PLUMBING CODE
NOTICE

- This is an unofficial user-friendly copy of St. Louis County, Missouri Ordinance 27,424 for the adoption of the 2015 Uniform Plumbing Code, with modifications. The County Executive approved this ordinance on June 05, 2019.
- Official copies of this St. Louis County ordinance, including certified copies, may be obtained from the St. Louis County Clerk's Office, 41 South Central Avenue, Clayton MO 63105 – Phone: 314-615-7171

BILL NO. 119, 2018

ORDINANCE NO. 27,424, 2019

Introduced by Councilmember Clancy

AN ORDINANCE

AMENDING CHAPTER 1103, TITLE XI SLCRO 1974 AS AMENDED, "PUBLIC WORKS AND BUILDING REGULATIONS" BY REPEALING AND RE-ENACTING CHAPTER 1103, "THE PLUMBING CODE."

BE IT ORDAINED BY THE COUNTY COUNCIL OF ST. LOUIS COUNTY, MISSOURI, AS FOLLOWS:

SECTION 1. Title XI SLCRO 1974 as amended, "Public Works and Building Regulations," Chapter 1103, "The Plumbing Code," is amended by repealing and re-enacting Chapter 1103 which shall read as follows:

1103.P-010 Short Title. --This Chapter shall be known and may be cited as "The Plumbing Code."

1103.P-020 Uniform Plumbing Code Adopted. --Certain documents, three copies of which are filed in the Office of the Director of Public Works and the Administrative Director of the County Council, said copies being marked and designated as the "Uniform Plumbing Code, 2015 (hereinafter "UPC") Edition" "IAPMO/ANSI UPC 1-2015", including Appendices A through G and I through L, as published by the International Association of Plumbing and

Mechanical Officials are hereby referred to, adopted, and made a part hereof, as if fully set out in this Ordinance, with the additions, deletions, insertions and changes prescribed by the following sections herein; provided that should any conflict of interpretations or requirements occur between the provisions of the aforementioned documents and the St. Louis County Ordinances, then said St. Louis County Ordinances shall apply and prevail. Whenever the term "this Code" is used in this Ordinance or in the Uniform Plumbing Code, it shall mean the Uniform Plumbing Code with the additions, deletions, and changes prescribed in this Ordinance.

1103.P-020.1 Plumbing and Drainage System Related Requirements From Supplemental Codes Adopted.

The plumbing and drainage system related requirements from the "Uniform Swimming Pool, Spa, and Hot Tub Code", 2015 (hereinafter "USPSHTC") and the "Uniform Solar Energy Code", 2015 (hereinafter "USEC"), as published by the International Association of Plumbing and Mechanical Officials, are hereby referred to, adopted, and made a part hereof, as if fully set out in this Ordinance.

1103.P-030. Declaration of Public Necessity.

In accordance with Chapter 341 RSMo 2000, it is hereby found and determined that adoption of a nationally recognized standard plumbing code is necessary for the promotion of the public health and safety of St. Louis County, Missouri. Unless otherwise expressly stated or clearly contrary to the context, terms, phrases, words and abbreviations not defined herein shall be given the meaning set forth in Sections 341.090 through 341.200 RSMo and, if not defined therein, their common and ordinary meaning. To the extent that the provisions of Sections 341.090 through 341.220 RSMo do not conflict with the provisions in this Ordinance, those sections are hereby adopted by reference as if fully set out herein.

This Code shall be construed, interpreted and enforced so as to secure its expressed intent which is to ensure public health, safety, welfare and by appropriate regulation of plumbing, sewer and cross-connection control systems installations, testing and maintenance.

1103.P-040 Scope.

The provisions of this Ordinance shall be in effect in all parts of St. Louis County outside incorporated cities, and also within

the limits of all municipalities in St. Louis County, except those incorporated cities which have provided or which may hereafter provide by ordinance for the regulation of plumbing, sewer and water installations therein, which ordinance shall conform to and not be in conflict with the provisions of this Ordinance; provided, however, that the provisions of this Ordinance or any section or sections thereof may be placed in effect in such excepted incorporated cities by contract between St. Louis County and such excepted city, as provided in this Ordinance. Licensing, Registration, and Certification provisions shall apply throughout incorporated and unincorporated areas of St. Louis, County, Missouri.

The Code Official shall determine any plumbing, sewer, or cross-control connection requirement essential for the health, safety, and general welfare of the community, which is not specifically covered by this Code.

1103.P-041 Conflicts Between Codes.

When the requirements within the jurisdiction of this Plumbing Code, conflict with the requirements of any other ordinance, or with referenced standards, or with manufacturer's installation requirements, the more stringent requirement shall apply.

1103.P-100 Board Of Plumbing Examiners; Establishment, Powers And Duties.

1. The County Executive shall appoint a Board of Plumbing Examiners, in accordance with the provisions of Article IV, Section 4.330 of the Charter for St. Louis County, Missouri comprised of one licensed Master Plumber, one licensed Master Drainlayer, one licensed Journeyman Plumber, and a Registered Engineer or a practicing plumbing designer holding a Certified in Plumbing Design Certificate, CPD, issued by the American Society of Plumbing Engineers, who has actually engaged in the design of plumbing or sewer systems. In addition, the Code Official shall serve as a member of the Board. The terms of the members of the Board, except the Code Official, shall be 3 years or until such time as their successor shall have been qualified and appointed. Appointments may be made for shorter periods to fill unexpired terms, or in order to maintain experienced members on the Board. New appointments shall, at the time of their appointment be active in the trade or business they represent and have had at least five (5) years of experience in the St. Louis Metropolitan area.

2. The Master Plumber shall act as Chairman of the Board. The Code Official shall act as Secretary, shall keep full and complete minutes of all acts and proceedings of said Board, and shall provide all applicants for a license, registration and/or certification under this Code with proper application forms. The Secretary shall maintain and secure all examinations, examination documents and materials for examinations given by the Board in lieu of an outside entity which administers and maintains records of the examination.

3. The Board shall meet at least quarterly and more often if the Board deems it necessary for the performance of its duties. Except for the Code Official, Board members shall receive compensation as provided in Chapter 201, SLCRO 1974 as amended.

4. The Board shall, pursuant to the regulations and standards herein set forth, determine the qualifications of and provide for the examining, licensing, registration and/or certification of applicants who meet the qualifications and successfully pass the appropriate examination, if required, under this Code. A License Identification Badge shall be issued by the Department of Public Works to those who meet the qualifications and pass the appropriate examination, or successfully meet all requirements for renewal of the license. The License Identification Badge shall be surrendered to the Code Official immediately upon suspension or revocation of the license, or when the license is inactivated for failure to successfully renew. The License Identification Badge shall be produced and provided to the Board at the commencement of a suspension and/or revocation hearing.

