW-P-401 | |
| Cast-Iron Water Pipe.. | A 21 | A 377 | WW-P-421 | AWWA |
| Cast-Iron Screwed Pipe | A 40 | | WW-P-356 | |
| Cast-Iron Drainage Fittings ..... | | | WW-P-491a | |
| Cast Bronze Solder Drainage Fittings..... | B 16.23 | | | |
| Wrought Iron Pipe..... | B 36 | A 72 | WW-P-441a | |
| Steel Pipe (Galvanized). | G 8 | A 120 | WW-P-406 | |
| Malleable Iron Screwed Fittings..... | B 16.3 (150#) | | WW-P-521b | CS 7 |
| Brass Pipe. . . . . | | B43 | WW-P-351 | |
| Rough Brass Screwed Fittings..... | B 16.15 | | WW-P-461a | |
| Seamless Copper Tubing.. | | B 75 | WW-T-797 | |
| Copper Water Tube..... | H 23 | B 88 | WW-T-799a | |
| Solder Fittings (for Copper Water Tube). | B 16.18 1950 | | | |
| Flared Fittings (for Copper Water Tube). | B 16.18 1950 | | | |
| Lead Pipe..... | | | WW-P-325 | CS 95 |
| Lead Traps & Bends.... | | | WW-P-325 | CS 96 |
| Hard Lead Closet Flanges. | | | | LIA |
| Caulking Lead | | B 29 | QQ-L-156 (Grade A only) | CS 94 AWWA 7D-1 |

## CONTROLLING SPECIFICATIONS (CONT'D)

| | ASA | ASTM | FS | Other Standards |
|---|---|---|---|---|
| Sheet Lead (Min. Wt. 4 lb. per sq. ft.) | | | QQ-L-201 | |
| Sheet Brass | | B 36 | | |
| | | B 121 | QQ-B-611a | |
| Sheet Copper | | B 152 | QQ-C-501a | |
| Leaded Brass and Strip | | B 152 | QQ-C-501a | |
| Chem. Stoneware Pipe & Fittings | | | | (Manuf. Std.) |
| Chem. Porcelain Pipe & Fittings | | | | |
| Borosilicate Glass Pipe & Fittings | | | | |
| Galv. Pipe & Fittings | | A 120 | WW-P-406 Sect. D-7 | |
| Coal Tar Enamel Protective Coating | | | | AWWA 7A.6 |
| Soft Solder | | B 32 | QQ-S-571a | |
| Fixture Setting Comp. | | | HH-C-536 | |
| Valves, Bronze, Gate | | | WW-V-54 | |
| Valves, Cast-Iron, Gate | | | WW-V-58 | |
| Acid Resisting Cast-Iron Pipe & Fittings | | High silicon cast-iron bell and spigot type containing not less than 14.25% & not more than 15% silicon. | | |

f. Permitted Uses

In general, each section of the code give the type of material permitted for a given system, however, the following table of permitted uses is tabulated for easy reference for the more commonly used materials:

| | Bldg. Sewer | Bldg. Drain | Bldg. to Septic Tank | Bldg. Storm Sewer | Bldg. Storm Drain | Disposal Field | Drainage Stacks | Vent Stacks | Stack Vents | Drainage & Vent Branches | Conductor Stacks | Water Service Pipe | Water Supply-Hot & Cold | Corrosive Indust. WastePiping |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Asbestos Cement Sewer Pipe | X | | X | X | X | | | | | | | | | |
| Clay Sewer Pipe | X | | X | X | X | | | | | | | | | |
| Clay Perforated Pipe or Tile Drains | X | | | | | X | | | | | | | | |
| Cast Iron Soil Pipe & Fittings | X | X | X | X | X | | X | X | X | X | X | | | |
| Cast Iron Threaded Pipe | | | | | | | X | X | X | X | X | | | |
| Steel or Wrought Iron Pipe | | X | | | X | | X | X | X | X | X | X | X | |
| Cast Iron Drainage Fittings | | X | | | X | | X | | | X | X | | | |
| Malleable Fittings | | | | | | | | X | X | X | | | | |
| Copper Pipe I P S | | X | | | | | X | X | X | X | X | X | | |
| Copper Drainage Fittings | | X | | | | | X | | | X | X | | | |
| Copper Tube K L | | X | | | X | | X | X | X | X | X | X | X | |
| Copper Fittings I P S | | X | | | | | X | | | | | | | |
| Copper Tube D. W. & V. | | | | | | | X | X | X | X | X | | | |
| Copper Soldered Fittings | | X | | | X | | X | X | X | X | X | X | X | |
| Copper Flared Fittings | | | | | | | | | | | | X | X | |
| Lead Pipe | | | | | | | | | | X | | | | X |
| Glass & High Silicon Cast Iron | | X | | | | | X | X | X | X | | | | X |

5. JOINTS AND CONNECTIONS

a. Water and Air Tight Joints

All joints and connections mentioned under this article shall be made permanently gas and watertight.

b. Vitrified Pipe

All joints between vitrified clay and metals shall be made first with one strand of jute, of sufficient thickness to firmly hold spigot end and bell of pipe concentric; pack jute firmly in place, then fill joint with cement mortar, bevel to 45 degrees and trowel to a smooth finish. All other joints in vitrified pipe shall be pre-cast bituminous or hot poured.

c. Caulked Joints

All caulked joints shall be firmly packed with oakum or hemp, and shall be secured only with pure lead, not less than 1 inch deep, well caulked, and no paint, varnish, or putty will be permitted until after the joint is tested.

d. Screw Joints

All screw joints shall be American Standard screw joints, and all burrs or cuttings shall be removed.

e. Soldered or Sweat Joints

All soldered joints for tube shall be made with standard fittings. Surfaces to be soldered shall be cleaned bright. The joints shall be properly fluxed and made with approved solder.

f. Flared Joints

All flared joints for soft copper tube shall be made with fittings meeting approved standards. The tube shall be expanded with a proper flaring tool.

g. Cast Iron

Cast iron joints may be either caulked, screw joints or an approved neoprene joint made in the approved manner.

h. Wrought Iron, Steel, Copper, or Brass to Cast Iron

The joints may be either screwed or caulked joints made with approved soil pipe adaptor.

i. Lead Pipe

Joints in lead pipe or between lead pipe and brass or copper pipes, ferrules, soldering nipples, or traps, in all cases shall be full-wiped joints, with an exposed surface of the solder to each side of the joint of not less than three-quarters of an inch and a minimum thickness at the thickest part of the joint not less than three-eighths of an inch.

j. Slip Joints

Slip joints will be permitted only in trap seals or in the inlet side of the trap.

k. Roof Joints

The joint at the roof shall be made water tight by use of copper, lead, or iron plates or flashings.

l. Closet, Pedestal, urinal and Trap Standard Slop, Sink, Floor Connections

A brass floor connection shall be wiped or soldered to lead pipe, an iron floor connection shall be caulked to cast-iron pipe, or an iron floor connection caulked or screwed to wrought iron pipe, and the floor connection bolted, with an approved gasket or washer or compound between the earthenware and the connection. The floor flange shall be set on an approved firm base.

m. Increasers and Reducers

Where different sizes of drainage pipes or pipes and fittings are to be connected, proper sizes of standard increasers and reducers shall be employed. Reduction of size of drain pipes in the direction of flow is prohibited, except for a three-by-four water closet bend, and a three-by-four TY for water closets.

n. Prohibited Joints and Connections

Any fitting or connection which has an enlargement, chamber, or recess with a ledge shoulder or reduction of the pipe ahead in the direction of the flow on the outlet or drain side of any trap is prohibited. No sisson joints shall be used in vertical lines, either inside or outside.

o. New Materials

Any other method than that specified in this code, which the plumbing official approves as being equally efficient, may be permitted.