5. The Board shall have the power to suspend or revoke any license, registration or certificate issued pursuant to this Code for cause. The Chairman or acting Chairman, with the approval of the Board, shall have power to administer oaths, subpoena witnesses and compel the production of books and papers pertinent to any investigation or hearing authorized by this Chapter.

6. The Board shall have the authority, after providing reasonable opportunity for public participation, to adopt reasonable rules and regulations to interpret and implement the provisions of this Code with respect to licensing, continuing education, and any other matters within the general authority of the Board. The Secretary of the Board shall post on the St. Louis County internet site a copy of all rules and regulations adopted by the Board.

1103.P-102 Examination and Re-Examination.

1. All persons desiring to be licensed registered or certified under any provision of this Code as a Master or a Journeyman must successfully pass the appropriate examination(s), as determined by the Board of Plumbing Examiners, in order to qualify as a Master or Journeyman. An examination is not required for an Interim Journeyman License.

2. Each person shall file an application with the Code Official on the form provided and shall specify thereon which examination(s) he/she desires to take.

3. The Board shall, within sixty (60) days of receipt, examine all applicants who have been determined to have met the qualifications for examination pursuant to Section 1103.P-152.

(A) The Board shall notify each qualified applicant of the time and place of the appropriate examination.

(B) On the date set by the Board for an examination, all applicants for each examination shall be given an equivalent examination by the Board.

(C) The Board of Examiners may authorize the use of an outside entity to provide Board approved examinations, and shall provide credentials authorizing the applicant to take such examination(s).

4. The examination for license, certificate and registration shall be developed and/or selected by the Board of Plumbing Examiners for that particular discipline. A cumulative percentage score of not less than seventy-five percent (75%) is required for passage of each examination.

5. The examination for each discipline shall be designed to evaluate the applicant's ability, experience and skill in the discipline for which the applicant desires to be licensed, certified or registered.

6. An applicant failing to pass an examination for a license, certificate or registration may submit a new application for an examination to take place not less than ninety (90) days after the date of the previous examination.

1103.P-104 Suspensions Or Revocation Of License, Registration Or Certification.

1. The Board of Examiners shall have the power to suspend or revoke any license, registration or certificate issued pursuant to this Code for cause. Although such actions may be based upon causes other than those enumerated, the following are declared to be adequate causes for suspension or revocation:

(A) Said license, registration or certification was obtained by fraud or misrepresentation.

(B) Failure or refusal to comply with the provisions of this Code.

(C) The Master employed unlicensed or unregistered personnel to perform work under this Code in which a license or registration is required.

(D) The Master or Journeyman permitted Apprentices to work without the direct, personal and immediate supervision of a Licensed Master or Journeyman as required by the terms and provisions of this Code or falsified the documentation of any Apprentice's training and experience.

(E) Procurement of permits for individuals who are not in the Permit Holder's employ or for a company or individual which has not been registered by the Master as required by this code.

(F) Failure to produce the License Identification Badge at the beginning of any hearing pursuant to this Code.

(G) The suspension or revocation of a Master or Journeyman license by any jurisdiction, within the last five (5) years;

(H) Failure to display a valid License Identification Badge upon request by a consumer or code enforcement official;

(I). Violation of any of the provisions of this Code.

(J). Failure to protect the health, safety and welfare of the public by violating the expressed intent of this Code through irresponsibility, neglect or wrongful intent.

2. No license, registration or certification shall be suspended or revoked until the holder has been afforded an opportunity for a hearing before the Board after notice of at least ten (10) days.

3. Notice shall be served either personally or by certified mail, to the holder's address of record and shall state the date, time and place of hearing and set forth the charges against the holder. In the event the notice is returned undelivered, notice shall be served by such method as is reasonably calculated to achieve actual service upon the holder.

4. A holder shall have the opportunity to present evidence and/or witnesses before the Board in person or with counsel. A record of the hearing shall be made. As soon as practicable after the conclusion of the hearing, the Board shall adopt a written decision, including findings of fact and conclusions of law, and give written notice of its decision to the license holder or his/her attorney of record in accordance with Chapter 536 R.S.Mo.

5. The duration of suspension of any license, registration or certificate suspended pursuant to this section shall be as follows:

(A) First Offense shall result in a suspension period of not more than ninety (90) days and shall continue until reinstated by order of the Board pursuant to paragraph 6 of this section.

(B) Second Offense shall result in a suspension period of not more than one hundred and eighty (180) days and shall continue until reinstated by order of the Board pursuant to paragraph 6 of this section.

(C) Subsequent Offenses shall result in revocation of the license, certificate or registration for a period of not less than one (1) year.

Note: If the Board determines the particular violation charged is of such a major or aggravated nature that a license, registration or certificate should be revoked, nothing in this subsection shall limit the Board's authority to do so regardless of whether there are any prior offenses or suspensions.

6. A suspended license, registration or certificate may be reinstated by order of the Board upon written request of the holder. Said request must be submitted to the Code Official not more than 30 days prior to or 180 days after the expiration of the suspension period.

7. A revoked license, registration or certificate may be reinstated by order of the Board only upon application and

examination, if required, and in the same manner as provided for new applicants.

8. If the Board of Plumbing Examiners suspends or revokes a license upon good cause shown, the holder shall immediately surrender the license at the conclusion of the hearing. Any person, plumber or drainlayer who shall violate this provision shall be subject to a fine imposed by the Board of not less than five dollars and not more than one thousand dollars.

1103.P-104.1 Authority of Board of Plumbing Examiners to Levy Fines.

The Board of Plumbing Examiners shall have the authority to take disciplinary action as set out in the Code and/or to impose civil penalties, of not less than $5.00 and not more than $1,000.00 for each offense, if the Board finds, after notice and a hearing on the matter, that the individual or entity has violated a provision of this Code.

In determining the amount of penalty to be imposed, the Board may consider both any mitigating circumstances and the severity of the violation in relation to the deterrent value of the fine.

A final order imposing a civil penalty is subject to appeal or review as specified in section 1103.P-109.

Payment of a civil penalty shall be made within thirty (30) days after the decision of the Board, pending an appeal. Failure to pay a civil penalty by any person licensed under this code shall be grounds for non-renewal or denial of reinstatement of a license. In addition, action shall be taken against individual bonds to obtain payment of an assessed civil penalty.

1103.P-106 Committee Of Plumbing Code Review; Establishment, Powers And Duties.