6. TRAPS AND CLEAN OUTS

a. Traps, Where Required

Each fixture, excepting those having integral traps, shall be separately trapped by water-seal trap placed as near to the fixture as possible. No fixture shall be double trapped.

b. Traps, Prohibited

No form of trap which depends for its seal upon the action of movable parts or concealed interior partitions shall be used for fixtures.

c. Water Seal

Each fixture trap shall have a water seal of not less than two inches and not more than four inches.

d. Trap Clean Outs

Each trap, except those in combination with fixtures in which the trap seal is plainly visible and accessible, shall be provided with an accessible brass trap screw of ample size, protected by the water seal.

e. Trap Levels and Protection

All traps shall be set true with respect to their water seals and protected from frost.

f. Traps, Kind and Minimum Size

Every trap shall be self-cleaning. Traps for bathtubs, lavatories, sinks, and other similar fixtures shall be of lead, brass, cast iron, or of malleable iron galvanized or porcelain enameled inside. Galvanized or porcelain-enameled traps shall be of extra heavy and shall have a full-bore smooth-interior waterway, with threads tapped out of solid metal, traps made of brass O.D. tubing shall be of no less than seventeen gauge. The minimum size (nominal inside diameter) of trap and waste branch for a given fixture shall be not less than that shown in the following table:

| Kind of Fixture | Size (In Inches) Trap and Branch |
|---|---|
| Bathtubs | 1½ |
| Bath, Shower, Stall* | 1½ |
| Bath, Sitz | 1½ |
| Bath, Foot | 1½ |
| Bidets | 1½ |
| Comb. Fixture Each Unit | 1½ |
| Drinking Fountains | 1½ |
| Fountain Cuspidors | 1½ |
| Floor Drains | 3 |
| Laundry Trays | 1½ |
| Sinks, Kitchen, Residence | 1½ |
| Sinks, Hotel or Public | 2 |
| Sinks, Large, Hotel or Public | 2 |
| Sinks, Small, Pantry or Bar | 1½ |
| Sinks, Dishwasher | 1½ |
| Sinks, Slop with Trap Combined | 3 |
| Sinks, Slop, Ordinary* | 2 |
| Urinals, Lip | 1½ |
| Urinals, Troughs | 2 |
| Urinals, Pedestal | 3 |
| Urinals, Stall | 2 |
| Washbasin | 1½ |
| Water Closet | 3 |

*The present tendency is toward an increase in the size of the trap and waste pipe for this fixture, in order to reduce the time required for emptying it.

g. Pipe Clean Outs

The bodies of clean-out ferrules shall be made of standard pipe sizes, conform in thickness to that required for pipe and fittings of the same metal, and extend not less than one-quarter inch above the hub. The clean out cap or plug shall be of heavy red brass not less than one-eighth inch thick and be provided with raised nut or recessed socket for removal.

(1) Where Required. A clean-out, easily accessible, shall be provided at or near the foot of each vertical waste or soil stack or wherever the plumbing inspector deems it necessary.

(2) Distance Apart. Clean-outs shall not be more than one hundred (100) feet apart in horizontal drainage lines. Clean-outs shall be installed at each change of direction of the building drain greater than a forty-five degree angle.

h. Grease Traps

When a grease trap is installed it shall be placed as near as practical to the fixture from which it receives the discharge and should have twice the capacity of the discharge, when not assisted by mechanical means of interception.

i. Grease Interceptors

A grease interceptor and separator shall be installed in the waste line leading from sinks, drains or other fixtures in the following establishments, when in the opinion of the plumbing official a hazard would exist: restaurants, hotel kitchens or bars, factory cafeterias or restaurants, clubs or other establishments where grease can be introduced to the drainage system in quantities that affect line stoppage or hinder sewage treatment.

Where installed, all grease, oil and sand interceptors and oil reclaimers shall be maintained by the operator of the establishment at his expense in continuously efficient operation at all times.

j. Hair Traps

Hair traps shall be provided for all barber shops and beauty parlors, except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the plumbing official and shall be located as to be readily and easily accessible for cleaning and inspection.

k. Sand Traps

Sand traps, silt and oil interceptors when installed should be so designed and placed as to be readily accessible for cleaning.

l. Interceptor Pit

Public garages and car wash stands shall install a grease, oil, gasoline, silt and sand interceptor, placed as to be readily accessible for cleaning and connection to the building sewer line.

The interceptor shall be water tight and be constructed of reinforced concrete, and be capable of carrying all anticipated superimposed loads. Concrete shall have a minimum twenty-eight day strength of 2500 p.s.i. It shall be at least seven and one-half feet in length, four feet in width, and six feet in height, and shall be equipped with two cast iron manhole frames and covers having a minimum diameter of eighteen inches.

The interceptor shall have two compartments of at least three feet by three feet by three feet each below the water line. The center partition shall extend nine inches above the water line and shall be provided with two five-inch diameter openings, eighteen inches center to center and placed eighteen inches above the floor.

There shall be a two inch difference in flow lines between the inlet and outlet of the interceptor. The outlet pipe shall be a sanitary tee extending to within eighteen inches of the bottom and to eight inches above the water line.

No fixture connection carrying sanitary sewage shall be permitted to flow through the interceptor.

m. Floor Drains

Floor drains in dwellings shall be prohibited. Floor drains for commercial use where required and approved shall conform to accepted standards. When subject to back flow or back pressure such drains shall beequipped with an adequate back water valve.

n. Back-Water Valves

Back-water valves shall have all bearing parts or balls of non-corrodible metal and be so constructed as to insure a positive mechanical seal and remain closed except when discharging wastes.

When required, back-water valves shall be installed in drainage lines wherever such drainage pipes are subject to backflow or back pressure. Such back-water valves shall be so located as to be readily accessible for inspection and cleaning.

o. Slip Joints and Unions

Slip joints and unions shall be used only in trap seals or on the inlet side of the trap, except that expansion joints may be permitted. Unions on the sewer side of the trap shall be ground faced and shall not be concealed or enclosed. Running thread nipples are prohibited.

## 7. WATER SUPPLY AND DISTRIBUTION

### a. Quality of Water

The quality of the water supply shall meet accepted standards of purity.

### b. Private Water Supply

Private water supply systems shall not be interconnected with any public water supply.

Where water supply is from an individual well system such system shall conform to the standards of the Pennsylvania Department of Health.

### c. House Water Lines

House water lines may be constructed with either galvanized wrought iron pipe, galvanized wrought steel pipe, iron pipe weight brass pipe, iron pipe weight copper pipe or Type L (soft or hard temper) copper water tube with manufacturer's name impressed in side of tube at linear intervals of approximately twelve inches.

### d. Underground Service Lines

All underground piping shall be Type K soft annealed copper tube with manufacturer's name impressed in side of tube at linear intervals of approximately twelve inches.

### e. Procedure in Sizing the Water Distribution System of a Building

The sizing of the water distribution system shall conform to good engineering practice. Design factors used to determine pipe sizes shall be adequate in the judgment of the administrative authority.

f. Size of Fixture Supply

The minimum size of a fixture supply pipe shall be as follows:

| Type of Fixture or Device | (Inch) Pipe Size |
|---|---|
| Bathtubs | 3/4 |
| Comb. Sink and Tray | 3/4 |
| Drinking Fountain | 3/4 |
| Dishwasher (Domestic) | 3/4 |
| Kitchen Sink, Resid. | 3/4 |
| Kitchen Sink, Comm. | 3/4 |
| Lavatory | 3/4 |
| Laundry Trays, 1, 2, or 3 Compartments | 3/4 |
| Shower (Single Head) | 3/4 |
| Sinks (Service, Slop) | 3/4 |
| Sinks, Flushing Rim | 3/4 |
| Urinal (Flush Tank) | 3/4 |
| Urinal (Dir. Flush Valve) | 3/4 |
| Water Closet (Tank Type) | 3/4 |
| Water Closet (Flush Valve Type) | 1 |
| Hose Bibbs | 3/4 |
| Wall Hydrant | 3/4 |

For fixtures not listed, the minimum supply branch may be made the same as for a comparable fixture.

g. Distribution

The water supply shall be distributed through a piping system entirely independent of any piping system. Water distribution systems within the building shall be sized to provide adequate water at each fixture.

h. Water Service

The water service pipe of any building shall be of sufficient size to permit a continuous ample flow of water on all floors at a given time, and in no case shall be less than 3/4-inch nominal diameter.

i. Water Supply to Fixtures

All plumbing fixtures shall be provided with a sufficient supply of water for flushing to keep them in a sanitary condition. Every water closet or pedestal urinal shall be flushed by means of an approved tank or flush valve of at least four gallons flushing capacity for water closets and at least two gallons for urinals, and shall be adjusted to prevent the waste of water. The flush pipe for water closet flush tanks shall not be less than 1½ inches in diameter, and the water from flush tanks shall be used for no other purpose.

No water closet or urinal bowl shall be supplied directly for a water supply system through a flushometer or other valve unless such valve is set above the water closet or urinal in a manner such as to prevent any possibility of polluting the water supply; flushometer shall be equipped with an approved vacuum breaker installed on the discharge side of the flushing valve at least four inches above the overflow rim of the bowl.

No plumbing fixture, device, or construction shall be installed which will provide a cross connection between a distributing system of water for drinking and domestic purposes and a drainage system, soil, or waste pipe so as to permit or make possible the backflow of sewage or waste into the water supply system.

j. Water Backflow

Every potable water outlet shall be protected from backflow, preferably by having the outlet end from which the water flows spaced a distance from the flood level rim of the receptacle into which the water flows sufficient to provide a "minimum required air gap" as defined in the American Standard for Air Gaps in Plumbing Systems (ASA A40.4). Where it is not possible to provide a minimum air gap, then the fixture shall be equipped with an accessibly located backflow preventer, complying with American Standard Back Flow Preventers in Plumbing Systems (ASA A40.6), installed between the control valve and the fixture or outlet.

Where it is not possible to provide a minimum air gap or backflow preventer, as may be the case in connections to cooling jackets, condensers, or other industrial or special appliances, then the governing authority shall require a separate tank supply or such other means of protection as may be practicable and desirable.

k. Relief Valves

Automatic temperature and pressure relief valves shall be installed for all equipment used for heating or storage of hot water.

Temperature relief valves shall comply with the construction requirements of American Standards Association Standard (ASA Z 21.22) and have the capacity to prevent water temperature from exceeding 210 degrees.

Pressure relief valves shall comply with the construction requirements of American Standards Association (ASA Z21.22) and shall have the capacity to prevent a pressure rise in excess of 10% of the set opening pressure. They shall be set at a pressure such that the maximum pressure of the unit will not be exceeded.

l. Pumps and Hydrants

All pumps and hydrants shall be protected from surface water and contamination.

## 8. HANGERS AND SUPPORTS

a. Security

Vertical piping shall be secured at sufficiently close intervals to keep the pipe in alignment and carry the weight of the pipe and contents. Piping shall also be supported at the base of the stack.

b. Horizontal Piping

Horizontal piping shall be supported at points sufficiently close to keep it in alignment and prevent sagging, but at intervals not exceeding eight feet.

c. Expansion

Provision for expansion shall be made as necessary.

d. Pipe Hangers

Hangers shall be made of suitable material of adequate strength and shall be securely attached to the building construction without the use of wooden plugs.

e. Underground Piping

Buried piping shall be supported throughout its entire length and in such a manner that undue strees on pipe and joints will be prevented.

## 9. PLUMBING FIXTURES

a. Materials

All receptacles used as water closets, urinals, or otherwise for the disposal of human excreta, shall be vitrified earthenware or cast iron enameled on the inside.

b. How Installed

All plumbing fixtures shall be installed free and open in a manner to afford access for cleaning. Where practical, all pipes from fixtures shall be run to the wall.

c. Water Closet Bowls

Water closet bowls and traps shall be made in one piece and of such form as to hold sufficient quantity of water, when filled to the trap overflow, to prevent fouling of surfaces, and shall be provided with integral flushing rims constructed so as to flush the entire interior of the bowl.

d. Off the Floor Plumbing Fixtures

The water closet, lavatory, and both men's and women's urinals in all public or commercial buildings, rest rooms, in service stations, restaurants, cafeterias and similar establishments shall be supported entirely off the floor without stress or strain on the wall.

e. Floors and Walls

Floors and sidewalls of the toilet rooms to a distance of four (4) feet above the floor shall be of a material impervious to moisture.

f. Frost-proof Closets--Where Permitted

Frost-proof closets may be installed only in compartments which have no direct connections with a building used for human habitation or occupancy. The soil pipe between the hopper and the trap shall be three inches in diameter and shall be of lead, or cast iron enameled on the inside.

g. Fixtures Prohibited

Fixed woodenwash trays or sinks shall not be installed in any building designed or used for human habitation. No new copper lined wooden bathtubs shall be installed and an old fixture of this class taken out shall not be reconnected. Pan and valve plunger, offset washer and other water closets having invisible seals or unventilated space, or walls not thoroughly washed at each flush shall not be used. Long hopper closets or similar appliances shall not hereafter be installed. No dry closet or chemical closet shall be installed in a dwelling. No outside toilets, privies or outhouses shall be permitted.

h. Floor Drains and Shower Drains

A floor drain or a shower drain shall be considered a fixture and provided with a strainer. Floor drains on sanitary drainage system will only be permitted when their use is proven to be absolutely necessary; never for the purpose of draining off surface water, ground water, seepage water, spring water, cooling water, condensate, air conditioning water and unpolluted water of any kind.

i. Fixture Strainers

All fixtures other than water closets and pedestal urinals shall be provided with fixed strong metallic strainers with outlet areas not less than that of the interior of the trap and waste pipe.

j. Fixture Overflow

The overflow pipe from a fixture shall be connected on the house or inlet side of the trap and so arranged that it may be readily and effectively cleaned.

k. Requirements for Places of Public Assembly

In all places of public assembly the requirements for toilets and wash basins shall be according to the following table:

| No. of People | Toilets | Wash Basins |
|---|---|---|
| 1-15 | 1 | 1 |
| 16-30 | 2 | 2 |
| 31-50 | 3 | 3 |

Each additional 25 people requires one additional toilet except in the Men's room where one urinal may be substituted in lieu of a toilet.

10. VENTILATION OF ROOMS AND FIXTURES

a. Location of Fixtures

No plumbing fixtures shall be located in any room which does not contain a window placed in an external wall or is not otherwise provided with proper ventilation.

b. Ventilating Pipe, How Connected

Ventilation pipes from fixtures and toilet rooms shall be separate and distinct and have no connection whatever with the other ventilating ducts or pipes in the building.

c. Ventilating Water Closet Compartments

Water closets must not be located in sleeping rooms nor in any room or compartment which has not direct communication with external air, either by window or air shaft of at least six square feet, or mechanical ventilation equivalent to six changes of air per hour.

When water closets are located adjacent to kitchens or dining rooms or any food preparation areas, an intervening vestibule of at least three feet square must be provided.

11. SOIL, WASTE, AND VENT PIPES

a. Material

(1) Underground Piping. All sanitary drains, when underground within buildings and to a point ten feet beyond the building wall, shall be extra heavy cast iron pipe, and shall be of lead or acid-resisting cast iron where necessary for corrosive industrial wastes. Short branch soil or waste connections may also be of lead pipe.

Building sewers shall be of cast iron, clay or asbestos cement in accordance with sewer authority requirements.