There is hereby established a Committee of Plumbing Code Review, which shall consist of seven (7) members appointed by the County Executive, for a term of three (3) years or until such time as their successor shall be qualified and appointed. Appointments may be made for shorter periods to fill unexpired terms, or in order to maintain experienced members on the Board. The Committee shall be composed of the following: a Licensed Master Plumber, a Licensed Journeyman Plumber, a Licensed Master Drainlayer, a Registered Engineer engaged in the design of plumbing and sanitary systems, a Registered Engineer engaged in the design of sewer systems, a Registered Architect, and the

Code Official. Upon retirement of the current chairman, the Master Plumber shall act as Chairman. A practicing plumbing designer holding a Certified in Plumbing Design Certificate, CPD, issued by the American Society of Plumbing Engineers who has actually engaged in the design of plumbing or sanitary systems, may be appointed as a substitute for the position held by the Registered Engineer engaged in the design of plumbing and sanitary systems, or the Registered Architect, however not for both concurrently. New appointments shall at the time of their appointment be active in the trade or business they represent and have had at least five (5) years of experience in the St. Louis metropolitan area.

1. The Committee shall meet at least quarterly. It shall be the duty of the Committee to consider all proposed changes in this Code relative to the use, adoption or incorporation of any plumbing material, methods of construction, or installation of plumbing and to review all petitions submitted to the Building Commission for adoption or incorporation into this Code of any proposed changes by addition, deletion, revision or repeal and reenactment of this Code. IAPMO accepted TIA's (Tentative Interim Amendment) which could become requirements of the 2015 UPC, may be reviewed for acceptance or rejection by this Committee.

2. The Building Commission shall forward all said petitions to the Committee. Upon receipt of same, the Committee shall review said petition and all supporting data and make a recommendation regarding same within sixty (60) days. The Building Commission may extend this time period upon request from the Committee or the Building Commission may assume full authority and act upon its own motion.

3. The Plumbing Code Review Committee may review new and/or unique plumbing systems, methods of piping, appurtenances, and appliances and make recommendations to the Authority Having Jurisdiction for the purpose of finding acceptable such unique plumbing systems, piping, appurtenances and/or appliances acceptable for use under this Code.

1103.P-108 Code Official Authority.

1. The Code Official is vested with the executive and administrative authority to see that all laws, ordinances and codes regulating plumbing, sewer and cross-connection control systems are observed and enforced.

2. The Code Official may promulgate reasonable regulations for the purpose of effective administration and enforcement of this Code.

3. This Code shall apply to all new construction, repairs, modifications, testing and maintenance of plumbing, drainlaying and cross-connection control systems.

1103.P-109 Appeals.

Any person aggrieved by any decision, ruling or order of the Code Official, the Code Review Committee or the Board of Examiners may appeal to the Board of Appeals pursuant to the procedures set out in Chapter 1115, 1116, 1117, SLCRO 1974 as amended.

1103.P-112 Powers And Duties Of Code Official.

1. It shall be the duty of the Code Official to cause inspections to be made of all plumbing, sewer and cross-connection control installations for which permits have been issued, in a manner and to the extent necessary to carry out the provisions of this Code regulating such installations in all buildings and premises, public and private, in the course of erection, alteration, reconstruction, testing or repair and cause the inspection of existing installations as often as may be necessary to insure health, safety and general welfare of the public. He shall see that all work is done in accordance with the provisions of this Code and that persons duly authorized to do such work do the work. The Code Official shall have the power to recommend suspension or revocation of any license, registration and/or certification issued pursuant to this Code.

2. Upon presentation of proper credentials, the Code Official shall have the authority to enter at reasonable times any building, structure or premises to perform any duty imposed upon him by this Code, subject to constitutional restrictions on unreasonable searches and seizures. If entry is refused or not obtained, the Code Official is authorized to pursue recourse as provided by law and the person who failed to provide entry will be subject to the penalties provided in this Code.

3. No person shall hinder, obstruct, resist, and fail to provide entry at reasonable times or otherwise interfere with the Code Official in the performance of his/her official duties.

1103.P-114 Code Interpretations.

1. When the Code Official deems it appropriate, or at the request of the Building Commission, the Code Official may issue "Code Interpretations" relating to the provisions of this Code.

2. Code Interpretations shall be subject to appeal or review by any aggrieved party in the same manner as other decisions of the Code Official.

3. A written record shall be maintained of all "Code Interpretations" relating to the Plumbing Code which shall be open to the public upon request and a copy furnished to the Plumbing Code Review Committee and the Building Commission as soon as practicable after issuance and in every case prior to the next scheduled meeting of the Plumbing Code Review Committee and the Building Commission.

1103.P-116 Contracting with Municipalities and Fire Protection Districts.

1. The Code Official, with the approval of the County Executive of St. Louis County, is hereby authorized to contract with municipalities and fire protection districts within St. Louis County, Missouri, to provide: enforcement of the St. Louis County Plumbing Code as adopted in Chapter 1103 of the Revised Ordinances of St. Louis County, and as amended, and further to collect fees for applicable permits and inspections issued or made pursuant to such contracts. Contracts shall be approved by the Code Official and shall be approved as to legal form by the St. Louis County Counselor. No contract shall be entered into until the municipality or fire protection district desiring to contract with St. Louis County for Plumbing Code Enforcement shall have first duly adopted appropriate legislation authorizing said contract, and said contract expressly states that both the St. Louis County Plumbing Code and all amendments thereto, until such time the contract terminates, are adopted by reference during the term of the contract. The St. Louis County Plumbing Code and amendments thereto, are thereby incorporated into said contract.

2. The Code Official is authorized to contract with fire protection districts in St. Louis County to provide code enforcement services with respect to building construction and application of commercial and multi-family fire codes adopted by the fire protection districts, including administration, application processing, plan review, permit issuance, and inspections and for County to charge the fire protection districts fees as set out in Section 1100.130 SLCRO 1974, as amended, to cover the costs of providing such code enforcement

services. The contract may further provide for the fire protection district, at its option, to refer for prosecution in St. Louis County Municipal Court, violations of such fire protection district's codes as are enforced within the fire protection district by the County; for the County to retain the proceeds of fines and costs assessed in such prosecutions; and for such other terms and conditions as are approved by the County Counselor.

1103.P-118 Modification From Specific Code Requirements.

When there are practical difficulties involved in carrying out the provisions of the Code, the Code Official shall have the right to vary or modify such provisions upon application of the owner or the owner's representative, provided that the spirit and intent of the law is observed and that the public health, safety and welfare is assured. The application for modification and the final decision of the Code Official shall be in writing and shall be officially recorded with the application for the permit in the permanent records of the Department of Public Works. A copy of the application and the final decision shall be distributed to the Plumbing Code Review Committee and the Building Commission.