(2) Soil and waste piping above ground within building. Soil and waste piping for drainage systems within a building above ground shall be cast iron, galvanized steel or wrought iron, copper pipe, brass or lead. When necessary for corrosive industrial or laboratory wastes, the drains shall be lead, acid resisting cast iron, chemical stoneware, chemical porcelain, or heat-resistant, pre-stressed, borosilicate glass. Copper tubing may be used only where the pipes are not used to drain liquids injurious to copper.

b. Fixture Units

The following table shall be employed to determine the minimum diameters of fixture traps, the minimum diameters of waste pipes from single fixtures, and the fixture unit values to be assigned to fixtures.

In the classification of plumbing installations, Class 1 (private) shall apply to fixtures in residences and apartments and to fixtures in private bathrooms of hotels and similar installations where the fixtures are intended for the use of a family or an individual.

Class 2 (semi-public and public) shall apply to fixtures in office buildings, factories, dormitories, theatres, and similar installations where the fixtures are intended for the use of the occupants of the building and shall also apply to fixtures in general toilet rooms of schools, gymnasiums, hotels, railroad stations, public comfort stations, and other installations (whether pay or free) where a number of fixtures are installed so that their use is similarly unrestricted.

Fixture unit rating for all fixtures given a single rating shall apply to those fixtures in all classes of installations.

## MINIMUM TRAP DIAMETERS, MINIMUM DRAIN SIZES, AND FIXTURE UNIT VALUES

| Fixture & Class of Installation | Minimum Nominal Drain & Trap Diameter | Fixture Units |
|---|---|---|
| 1 Lavatory or Washbasin, Class 1 | 1¼ | 1 |
| 1 Lavatory or Washbasin, Class 2 | 1¼ | 2 |
| 1 Water Closet, Tank Operated | 3 | 6 |
| 1 Water Closet, Valve Operated | 3 | 8 |
| 1 Bathtub, Class 1 | 1½ | 3 |
| 1 Bathtub, Class 2 | 2 | 4 |
| 1 Shower Stall, Shower Head only, Class 1 | 1½ | 2 |
| 1 Shower Stall, Multiple Spray, Class 1 | 2 | 4 |
| 1 Shower Stall, Shower Head only, Class 2 | 2 | 3 |
| 1 Shower Stall, Multiple Spray, Class 2 | 3 | 6 |
| Gang Shower, for Each Shower Head | 3 | 5 |
| 1 Urinal, Lip, or Each 2' of Trough or Gutter | 1½ | 2 |
| 1 Urinal, Stall or Wall Hung with Tank or Flush Valve Supply | 2 | 4 |
| 1 Urinal, Pedestal or Blow Out | 3 | 5 |
| 1 Bathrm. Group, Consisting of 1 Lav., 1 Water Closet, & 1 Bathtub With or Without Overhead Shower Hd. or consisting of 1 Lav., 1 Water Closet, & 1 Shower Stall, Class 1 | | 8 |
| 1 Bathrm. Group, Consisting of 1 Lav., 1 Water Closet, 1 Bathtub & 1 Shower Stall in Same Bathrm., Cl. 1 | | 12 |
| 1 Sink, Resid. or Apt. Kitchen Sink, Dishwasher, Butler's or Pantry Sink, Class 1 | 1½ | 3 |
| 1 Sink, Hotel or Restaurant Pot Sink | 3 | 8 |

## MINIMUM TRAP DIAMETERS, MINIMUM DRAIN SIZES, AND FIXTURE UNIT VALUES

| Fixture and Class of Installation | Minimum Nominal Drain and Trap Diameter | Fixture Units |
|---|---|---|
| 1 Sink, Hotel or Restaurant Vegetable Sink..... | 2 | 6 |
| 1 Sink, Hotel or Restaurant Glass Sink..... | 1½ | 3 |
| 1 Sink, Hotel or Restaurant Silver Sink..... | 1½ | 3 |
| 1 Sink, Lunch Counter Bar Sink..... | 2 | 6 |
| 1 Sink, Soda Fountain Bar Sink..... | 1½ | 1.5 |
| 1 Sink, Ordinary Slop Sink ..... | 2 | 3 |
| 1 Sink, Siphon Jet Slop Sink, Flush Rim or Mop.. | 3 | 6 |
| 1 Sink, Bedpan Sink or Bedpan Washer..... | 3 | 6 |
| 1 Sink, Lab., Surgeon's Sink or Med. Sink..... | 1½ | 1.5 |
| 1 Sterilizer, Instrument, Utensil or Water..... | 1½ | 0.5 |
| 1 Sterilizer, Bedpan..... | 3 | 6 |
| 1 Laundry Tray..... | 1½ | 3 |
| 1 Combination Fixture..... | 1½ | 3 |
| 1 Foot Bath or Sitz Bath..... | 1½ | 2 |
| 1 Infant's or Baby's Slab Bath..... | 1½ | 0.5 |
| 1 Bidet..... | 1½ | 3 |
| 1 Drinking Fountain..... | 1½ | 0.5 |
| 1 Cuspidor, Fountain or Dental..... | 1½ | 0.5 |
| 1 Floor Drain, Ordinary..... | 2 | 3 |
| 1 Floor Drain, Flush Rim..... | 2 | 3 |
| 1 Floor Drain, Rec. Overflow from Tanks or Discharges from Unrated Fixtures Shall be rated on the Estimated Max. Flow, for Each Gal. Per Minute..... | | 2 |
| 1 Sewage Ejector, for each 25 Gal. P. Min. Disch. Cap. | | 50 |

A floor drain receiving regular or intermittent discharges from fixtures shall be counted as the total of the fixtures drained into it. Sump pumps ejecting storm or seepage water shall be counted as drained area, 600 square feet for each twenty-five gallons per minute discharge capacity.

c. Soil and Waste Stacks

Every building in which plumbing fixtures are installed shall have a soil or waste stack, or stacks, extending full size through the roof. Soil and waste stacks shall be as direct as possible and free from sharp bends and turns. Stacks which are above the highest fixture may not have a change of direction greater than 45 degrees. The required size of a soil or waste stack shall be determined from the distribution and total of all fixture units connected to the stack in accordance with the following table, except that no water closets shall discharge into a stack less than three inches in diameter. No more than one toilet and two small fixtures on a three inch stack shall be used.

MAXIMUM FIXTURE UNITS ON ONE STACK

| Diameter (Inches) | With "Sanitary T" Inlets | | With All 45 Y or "Combination Y & One-eighth Bend" Inlets | | Maximum Length Including Extension as Vent Feet |
|---|---|---|---|---|---|
| | In One Branch Interval | On Any One Stack | In One Branch Interval | On Any One Stack | |
| 1¼ | 1 | 1 | 1 | 1 | 50 |
| 1½ | 2 | 4 | 4 | 4 | 65 |
| 2 | 9 | 9 | 9 | 9 | 85 |
| 3 | 24 | 48 | 45 | 70 | 212 |
| 4 | 144 | 256 | 240 | 384 | 300 |
| 5 | 324 | 680 | 540 | 1,020 | 390 |
| 6 | 672 | 1,380 | 1,122 | 2,070 | 510 |
| 8 | 2,088 | 3,600 | 3,480 | 5,400 | 750 |

The term "branch interval" shall be interpreted to mean a vertical length of stack not less than eight feet within which a branch or branches are connected to a stack within any eight foot length shall not exceed the maximum permitted by the table in one "branch interval".

Soil pipes shall not be reduced from a larger to a smaller size, along the line of flow, under any circumstances.

d. Soil and Waste Stacks, Fixture Connections

All soil and waste stacks and branches shall be provided with correctly faced inlets for fixture connections.

MAXIMUM PERMISSIBLE LENGTH OF VENTS (IN FEET) FOR SOIL AND WASTE STACKS

| Diameters of Soil or Waste Stacks (Inches) | No. of Fixture Units | DIAMETER OF VENT ( IN INCHES): 1¼ | 1½ | 2 | 2½ | 3 | 4 | 5 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1¼ | 1 | 45 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 1½ | Up to 18 | 35 | 60 | ... | ... | ... | ... | ... | ... | ... | ... |
| 2 | Up to 18 | 30 | 50 | 90 | ... | ... | ... | ... | ... | ... | ... |
| 2½ | Up to 36 | 25 | 45 | 75 | 105 | ... | ... | ... | ... | ... | ... |
| 3 | 12 | ... | 34 | 120 | 180 | 212 | ... | ... | ... | ... | ... |
| 3 | 18 | ... | 18 | 70 | 180 | 212 | ... | ... | ... | ... | ... |
| 3 | 24 | ... | 12 | 50 | 130 | 212 | ... | ... | ... | ... | ... |
| 3 | 36 | ... | 8 | 35 | 93 | 212 | ... | ... | ... | ... | ... |
| 3 | 48 | ... | 48 | 7 | 32 | 212 | ... | ... | ... | ... | ... |
| 3 | 72 | ... | 6 | 25 | 65 | 212 | ... | ... | ... | ... | ... |
| 4 | 24 | ... | ... | 25 | 110 | 200 | 300 | 340 | ... | ... | ... |
| 4 | 48 | ... | ... | 16 | 65 | 115 | 300 | 340 | ... | ... | ... |
| 4 | 96 | ... | ... | 12 | 45 | 84 | 300 | 340 | ... | ... | ... |
| 4 | 144 | ... | ... | 9 | 36 | 72 | 300 | 340 | ... | ... | ... |
| 4 | 192 | ... | ... | 8 | 30 | 64 | 282 | 340 | ... | ... | ... |
| 4 | 264 | ... | ... | 7 | 20 | 56 | 245 | 340 | ... | ... | ... |
| 4 | 384 | ... | ... | 5 | 18 | 47 | 206 | 340 | ... | ... | ... |
| 5 | 72 | ... | ... | ... | 40 | 65 | 250 | 390 | 440 | ... | ... |
| 5 | 144 | ... | ... | ... | 30 | 47 | 180 | 390 | 440 | ... | ... |
| 5 | 288 | ... | ... | ... | 20 | 32 | 124 | 390 | 440 | ... | ... |
| 5 | 432 | ... | ... | ... | 16 | 24 | 94 | 320 | 440 | ... | ... |
| 5 | 720 | ... | ... | ... | 10 | 16 | 70 | 225 | 440 | ... | ... |
| 5 | 1,020 | ... | ... | ... | 8 | 13 | 58 | 180 | 440 | ... | ... |
| 6 | 144 | ... | ... | ... | ... | 27 | 108 | 340 | 510 | 630 | ... |
| 6 | 288 | ... | ... | ... | ... | 15 | 70 | 220 | 510 | 630 | ... |
| 6 | 576 | ... | ... | ... | ... | 10 | 43 | 150 | 425 | 630 | ... |
| 6 | 864 | ... | ... | ... | ... | 7 | 33 | 125 | 320 | 630 | ... |
| 6 | 1,296 | ... | ... | ... | ... | 6 | 25 | 92 | 240 | 630 | ... |
| 6 | 2,070 | ... | ... | ... | ... | 4 | 21 | 75 | 186 | 630 | ... |
| 8 | 320 | ... | ... | ... | ... | ... | 42 | 144 | 400 | 750 | 900 |
| 8 | 640 | ... | ... | ... | ... | ... | 30 | 86 | 260 | 750 | 900 |
| 8 | 960 | ... | ... | ... | ... | ... | 22 | 60 | 190 | 750 | 900 |
| 8 | 1,600 | ... | ... | ... | ... | ... | 16 | 40 | 120 | 525 | 900 |
| 8 | 2,500 | ... | ... | ... | ... | ... | 12 | 28 | 90 | 370 | 900 |
| 8 | 4,160 | ... | ... | ... | ... | ... | 7 | 22 | 62 | 252 | 840 |
| 8 | 5,400 | ... | ... | ... | ... | ... | 5 | 17 | 52 | 212 | 705 |

e. Changing Soil and Vent Pipes

In existing buildings where the soil or waste vent pipe is not extended undiminished through or above the roof, or where there is a sheet metal soil or waste vent pipe, and is changed or replaced, a soil or waste vent pipe of the size and material prescribed for new work shall be installed.

f. Prohibited Connections

No soil or waste vent, circuit or loop vent above the highest installed fixture on the branch or main shall thereafter be used as a soil or waste pipe.

g. Roof extensions

All roof extensions of soil and waste stacks shall be run full size at least two feet above the roof, and when the roof is used for other purposes than weather protection such extension shall not be less than five feet above the roof.

h. Terminals

The roof terminal of any stack or vent, if within twelve feet of any door, window, scuttle, or air shaft, shall extend at least three feet above the same.

i. Terminals adjoining High Buildings.

No soil, waste, or vent pipe extension of any new or existing building shall be run or placed on the outside of a wall, but shall be carried up in the inside to the roof.

In the event that a new building is built higher than an existing building, the owner of the new building shall not locate windows within twelve feet of any existing vent stack on the lower building unless the owner of such new building shall defray the expenses or shall make such alteration to the lower building to conform with Paragraph "h" above.

It shall be the duty of the owner of the lower or existing building to make such alteration therein upon the receipt in advance of money or security therefor, sufficient for the purpose, from the owner of the new or higher building; or to permit, at the election of the owner of the new or higher building, the making of such alteration by the owner of said new or higher building.

j. Traps Protected, Vents

Every fixture, except hereinafter provided in this section shall be protected against siphonage and back pressure, and air circulation assured by means of a soil or waste stack vent, a continuous waste or soil vent, or a loop or circuit vent. No crown vent shall be installed.

Water closets placed within five feet and other fixtures placed within twelve feet of the soil or waste stack need not be back-vented, providing, other fixtures not to exceed twice the number of water closets may discharge into the lines specified for soil pipes, without increasing their size. The vertical soil pipes must extend full size as direct as possible from the basement to a point at least two feet above the roof. Any branch line with two or more fixtures shall be vented. When a building is forty feet or less in height, a three inch vertical soil pipe may be used for one water closet and two other fixtures, each of which shall not exceed two inches in diameter.

k. Multiple Story Buildings

Plumbing in buildings exceeding forty feet in height shall incorporate special venting of the lower fixture groups as noted below.

Soil and waste stacks in buildings having more than ten branch intervals shall be provided with a relief vent at each tenth interval installed, beginning with the top floor. The size of the relief vent shall be equal to the size of the vent stack to which it connects. The lower end of each relief vent shall connect to the soil or waste stack through a wye below the horizontal branch serving the floor, and the upper end shall connect to the vent stack through a wye not less than three feet above the floor level.

l. Distance of Vent from Fixtures

No water closet shall be placed more than five feet and no other fixture shall be placed more than twelve feet, horizontal developed length, from its vent. The distance shall be measured along the central line of the waste or soil pipe from the vertical inlet of the trap to the vent opening

m. Main Vents to Connect at Base

All main vents or vent stacks shall connect full size at their base to the main soil or waste pipe at or below the lowest fixture branch and shall extend undiminished in size above the roof or shall be reconnected with the main soil or waste vent at least three feet above the highest fixture branch.

n. Vents, Required Sizes

The required size of main vents or vent stacks shall be determined from the size of the soil or waste stack vented, the total number of fixture units drained into it, and the developed length of the vent, in accordance with the following table, interpolating when necessary between permissible lengths of vent given in the table:

o. Branch and Individual Vents

No vents shall be less than 1¼-inches in diameter. For 1¼-and 1½-inch wastes the vent shall be of the same diameter as the waste pipe, and in no case shall a branch or main vent have a diameter less than one-half that of the soil or waste pipe served, and in no case shall the length of a branch vent of given diameter exceed the maximum length permitted for the main vent serving the same size soil or vent stack.

p. Vent Pipe Grades and Connections

All vent and branch pipes shall be free from drops or sags and be sloped and connected so as to fall back to the soil or waste pipe by gravity. Where vent pipes connect to a horizontal soil or waste pipe, the vent branch shall be taken off above the center line of the pipe, and the vent pipe must rise vertically or at an angle of forty-five degrees to the vertical to a point six inches above the fixture it is venting before offsetting horizontally or connecting to the branch, main waste, or soil vent.

q. Circuit and Loop Vents

A circuit or loop vent will be permitted as follows: A branch soil or waste pipe to which two and not more than eight water closets, pedestal urinals, trap standard slop sinks, or shower stalls are connected in the series may be vented by a circuit or loop vent, which shall be taken off in front of the last fixture connection. Where fixtures discharge above such branch, each branch shall be provided with a relief one-half the diameter of the soil or waste stack, taken off in front of the first fixture connection.

r. Vents Not Required

No vents shall be required on a down spout or rain leader trap, a backwater trap, or on a floor drain provided the floor drain branches into the house drain on the sewer side at a distance of five feet or more from the base of the stack.