1103.P-120 Defective Plumbing And Drainlaying.

1. The plumbing or drainlaying system of any building which the Code Official has reason to believe has become defective, shall be subject to inspection under this Code.

2. If the Code Official, upon the inspection of the plumbing and drainage system of any building finds that either or both of said systems are in such condition as to permit the emission or discharge of sewer gas in such buildings or to cause the cellar or basement of such building to be wet or damp by reason of leakage of water or other liquid from the plumbing or drainage system of any building or premises, the Code Official shall promptly notify the owner, agent, or lessee of the building in accordance with Section 1103.360.1, to remove or repair said plumbing or drainage system immediately.

3. In the event the necessary repairs have not been made and/or in the opinion of the Code Official, a danger to public health exists by reason of the occupancy of said building or premises, the Code Official is hereby authorized and empowered to order and require the occupants to vacate the same forthwith. He shall cause to be posted at each entrance to such building or

premises a notice reading as follows:

> "THIS BUILDING IS UNSAFE AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE PUBLIC WORKS DIRECTOR OF ST. LOUIS COUNTY, MISSOURI."

No person shall enter such building or structure except for the purpose of making the required repairs.

1103.P-122 Office Of Plumbing And Sewer Inspection, Establishment.

There is hereby created and established, within the Department of Public Works, an "Office of Plumbing and Sewer Inspection", which office has jurisdiction co-extensive with the provisions of this Code and which is charged with the enforcement of the provisions of this Code, except as otherwise provided herein or in the Charter of St. Louis County, Missouri. The Office of Plumbing and Sewer Inspection shall be under the supervision of an officer who shall be known as the Chief Plumbing Inspector or other successor title as determined administratively. The Chief Plumbing Inspector or other successor title shall be supervised by the Code Official. The qualifications of the Chief Plumbing Inspector or other successor title as determined administratively shall be those specified in the current Civil Service Commission classification plan.

1103.P-124 Relief From Personal Liability.

The Code Official, officers or employees charged with the enforcement of this Code, while acting within the scope of their employment, shall not thereby render themselves personally liable and are hereby relieved of all personal liability for any damage that may accrue to persons or property as a result of any act required or permitted in the discharge of their official duties. Any suit instituted against any officer or employee arising out of an act performed in the lawful discharge of said person's duties under the provisions of this Code shall be defended by the legal representative of St. Louis County, Missouri until the final termination of the proceedings. The Code Official or any of his subordinates shall not be liable for costs in any action, suit or proceeding that may be instituted pursuant to the provisions of this Code; and any officer or employee acting in good faith and without malice shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith.

1103.P-126 Permits Required.

1. Except as otherwise specifically provided in this Code, a permit must be obtained prior to any person performing the following work:

(A) Any plumbing, drainlaying, or process drainage systems, including industrial waste sewers to site pretreatment, (with the exception of minor repairs, as defined in this Code), in, upon, or about any building or premise, whether private or public and whether any such work has been ordered by the Code Official, or any other authorized official;

(B) Any connection to any sewer.

(C) The installation or replacement or permanent removal of any Backflow Prevention Device or assembly.

(D) The connection of any dedicated fire suppression water main to any potable water main.

Exception: No permits shall be required for storm or sanitary sewer accepted for maintenance by Metropolitan St. Louis Sewer District, municipal street department or County highway department.

2. Except as provided in Section 1103.128 SLCRO, a plumbing or drainlaying permit, either partial or full as requested by the applicant, shall be issued prior to the review, approval and/or issuance of other applicable permit applications normally required prior to such issuance upon the following conditions:

(A) Receipt from applicant of a signed application for issuance of a partial plumbing or drainlaying permit;

(B) Receipt from applicant of a signed statement containing a release of all liability, indemnifying and holding harmless St. Louis County, its officers, employees, agents and assigns for any expense, error or omission resulting from such issuance; and

(C) The plans, specifications and other required documentation, including but not limited to any approval required from the St. Louis County Department of Health is in order and all other provisions of this Code are met.

Note: A COPY OF EACH SUCH REQUEST AND RELEASE AS WELL AS A

LISTING OF APPLICABLE AND OUTSTANDING PERMITS REQUIRED FOR EACH PROJECT SHALL BE SENT TO THE RECORD OWNER OF THE PROPERTY INVOLVED AND THE APPLICANT.

3. Permits for the installation, removal or replacement of any plumbing, drainlaying, water heater or backflow prevention devices shall be issued only to bonded and insured Masters who are licensed to be in responsible charge of the work covered by the permit. All plumbing, water heater replacement, and replacement, removal or installation of backflow prevention devices shall be performed by the permit holder or by persons who are properly licensed, in the permit holder's employ, and under the permit holder's direct supervision. All drainlaying shall be performed by the permit holder or by persons in the permit holder's employ and under the permit holder's direct supervision.

Permits for the installation, testing and/or repair of drainage waste and vent piping to laboratory equipment shall be issued only to bonded and insured Master Plumbers or Master Pipefitters. All work shall be performed in accordance with the conditions established in this ordinance.

Permits for the connection of Fire Suppression main to a potable water main shall be issued only to Master Plumbers or Master Sprinkler fitters. All work shall be performed in accordance with the conditions established in the preceding paragraphs.

Permits authorizing water heater replacement shall only be issued to a licensed bonded and insured Master Plumber or Master Water Heater Replacement Specialist.

4. In addition to those permits obtained under the Mechanical Code 1108, permits shall be obtained by a Master Plumber for work on wet or dry standpipes which are not part of an automatic fire sprinkler system or does not have as a part of the system one or more automatic sprinkler heads.

5. Any permit issued may become invalid if the authorized work is not commenced within six (6) months after issuance of the permit, or if the authorized work is suspended or abandoned for a period of six months (6) after the time of commencing the work, unless extended by the Code Official. Permits may be extended at any time up to thirty (30) days prior to the expiration date of the specific permit.

6. Unless otherwise specified in this code, the fees for permits and inspection pursuant to this code shall be charged at

the rate specified in Chapter 1100, SLCRO 1974 as amended, and shall be paid to the Treasurer of St. Louis County.