Where bathtubs or water closets or other fixtures are located on opposite sides of a wall or partition or directly adjacent to each other within the prescribed distance, such fixtures may have a common soil or waste pipe and common vent.

12. BUILDING DRAINS AND SEWERS

a. Independent System

The drainage and plumbing system of each new building and of new work installed in an existing building shall be separate from and independent of that of any other building, and every building shall have an independent connection with a public or private sewer when available.

b. Old Building Sewers and Drains

Old building sewers and drains may be used in connection with new buildings or new plumbing only when they are found, on examination and test, to conform in all respects to the requirements governing new sewers or drains, as prescribed in these rules. If the old work is found defective, the inspector shall notify the owner to make the necessary changes to conform with this code.

c. Excavations

Each system of piping shall be laid in a separate trench, provided that drainage trenches may be benched not less than eighteen inches for lighter piping, if not in violation of any township regulation prescribed for their installation. Where a double system of drainage is installed, the sanitary and surface building sewers or drains may be laid side by side in one trench.

Tunneling for distances not greater than six feet is permissible in yards, courts, or driveways of any building site. When pipes are driven, the pipe shall be at least one size larger than pipe to be laid.

All excavations required to be made for the installation of an building drainage system, or any part thereof within the walls of a building, shall be open trench work. All such trenches and tunnels shall be kept open until the piping has been inspected, tested, and approved.

d. Material

Materials shall be as specified under Section 11. a.

e. Size of Building Sewers, Building Drains, and Horizontal Branches

The required size of a sanitary building sewer, sanitary building drain, or branch of the sanitary building drain not receiving the discharge from fixtures on the same floor or level as the branch, shall be determined in accordance with the following table:

## HOUSE DRAINS AND HOUSE SEWERS (SANITARY ONLY)

| Diameter of Pipes | Maximum No. of Fixture Units For 1/8-Inch Fall Per Foot | 1/4-Inch Fall Per Foot | 1/2-inch Fall Per Foot |
|---|---|---|---|
| 1¼ inches | 1 | 1 | 1 |
| 1½ inches | 2 | 2.5 | 3.5 |
| 2 inches | 7 | 9 | 12 |
| 2½ inches* | 17 | 21 | 27 |
| 3 inches ( no water closets) | 33 | 45 | 72 |
| 3 inches ( no more than one water closet) | 27 | 36 | 48 |
| 4 inches | 114 | 150 | 210 |
| 5 inches | 270 | 370 | 540 |
| 6 inches | 510 | 720 | 1,050 |
| 8 inches | 1,290 | 1,840 | 2,640 |
| 10 inches | 2,520 | 3,600 | 5,250 |
| 12 inches | 4,390 | 6,300 | 9,300 |
| 15 inches | 8,300 | 11,600 | 16,800 |

* No water closet shall discharge into a drain less than three inches in diameter, and no main building drain or building sewer receiving discharges from water closets shall be less than four inches in diameter.

The required size of a sloping sanitary drain receiving the discharge from fixtures on the same floor or level as the drain (termed a horizontal branch) shall be determined in accordance with the following table:

HORIZONTAL BRANCHES (SANITARY ONLY)

| Diameter of Pipe | Maximum No of Fixture Units for 1/8-Inch Fall Per Foot | 1/4-Inch Fall Per Foot | 1/2-Inch Fall Per Foot |
|---|---|---|---|
| 1¼ inches | 1 | 1 | 1 |
| 1½ inches | 2 | 2 | 3 |
| 2 inches* | 5 | 6 | 9 |
| 2½ inches* | 12 | 15 | 18 |
| 3 inches (no water closets) | 24 | 27 | 36 |
| 3 inches (no more than one water closet) | 15 | 18 | 21 |
| 4 inches | 84 | 96 | 114 |
| 5 inches | 180 | 234 | 280 |
| 6 inches | 330 | 440 | 580 |
| 8 inches | 870 | 1,150 | 1,680 |
| 10 inches | 1,740 | 2,500 | 3,600 |
| 12 inches | 3,000 | 4,200 | 6,500 |
| 15 inches | 6,000 | 8,500 | 13,500 |

*No water closet shall discharge into a drain less than three inches in diameter.

f. Building Sewer in Made Ground

The building sewer when laid in made or filled-in ground shall be of extra-heavy cast iron pipe. The condition and compaction of the soil shall be inspected and approved prior to placing pipe.

g. Drainage Below Sewer Level

In all buildings in which all or a part of the building drainage and plumbing system thereof lies below the level of the main sewer in the street, the sewage or house wastes shall be lifted automatically by artificial means with a device that shall be approved by the plumbing official to lift or pump a sufficient volume of fluids commensurate with the number of plumbing fixtures and type of residential, commercial or industrial usage.

h. Sumps and Receiving Tanks

All drains below the sewer level shall discharge into an approved sump or receiving tank properly vented and so located as to receive the sewage by gravity. The receiving tank shall be air tight and constructed of ¼" or 3/8" steel. The receiving tank shall be so placed as to expose the entire tank and connections thereto and be made accessible for inspection and repairs. In no case shall the receiving tank be cemented in the floor. From such receiving tank, the sewage shall be lifted and discharged automatically into the building drain on the sewer side of the house trap by means of compressed air or other approved means. A check valve and gate valve must be installed on the discharge pipe. No fixture which is so located that it can be discharged into a gravity system shall discharge into a sewerage ejector system.

i. Ejectors, Vented

A trap and fresh air inlet shall be provided on the inlet side of the receiving tank. The receiving tank shall be provided with a vent pipe not less than two inches in diameter, extending independently to and above the roof of the building, where such building is less than six stories in height. Where the building is more than six stories in height, or where there is more than one ejector, the vent pipe shall be not less than three inches in diameter and all unnecessary bends and offsets must be avoided. When the sewerage ejector is operated by compressed air the vent pipe shall be omitted.

j. Motors, Compressors, Etc.

All motors, air compressors, and air tanks shall be located where they are open for inspection and repair at all times. The air tanks shall be so proportioned as to be of equal cubical capacity to the ejectors connected therewith, in which there shall be maintained an air pressure of not less than two pounds for each foot of height the sewage is to be raised.

k. Ejectors for Subsoil Drainage

When subsoil catch basins are installed below the sewer level, automatic water pump shall be used. Any device raising subsoil water shall discharge into a properly trapped fixture then into a storm water drain.

13. STORM WATER DRAINS

a. Drainage of Yards, Areas and Roofs

All roofs and paved areas, yards, area drain, courts and courtyards may be drained into the storm water sewer system but not into the sewers intended for sewage only.