7. *Emergency and Disaster Work*: In the event of emergency, as defined in this code, work may begin upon notification to the Code Official upon condition that written application be filed with the Code Official the next working day. The application shall describe in detail the nature of such work and shall state the location thereof. In the event of a disaster, as defined in this code, no work shall begin on a plumbing system unless the Code Official issues the appropriate permit. The Code Official may reduce or waive plumbing permit fees for repairs related to a disaster as defined in this code if the permit is issued within 90 days after the end of a disaster, as determined by the Code Official, and authorizes the work indicated therein to be completed within one year of the date of issuance. The Code Official may extend the 90 day period if the Code Official determines that just cause exists.

8. *Correction of existing violations.* A permit may be withheld by the Code Official if there are unabated written violations against the facility until the violations are corrected and abated or proposed to be corrected and abated by the work to be done under the current application.

9. *Federal, State or other public entities.* The Code Official may withhold issuance of a permit for any facility or site if any Federal, State or other public entity determines that such facility or site is in violation of any code or regulation of such entity.

10. *Time limitation of application.* An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued. The Code Official is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. An extension fee equal to the permit application extension fee in the amount specified in Chapter 1100, SLCRO, shall be paid for each additional extension period of 90 days beyond the initial 180 days allowed after the date of filing. An additional inspection fee may be charged for an inspection to verify that work has not started. The extension shall be requested in writing and justifiable cause demonstrated.

11. *Outstanding Fees.* If the Code Official determines that an applicant for a permit governed by this code has failed to pay

any permit fees or related charges, the Code Official shall not issue such permit until the applicant pays such fees and related charges.

1103.P-128 Permits From Other Authorities – Required.

1. Right-of-way Approval. No person, firm, association or corporation shall excavate, encroach on, cause to be excavated, or cause the encroachment of the right-of-way of any street, avenue, boulevard, road, alley, public easement or highway in order to lay, locate, maintain or remove any mains, pipes, sewers or drains without first having obtained the approval of the appropriate authority having jurisdiction of the right-of-way.

2. Other Required Approvals. No person, firm, association or corporation shall do any work, which requires approval from the Code Official, or any other authority having jurisdiction, without first having obtained the required approval.

3. Seismic Resistance. Plumbing equipment and system components shall be anchored and/or sway braced to resist applicable seismic forces prescribed by the St. Louis County Building Code.

4. Mechanical systems. When fire suppression systems, solar systems, medical gas systems, fuel gas systems, fossil fuel systems and other systems regulated by the Mechanical Code are installed; those systems shall be installed in accordance with the St. Louis County Mechanical Code.

1103.P-130 Home Owner Permits.

1. A permit may be issued for an addition to or repair, modification or reconstruction of an existing plumbing or drainage system within a detached single-family dwelling, including accessory structures, to the owner or to a member of his immediate family residing with him, provided:

(A) The dwelling shall be designed and used solely for living purposes;

(B) The dwelling shall be occupied by, or vacant and intended for immediate occupancy by, the owner and his family, and by no other persons; and

(C) The owner or member of his immediate family who obtains the permit shall personally perform all required work.

(D) Only one (1) permit may be open at any one time by the owner or member of his immediate family.

(E) This Home Owner Permit is limited as follows:

(1) One (1) bathroom consisting of no more than one (1) water closet, two(2) lavatories, One (1) tub and One (1) shower. A sink may be added if it is connected to the common plumbing wall. Or,

(2) One (1) water heater. Or,

(3) Miscellaneous fixtures totaling no more than Eight(8)drainage fixture units

2. Prior to the issuance of a permit under this section, the Code Official may require an affidavit or other reasonable proof that the request for a permit complies with the foregoing provisions and that the applicant has the necessary knowledge and ability to perform the proposed work.

3. Homeowner permits may be revoked by the Code Official if said Official determines that work under the permit is not being properly performed or that the application did not comply or no longer complies with this section. Homeowner permits issued may become invalid if the authorized work is not commenced within six (6) months after issuance of the permit, if the authorized work is suspended or abandoned for a period of six (6) months, or no inspections requested, after the time of commencing the work, unless extended by the Code Official. Permits may be extended at any time up to thirty (30) days prior to the expiration date of the specific permit.

Upon such revocation, the Code Official may require the property owner to proceed immediately to procure a qualified person to correct or complete the work.

Note: This section does not authorize a waiver or modification of any provision of this Code relating to: the materials, design or installation of plumbing, drainage, or sewers; the preparation and approval of plans; or fees for permits, inspection and re-inspection.

1103.P-132 Inspection And Permit Fees.

1. The fees for plumbing inspections and permits pursuant to this code shall be charged at the rate specified in Chapter 1100 SLCRO 1974 as amended.

2. In addition to the plumbing permit fees, an additional fee of one (1) extra inspection shall be charged for the installation of fuel gas piping in one (1) and two (2) family residences under a plumbing only permit.

3. The fee for Standpipe Systems shall be determined using the same method as other plumbing permits with the number of access points to be counted as fixtures.

1103.P-134 Permit Fee Refunds.

Any excess fee for the incomplete work on abandoned or discontinued projects shall be returned to the permit holder upon written request received not later than twelve (12) months after the date the permit was issued. Prior to issuance of a refund, the Code Official will deduct all plan examination and permit processing fees and any penalties imposed under the requirements of this Code. If the amount of the fees and penalties exceeds the amount of the refund, the permit holder will have to pay the difference. In the case of revocation of a permit, no refund shall be issued.

1103.P-136 Plans And Specifications.

1. Plumbing and sewer plans and specifications shall be submitted to support the application for permit and shall be approved prior to the issuance of any permit for the installation, alteration of, or addition to the plumbing, sewerage or drainage piping systems of any building, structure or premises except as herein specifically provided.

The plans and specifications shall show in sufficient detail the layout and spacing of fixtures; the size, material and location of all building sewers and drains, storm sewer and drains, and the soil, waste, vent and water supply piping.

2. Four (4) copies of legible plans drawn to a scale of not less than one-eighth (1/8”) inch to the foot of each floor and of a typical floor shall be filed. The plans shall show the complete plumbing system, all plumbing fixtures and all water supply piping, together with building sections showing vertical and diagrammatic elevations of the soil, waste, vent and water supply lines with traps and valves, location, size, and

potential date of availability of the public sewer or other disposal system.

3. When the installation of a water distribution system or the replacement or alteration of a water supply system is contemplated, the plumbing plans shall show the location and sizes of all the water lines and branches involved, the fixtures or other devices to be supplied, and the minimum water pressure in the main into which the connection will be made.

4. The same set of plumbing or water supply plans and specifications may be used for two (2) or more buildings or structures when the buildings are of identical design and are located on adjoining lots under the same ownership, provided the applications for permission to construct or alter are filed simultaneously.

5. All plumbing installations shall be performed in accordance with the plans as approved and any changes made during construction, which are not in conformity to the approved plans, shall be resubmitted for approval on amended plans.

Note: The approval of a plan shall not be construed so as to relieve the contractor of complying with all the provisions of this Code.

6. Plans for new plumbing systems or alterations to existing plumbing systems shall be accompanied by a diagram showing the relative elevation of the lowest fixture, elevation of the next upstream manhole cover and flow line, and the next downstream manhole cover and flow line and the top of the public sewer referred to the established datum of Metropolitan St. Louis Sewer District or other appropriate sewer district when such public sewer is available. The plans shall show the size, number, location, and potential date of availability of all new sewer connections.

7. The filing of plans and specifications shall not be required for minor repairs as defined in this Code or for the installation or alteration of plumbing and drainage systems in buildings or structures herein specifically exempted, including open sheds for storage purposes, isolated private garages without sanitary fixtures, temporary sanitary installations for exhibition purposes when not designed for sanitary use and not directly connected to a sewerage system.

Note:

(A) Requirement for plans may be waived by the Code Official for commercial plumbing installation(s)and for strip stores with twenty (20) fixtures or less and for any plumbing installation for a single family dwelling with twenty-five (25) fixtures or less and/or when the work is of a minor nature. However, plumbing and sewer plans and specifications shall be submitted where required by the Code Official.

(B) Details of Plumbing work in 1 & 2 Family dwellings and details of Plumbing work in a commercial plumbing installation and for strip stores with twenty (20) fixtures or less may be submitted as shop drawings prepared by a Master Plumber. Such shop drawings shall be signed by the Master Plumber and bear his St. Louis County License Number.

(C) Detailed Specifications of Plumbing Work for Commercial buildings housing beauty/hair/nail/spa facilities, medical facilities or restaurants shall be prepared by the appropriate registered design professional consistent with the professional registration laws of the State of Missouri and shall bear an original embossed or wet ink seal, the date and original signature of the registered design professional.

Exception:

The Code Official may allow shop drawings for three or fewer fixtures or equipment in an existing beauty/hair/nail/spa facility, medical facility or restaurant, to be signed by the Master Plumber and bear such Master Plumber’s License Number.

8. All plans, specifications and/or applications for permits for any proposed work shall be deemed to have been abandoned six months after the date of filing, unless such application has been diligently pursued or a permit shall have been issued.

However, the Code Official may grant one or more extensions of time for additional periods not exceeding ninety (90) days each for reasonable cause shown. The Code Official shall notify those delinquent applicants in writing and give them fourteen (14) day notice prior to abandonment of the application and destruction of the plans and/or specifications.

9. All plumbing plans and specifications required by this Code shall be prepared by the appropriate registered design

professional consistent with the professional registration laws of the State of Missouri and shall bear an original embossed or wet ink seal, the date and original signature of the registered design professional. Minor revisions to plumbing plans and specifications when required to ensure Code compliance may be performed by the Office of Plumbing and Sewer Inspection. The acceptance of any revisions so performed shall be acknowledged by the preparer either in letter form or, shall acknowledge the acceptance of any revisions so performed, by signature and initial of all revisions as required.

10. *Specifications for Sanitary Sewers.*

(A) *Installation Within Rights-of-Way.* All sanitary sewers designed to serve more than one property or building, whether designated main or lateral, to be installed in a public or private right-of-way or easement dedicated for use by public utilities, shall be designed by a registered design professional consistent with the professional registration laws of the State of Missouri and shall comply with the "Rules and Regulations and Engineering Design Requirements for Sanitary Sewerage and Storm Water Drainage Facilities", and the "Standard Construction specifications for Sewers and Drainage Facilities", issued by the Metropolitan St. Louis Sewer District (M.S.D.) and the St. Louis County Department of Highways & Traffic.

(B) *Installation Outside of Rights-of-Way.* All sanitary sewers designed to serve private property, buildings or structures, which will not be installed on public rights-of-way or easements dedicated for use by public utilities, shall be designed by a registered design professional consistent with the professional registration laws of the State of Missouri, and shall comply with the "Rules and Regulations and Engineering Design Requirements for Sanitary Sewerage and Storm Water Drain Facilities" of the St. Louis County Department of Highways and Traffic, the Metropolitan St. Louis Sewer District and the St. Louis County Public Works Department.

11. *Specifications for Storm Sewers.*

(A) *Installation Within Rights-of-Way.* All storm sewers designed to serve more than one property, building, parking lot or structure, to be installed in a public right-of-way, or easement dedicated for use by public utilities, shall be designed by a registered design professional consistent

with the professional registration laws of the State of Missouri and shall comply with the "Rules and Regulations and Engineering Design Requirements for Sanitary Sewerage and Storm Water Drainage Facilities", and the "Standard Construction Specifications for Sewers and Drainage Facilities", issued by Metropolitan St. Louis Sewer District (M.S.D.), and the St. Louis County Department of Highways and Traffic.

(B) *Installation Outside of Rights-of-Way.* All storm sewers designed to serve private properties, buildings, parking lots or structures, which will not be installed on public rights-of-way or easements dedicated for use by public utilities, shall be designed by a registered design professional consistent with the professional registration laws of the State of Missouri and shall comply with the "Rules and Regulations and Engineering Design Requirements for Sanitary Sewerage and Storm Water Drainage Facilities", and those of the St. Louis County Department of Public Works.

1103.P-138 Inspection.

1. *Required Inspections.* After issuing a permit, the Code Official shall conduct inspections from time to time during and upon completion of the work for which a permit has been issued. It shall be the duty of the holder of the permit or their duly authorized agent to notify the Code Official when work is ready for inspection. Failure of the permit holder to request a required inspection will constitute a violation of this Code. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this Code. The Code Official shall maintain a record of all such examinations and inspections and of all violations of this Code.

2. *Inspection Sequence and Approval.* No work shall be done on any part of the structure beyond the point indicated in each successive inspection without first obtaining the written approval of the Code Official or his authorized representative. The permit holder shall be notified of any violations of this Code. Written approval shall be given only after an inspection has been made of each successive step in the construction and all discrepancies are corrected.

3. *Duty to Request Final Inspection:* Upon completion of the work described in the permit application, the permit holder shall request and obtain a final inspection before any occupancy of the structure or within 10 days of effective use of a

backflow device except as provided in Chapter 1115, 1116, 1117, SLCRO 1974 as amended. Failure of the permit holder to request and obtain a final inspection before occupancy will constitute a violation of this Code.