Where there is no storm water sewer accessible such connections may discharge into the street gutter, unless otherwise permitted by the proper authorities, however, in no case shall water from said sources drain over the surface of side walks nor be allowed to damage any neighbor's property.

b. Size of Gutters and Leaders

No gutter or inside leader shall be of less size than the following:

| AREA OF ROOF (IN SQ. FT.) | GUTTER Inches | LEADER Inches |
|---|---|---|
| Up to 90 | 3 | 1½ |
| 91 to 270 | 4 | 2 |
| 271 to 810 | 4 | 3 |
| 811 to 1,800 | 5 | 3 |
| 1,801 to 3,600 | 6 | 4 |
| 3,601 to 5,500 | 8 | 5 |
| 5,501 to 9,600 | 10 | 6 |

Outside leaders to the frost line shall be one size larger than required in the above table.

Gutters eight inches or over in width on new buildings shall be hung with wrought iron hangers of approved type.

The above sizes of rain leaders are based on diameter of circular rain leaders, and gutters based on semi-circular sheet metal gutters with the top dimension given and other shapes shall have the same sectional area.

c. Inside Conductors

When placed within the walls of any building or run in an inner or interior court or ventilating pipe shaft, all conductors or roof leaders shall be constructed of cast iron or of galvanized wrought iron or galvanized steel pipe.

d. Outside Conductors

When outside conductors or down spouts of sheet metal are connected with the storm water drain, they shall be so connected by means of not less than one length of cast iron pipe extending vertically at least one foot above the grade line.

Along public driveways without sidewalks they shall be protected by wheel guards, or enter the building through the wall at a forty-five degree slope at least twelve inches above the grade.

e. Defective Conductor Pipes

When an existing sheet metal conductor pipe within the walls of any building becomes defective, such conductor shall be replaced by one which conforms to this code.

f. Vent Connections with Conductors Prohibited

Conductor pipes shall not be used as soil, waste, or vent pipes, nor shall any soil, waste, or vent pipes be used as conductors.

g. Overflows

Overflow pipes from cisterns, supply tanks, expansion tanks, and drip pans shall not discharge into any sanitary drain.

h. Subsoil, Foundation, Clear Water, and Absorption Tile Drains

Where subsoil drains are placed under the cellar floor or used to encircle the outer walls of a building, the same shall be made of open jointed drain tile laid on four inches of crushed stone with additional crushed stone covering the pipe and shall be properly trapped and protected against back pressure by an automatic back pressure valve accessibly located before entering the storm water drain.

i. Subsoil Drains Below Storm Sewer Level

Subsoil drains below the storm sewer level shall discharge into a sump or receiving tank, the contents of which shall be automatically lifted and discharged into the storm water drain.

j. Size of Storm Systems Only

STORM SYSTEMS ONLY

| Diameter of Pipe (Inches) | MAXIMUM DRAINED ROOF AREA (Sq. Ft.)* Slope 1/8-Inch Fall to 1 Ft. | Slope ¼-Inch Fall to 1 Ft. | Slope ½-Inch Fall to 1 Ft. |
|---|---|---|---|
| 3 | 865 | 1,230 | 1,825 |
| 4 | 1,860 | 2,610 | 4,170 |
| 5 | 3,325 | 4,715 | 7,465 |
| 6 | 5,315 | 7,515 | 11,875 |
| 8 | 11,115 | 15,745 | 24,890 |
| 10 | 19,530 | 27,575 | 43,625 |
| 12 | 31,200 | 44,115 | 69,720 |
| 14 | 42,600 | 60,000 | 95,000 |

* The calculations in this table are based on a rate of rainfall of four inches per hour.

14. REFRIGERATOR, SAFE, AND SPECIAL WASTES

a. Fixtures Permitted to Connect

No waste pipe from a refrigerator or ice box, floor drain, or any other receptacle where food is stored shall connect directly with any house drain, soil, or waste pipe. Such waste pipe shall in all cases empty into an open receptacle connected, trapped, and vented, the same as other fixtures.

b. Refrigerator Wastes

Refrigerator waste pipes shall be not less than 1¼-inches for one opening; 1½-inches for three openings; and for four to twelve openings must be not less than two inches, and shall have at each opening a trap, and clean-out at angles, so arranged as properly to flush and clean pipe. Such waste pipes shall be continued not less than full size through the roof, except where such fixtures are located in the basement or first floor.

c. Overflow Pipes and Motor Exhausts

Pipes from a water supply tank or exhaust from a water lift shall not discharge into the sanitary drainage system. Such pipe may discharge into a storm water sewer, where one exists, but not onto the public highway.

d. Condensate and Blowoff Connections

(1) Steam exhaust from pressing machines, steam boiler blowoffs, or steam condensate drips shall not discharge directly to the atmosphere or be connected directly to the house drainage system.

(a) Cooling methods shall be provided which automatically cool the exhaust to 140 degrees F or less, if the waste is discharged to the house drainage system. If potable water is used with a direct connection to the cooling apparatus, a safe waste connection shall be used.

(2) If condensate or blowoff tank is used, the tank, shall be sized to a capacity of one-third the total water capacity of the vessel.

(a) The tank shall be vented through the roof with a galvanized wrought iron vent pipe not less than two inches in size.

(b) The overflow shall discharge into the house drain on the sewer side of the main trap, and such overflow and/or discharge pipe shall be galvanized wrought iron pipe; and not less than 1¼-inches in size.

(c) The overflow pipe shall be submerged inside the tank.

15. MAINTENANCE

a. Defective Fixtures

All installed fixtures found defective or in any unsanitary condition shall be repaired, renovated, replaced, or removed within thirty days upon the written notice from the proper administrative authorities.

b. Temporary Toilet Facilities

Suitable toilet facilities shall be provided for the use of workmen during the construction of any buildings. These toilet facilities shall be maintained in a sanitary condition.

16. INSPECTIONS AND TESTS

a. Inspections

All piping, traps and fixtures of a plumbing system shall be inspected by the proper administrative authority to insure compliance with all the requirements of this code and the installation and construction of the system in accordance with the approved plans and the permit.

b. Material and Labor for Tests

The equipment, material, power, and labor necessary for the inspection and test shall be furnished by the plumber.

c. System Tests

All Piping of a plumbing system shall be tested with water or air. After the plumbing fixtures have been set and their traps filled with water the entire drainage system may be submitted to a final air pressure test. The inspector may require the removal of any clean-outs to ascertain if the pressure exists.

d. Method of Testing

Under any test, the water or air pressure shall remain constant for not less than fifteen minutes without any further addition of water or air, and tests shall be applied as follows:

(1) Water Test. The water test may be applied to the drainage system in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest openings above the roof and the system filled with water to the point of overflow above the roof.

If the system is tested in sections, each opening shall be tightly plugged, except the highest opening of the section under test, and each section shall be filled with water; but no section shall be tested with less than a ten foot head of water.

In testing successive sections at least the upper ten feet of the next preceding section shall be re-tested, so that no joint or pipe in the building shall have been submitted to a test less then a ten foot head of water.

(2) Air Test. The air test shall be made by attaching the air compressor or test apparatus to any suitable opening and closing all other inlets and outlets to the system, then forcing the air into the system until there is a uniform pressure sufficient to balance a column of mercury ten inches in height or five pounds per square inch on the entire system. This pressure shall be maintained for fifteen minutes.

(3) Final Air Test. The air machine shall be connected to any suitable opening or outlet and an air pressure equivalent to one inch water column shall be applied and left standing at least fifteen minutes. If there is no leakage or forcing of trap seals indicated by the fluctuation of the drum, float, or water column, the system shall be deemed air-tight.

e. Order of Tests

The tests may be made separately, as follows:

(1) The building sewer and all its branches from the property line to the building drain.

(2) The building drain including all piping to a height of ten feet above the highest point in the building drain, except the exposed connection to fixtures.