4. *Inspection Placard.* Work requiring a permit shall not commence until the permittee or his agent posts a ten inch by twelve inch board affixed to a post which is firmly imbedded in the ground, containing the lot and block number, and affixes the job inspection placard for recording inspections. Failure to maintain this inspection placard and identification board will not relieve the permittee of responsibility as provided by the Building Code. When work has progressed to a point of having windows, or when the job is an alteration or addition, the placard shall be attached to the available glass in view for recording the balance of inspections required by the Building Code. Absence of inspection placard will result in imposition of the charge for an additional inspection specified in Chapter 1100 SLCRO 1974 as amended. Upon payment of the fee for an additional inspection, an extra inspection placard will be issued to the permittee.

5. *Identification Requirements.* The licensed Master, Journeyman or registered Apprentice performing the work under this Code shall write his license number on the Identification Card or Identification Sticker before starting work on the job. The Identification Card or Identification Sticker shall have the written permit number for the work in the proper place, before starting the work. The Identification Card shall be posted in the same manner as, and in the vicinity of, the job inspection placard.

6. *Exposure of Work.* All new, altered, extended or replaced plumbing and drainlaying shall be left uncovered and unconcealed until it has been tested and approved. Where such work has been covered or concealed before it is tested and approved, the Code Official may require that it be exposed for testing and approval.

1103.P-140 Violations And Penalties.

1. *Notice of Violations.* When the Code Official determines that a violation of this Code exists, he shall notify the violator as soon as practicable. The notification shall be in writing and shall be hand-delivered to the violator or his legally authorized representative, or mailed by certified mail, to his last known address, or by such other means as is reasonably calculated to achieve actual notice to the violator.

Any person having been notified that a violation exists by means other than a stop work order and who fails to promptly and diligently abate the violation after notification shall be subject to the penalties enumerated below in Paragraph 2. If a permit has been issued, the permit holder shall be notified of any violations of the approved construction documents or permit and the notice shall set forth the discrepancies.

2. *Penalties.* Any person, firm or corporation who shall violate any provision of this Code, or who shall fail to comply with any of the requirements thereof, or who shall occupy, erect, construct, alter or repair a structure in violation of the approved construction documents or directive of the Code Official, or of a permit or certificate issued under the provisions of this Code, or shall start any work requiring a permit without first obtaining a permit therefore, and who shall continue any work in or about a structure after having been served a stop-work order, except for such work which that person, firm or corporation has been directed to perform to remove a violation or unsafe conditions, or any owner or tenant of a structure or premises or any other person who commits, takes part or assists in any violation of this Code or who maintains any structure or premises in which such violation shall exist, shall be guilty of a misdemeanor, punishable by a fine of not more than $1000.00 or by imprisonment not exceeding 90 days or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

3. *No Permit and No-Inspection Request Penalties.* In addition to the penalties set out above, the following procedure shall be followed where the Code Official determines that work has been started prior to the acquisition of a permit required by this Code or the permit holder failed to perform their due diligence as per Code Official's Policy in attempting to schedule the required inspection:

(A) The Code Official shall issue a stop work order when work requiring a permit was started prior to the acquisition of that permit. The Code Official shall issue a Notice of Violation when a required inspection was not requested.

(B) The Code Official shall notify the violator of the penalty amount to be assessed against the violator. A no-permit penalty shall not exceed the greater of Five Hundred Dollars ($500.00) or one percent (1%) of the cost of construction of the work involved. A no-inspection request

penalty shall not exceed five hundred dollars ($500.00).In making the assessment, the Code Official shall consider whether the violator has previously violated this Code and whether the occupation or experience of the violator indicates that he knew or should have known that a permit or inspection was required. In no case will a Penalty be assessed against a property owner unless he actually performed the work involved. If 180 days as transpired since the last inspection on record or if the permit has automatically expired, a permit extension fee shall be added to a no-inspection request penalty amount.

(C) The stop work order for failure to obtain a permit or the violation for failure to request an inspection shall remain in full force and effect until such time as the penalty amount is paid and the violator has complied with all other regulations pertaining to the issuance of the required permit, or requesting the required inspection.

(D) No-Permit and No-Inspection Request Penalties are subject to appeal in the same manner as other decisions of the Code Official. The Code Official may revise his assessment upon notice to both the Board of Appeals and the alleged violator at any time prior to the hearing. Likewise, at any time prior to the hearing, the violator may accept and pay the recommended penalty amount and the hearing will be canceled.

(E) At the hearing before the Board of Appeals, said board shall afford both the Code Official and the alleged violator an opportunity to present any evidence or make any statements they wish to have considered.

(F) Following the hearing, the board shall determine whether a permit or inspection was required:

(1) If the Board of Appeals determines that a permit or inspection was required, an appropriate penalty amount shall be assessed, taking into account the same considerations as noted above. The stop work order for failure to obtain a permit or the violation for failure to request an inspection shall remain in full force and effect until such time as the penalty amount is paid and the violator has complied with all other regulations pertaining to the issuance of the required permit, or requesting the required inspection.

(2) If the Board of Appeals determines that a permit or inspection was not required, the Code Official shall immediately cancel the stop work order for failure to obtain a permit or abate the no-inspection request violation.

(G) License and Permit Violations: Violations involving the licensing and permit provisions of this Code shall be issued and pursued first against those persons, companies, corporations or other entities, performing such work or activities which constitute said violations.

1103.P-142 Subdivision Stop Work Order.

1. Where the Code Official finds that any storm water drainage or sub-soil drainage has been connected to a sanitary sewer within a subdivision, or that construction is being performed in such a manner that, in the judgment of the Code Official, the intent is to connect storm water or sub-soil drainage to a sanitary sewer, the Code Official may, by written notice to the owner or developer of the property or the holder of the building permits for such property, at the address reflected in the St. Louis County records, specifically list the violation(s) found and require the person to whom such notice is sent to show cause before the Building Commission why a Subdivision Stop Work Order should not be issued. A Subdivision Stop Work Order, if issued, shall require such owner, developer, holder of any building, electrical, mechanical, or plumbing permits and all contractors or sub-contractors to cease and desist all work on all buildings, structures and premises, within said subdivision until such violations have been corrected.

2. Any person so notified shall, within 10 days after the Code Official shall permit such notice or such longer period as, appear before the Commission and either:

(A) Produce evidence satisfactory to the Commission that the violation(s) have been or are diligently being corrected; or

(B) Show cause why the Subdivision Stop Work Order should not be issued.