(3) The soil, waste, vent, inside conductor, and drainage pipes which would be covered up before the building is enclosed or ready for completion. The tests required for (2) and (3) may be combined.

(4) The final test of the whole system.

(5) After each of the above tests has been made, and proved acceptable, the plumbing inspector may issue a written approval.

f. Covering of Work

No drainage or plumbing system or part thereof shall be covered until it has been inspected, tested, and approved as herein prescribed.

g. Uncovering of Work

If any house drainage or plumbing system or part thereof is covered before being regularly inspected, tested, and approved as herein prescribed, it shall be uncovered upon the direction of the plumbing official.

h. Defective Work

If inspection or test shows defects, such defective work or material shall be replaced within three days and inspection and test repeated.

i. Test of Water Distribution System

Upon the completion of the entire water distribution system it shall be tested and proved tight under a water pressure of not less than the maximum working pressure under which it is to be used.

j. Certificate of Approval

Upon the satisfactory completion and final test of the plumbing system a certificate of approval may be issued by the plumbing official. to the plumber. The plumber shall give such certificate to the owner.

k. Smoke Test of Defective Plumbing

The smoke test shall be used in testing the sanitary condition of the drainage or plumbing system of all buildings where there is reason to believe that it has become defective. In buildings condemned by the inspector because of unsanitary conditions of the plumbing system the alterations in such system shall not be considered as repairs but as new plumbing.

17. GARBAGE GRINDERS

a. Permit Application

No person shall install and use any domestic garbage grinder unless he shall have first obtained a permit from the Plumbing Official.

b. Permit Fee

This fee is $10.00/each commercial garbage grinder and $5.00/each residential garbage grinder.

c. Mechanical Requirements

Garbage, fruit, vegetable, animal or other solid kitchen waste materials may be admitted to the Township sanitary sewer system if they shall first be passed through an approved mechanically operated grinder so designed that it will:

(1) Operate with cold water flowing into the grinder and through the sink drain line during operation;

(2) Discharge wastes at a reasonably uniform rate, in fluid form which will flow readily through an approved trap, drain line or soil line in a manner which will prevent clogging or stoppage of the drain line;

(3) Be self-scouring, with no fouling surfaces to cause objectionable odors;

(4) Be free from cross-connection; and

(5) Be free from electrical or mechanical hazards; and

(6) Be of a three-wire type, the third wire acting as a ground wire.

(7) Have a Tee installed below the fixture for purposes of cleaning the drain and an approved trap according to Section 6. f of this Code.

18. PENALTIES

Any person or persons who shall fail to comply with any of the provisions of Part II of this Ordinance covering requirements for the construction, repair, replacement or removal of plumbing and building drainage shall be liable upon conviction for a first offense to a fine of not less than $25 nor more than $50 and for a second offense to a fine of not less than $50 nor exceeding $100 and for a third offense to a like fine as for a second offense or to imprisonment in a County Jail for a period not exceeding 30 days or both at the discretion of the Justice of the Peace, together with costs of prosecution in each case.

In all cases where a violation has occurred, the improper conditions or circumstances shall be corrected within a period of 30 days from such conviction and if not remedied or corrected within the said period of 30 days, the violation shall then be deemed to be a separate and additional offense after the expiration of the said 30 days.

PART III

All prosecutions for violations of this Ordinance shall be by summary proceeding brought in the name and for the use of East Norriton Township, before a Justice of the Peace of East Norriton Township if available, and, if not, before a Justice of the Peace of Montgomery County. All fines and penalties shall be paid to the Treasurer of East Norriton Township to apply to the general fund.

PART IV

This Ordinance shall become effective immediately.

PART V

All Ordinances or parts of Ordinances inconsistent with or in conflict with this Ordinance be and the same are hereby repealed.

PART VI

Any work now in process and for which permits have now been issued or licenses granted, shall be governed by the applicable Ordinances and Regulations in effect immediately prior to the enactment of this Ordinance, but shall be subject to any special terms and conditions as indicated on such permits or licenses.

PART VII

If any provisions, sentence, clause, section or part of this Ordinance or the application of any provision thereof is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality, or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections, or parts of this Ordinance. It is hereby declared as the intent of the Board of Supervisors that this Ordinance would have been enacted had such unconstitutional, illegal or invalid provision, sentence, clause, section or part not been included herein.

Enacted and Ordained this 8th day of April, 1968.

William E. [illegible]
Chairman, Board of Supervisors

Attest: Calvin F. Hardt
Secretary

# ORDINANCE NO. 54

ORDINANCE AMENDING THE EAST NORRITON TOWNSHIP PLUMBING CODE KNOWN AS ORDINANCE NO. 52

The Supervisors of East Norriton Township hereby Ordain and Enact as follows:

The East Norriton Township Plumbing Code, known as Ordinance No. 52 is hereby supplemented and amended as follows:-

## CHANGES IN PART I

2 (e) Registration fees, - the following is added:
"Cesspool Cleaner $5.00"

3 (c) Board of Examiners, - the word "resident" is deleted in paragraphs one and two.

## CHANGES IN PART II

3 General Regulations, second paragraph of
(a) Grade of Horizontal Piping shall now read "In general, the slope for all pipes shall be 1/4" fall per foot or greater, unless otherwise approved by the plumbing official."

(t) Individual or Private Sewage - Disposal Systems, shall now read,
"When a public sewer is not available for use, sewage and drainage piping shall be connected to an individual sewage disposal system as specified and provided in Act. No. 537 approved January 24, 1966, Act of 1965, P.L. 1535."

4 Quality and Weight of Materials

(f) Permitted Uses, - the following changes are made in the reference table

"Asbestos Cement Sewer Pipe is deleted
Copper Tube D.W.& V. is deleted and in its place is added
Copper Tube Type M."

5 Joints and Connections

(g) Cast Iron, - shall now read

"Cast Iron joints may be either caulked or screw joints. Approved neoprene joints may be used for underground use only."

6 Traps and Clean Outs

(f) Traps, Kind and Minimum Size, - the first two sentences shall now read

"Every trap shall be self-cleaning. Traps for bathtubs shall conform to Philadelphia regulations; traps for lavatories, sinks, and other similar fixtures shall be of lead, brass, cast iron, or of malleable iron galvanized or porcelain enameled inside."

The table of minimum size traps and waste branches is changed so that
"Bath, shower, stall shall read 2" instead of 1½" ".

7 Water Supply and Distribution

(e) House Water Lines, -- is changed by adding the following "Minimum size to last three (3) fixtures shall be ¾". Branches shall be ½". All other lines shall be 3/4" (See (e) below).

8 Hangers and Supports
(b) Horizontal Piping, - is changed by adding the following: "(See Pipe Hangers (d) )"

11 Soil Waste and Vent Pipes
(a) Material (1) shall now read
"(1) Underground Piping. All sanitary drains when underground shall be extra heavy cast iron pipe and shall be of lead or acid resisting cast iron where necessary for corrosive industrial wastes. Short branch soil or waste connections may also be of lead pipe. Building sewers shall be of cast iron or clay in accordance with sewer authority requirements".

(b) Fixture Units is changed so that the minimum, nominal drain and trap diameter of "1 shower stall, shower head only, Class 1 shall be 2" instead of 1½" ".

(1) Distance of Vent from Fixtures, -- the word "horizontal" shall be deleted.

12 Building Drains and Sewers

(e) Size of Building Sewers, Building Drains, and Horizontal Branches, - the tables designated "House Drain and House Sewers (Sanitary only)" and "Horizontal Branches (Sanitary Only)" are changed so that from each is deleted the entire column designated "1/8" Fall per foot".

This Ordinance shall become effective immediately.

-2-

All Ordinances or parts of Ordinances inconsistent with or in conflict with this Ordinance be and the same are hereby repealed.

Ordained and enacted this 15th day of July, 1969.

Chairman, Board of Supervisors

Attest:
Secretary