3. In the event such person shall fail to satisfy the Commission that the violation(s) has been or is diligently being corrected or to show cause why the Subdivision Stop Work Order should not be issued, a Subdivision Stop Work Order shall be issued in writing by the Commission and served upon such

person(s) as were notified and posted at the site of the work. Such order shall state the violation(s) and the specific conditions under which work terminated by the Order may be resumed.

1103.P-144 Stop Work Order.

Upon notice from the Code Official that work on any building, structure, or premises is proceeding contrary to the provisions of this Code or in an unsafe manner, such work shall immediately be stopped. The Code Official shall issue a Stop-Work Order in writing to the owner of the property involved or to the owner's agent, or to the person doing the work. The Stop-Work Order shall state the conditions under which the work may resume.

1103.P-146 Unlawful Continuance Of Work.

No person shall continue any work in or about any building, structure or premise after the issuance of any Stop-Work Order pertaining to such building, structure or premise except such work that is directed to be performed to abate a violation or unsafe condition.

1103.P-148 License, Registration Or Certification – Required.

1. *Plumbing*. Except as otherwise provided in this Code, no person shall engage in or perform the work of installing, altering or repairing plumbing including the initial installation of backflow prevention devices and assemblies appurtenant to a plumbing system, including the installation testing and repair of drainage waste and vent piping, hot and cold water piping to laboratory equipment in hospitals, clinics, first-aid stations, dispensaries, and all elementary schools, high schools and college level schools including graduate level schools, residential dishwasher replacement, multi-purpose fire sprinkler system, except minor repairs, and except work performed in accordance with Home Owner Permits issued under this Code, unless licensed as a Master Plumber, a Journeyman Plumber, or an Interim Journeyman Plumber under this Code or registered as a Plumber Apprentice or Experienced Plumber Apprentice under this Code and working under the direction of a licensed Master Plumber.

In addition to those licenses authorized by the Mechanical Code, a Master Plumber, Journeyman Plumber, Interim Journeyman Plumber, Plumber Apprentice, or Experienced Plumber Apprentice under this Code and working under the direction of a licensed Master Plumber, may work on wet or dry standpipes under this

Code, that are not part of an automatic Fire Sprinkler system and that do not have as a part of the standpipe system one or more sprinkler heads. A licensed Master, Journeyman, Interim Journeyman, Experienced Apprentice and an Apprentice Plumber may install fuel gas systems in one (1) and two (2) family dwellings under this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be licensed as aforesaid. No partnership, corporation or other legal entity, or person conducting business under a fictitious name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be licensed as aforesaid.

2. *Drainlaying.* Except as otherwise provided in this Code, no person shall engage in or perform the work of installing the sanitary or storm building sewer, starting five (5') feet beyond the building foundation wall (end of building drain) or any work concerning the installation of sanitary or storm, trunk, main and lateral sewers, in public property, recorded easements or private property, unless said person is a Master Drainlayer or under the direct supervision of a Master Drainlayer duly licensed pursuant to this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be licensed as aforesaid. No person shall engage in or perform the work of installing or repairing private sewage systems unless licensed to perform such work by the Missouri Department of Health and Senior Services (MoDHSS), and unless said person is a Master Drainlayer or under the direct supervision of a Master Drainlayer duly licensed pursuant to this Code. No partnership, corporation or other legal entity, or person conducting business under a fictitious name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be licensed as aforesaid.

(A) Direct supervision shall mean that the Master Drainlayer is directly responsible for the installation of the drainlaying work and shall supervise such installations, or provide an appropriately certified and trained individual, employed by the Master Drainlayer, to be on site to directly supervise the work. The actual installation of all piping, and setting of grade shall be performed by full-time employees of the individual or business entity which possesses the Master Drainlayers license, and for which the permit corresponding to the work was issued. Individuals or entities performing the

excavation, backfill, and/or hauling shall be under the direct supervision of the Master Drainlayer or his representative.

Exception: When a proprietary material requiring special training is used, individuals who have been trained and certified pursuant to the requirements of the manufacturer for the particular installation may perform the installation of proprietary components. At all times the installation shall be supervised by an appropriately certified and trained individual, employed by the Master Drainlayer, and assisted by an equivalent minimum number of personnel employed by the Master Drainlayer equal to the number of manufacturer personnel required.

3. *Cross-Connection Control Backflow Prevention Assembly and Device Testing and Repair.* No person shall test, repair, undertake to test or repair or hold himself/herself as being available for the testing or repair of any backflow prevention assembly or device unless he/she shall possess a Backflow Prevention Device Tester Certificate for the particular application involved pursuant to this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be certified as aforesaid. No partnership, corporation or other legal entity, or person conducting business under a fictitious name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be certified as aforesaid.

4. *Process Piping Systems.* Except as otherwise provided in this Code, no person shall install, test or repair backflow prevention devices within or appurtenant to process drains, process drain facilities, process drainage systems including industrial waste sewers to site pretreatment, or piping drains, drainage systems, or facilities from mechanical manufacturing, industrial processing, refrigeration, heating, air conditioning or parts, materials, devices or appurtenances in connection therewith, drainage waste or vent piping specifically installed for laboratories in commercial, industrial, research, and manufacturing plants and like entities, the primary purpose of these installations being the development, improvement, research, or discovery of a product or products, unless he/she shall be a licensed Journeyman Pipefitter or a licensed Master Pipefitter pursuant to this Code. No person shall test or repair backflow prevention devices within or appurtenant to process drains, process drain facilities, process drainage systems or piping drains, drainage systems or facilities from mechanical manufacturing, industrial processing, refrigeration, heating,

air conditioning or parts, materials, devices or appurtenances in connection therewith unless he/she shall be certified as a Backflow Prevention Device Tester pursuant to this Code. No person shall hold himself/herself out as being available to perform such work unless he/she shall be a licensed Journeyman Pipefitter or registered and bonded as a licensed Master Pipefitter and possess the appropriate Backflow Prevention Device Tester Certificate pursuant to this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be licensed, certified or registered as aforesaid. No partnership, corporation or other legal entity, or person conducting business under a fictitious name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be licensed, certified or registered as aforesaid.

5. *Fire Suppression Systems.* Except as otherwise provided in this Code, no person shall install, undertake to install or hold himself/herself out as being available for the installation of backflow prevention devices appurtenant to fire suppression systems, unless he/she shall be a licensed Journeyman Sprinkler fitter or a Licensed and Bonded Master Sprinkler Fitter pursuant to this Code. No person shall test or repair backflow prevention devices appurtenant to fire suppression systems, unless he/she shall be Certified as a Backflow Prevention Device Tester pursuant to this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be licensed, certified or registered as aforesaid. No partnership, corporation or other legal entity, or person conducting business under a fictitious name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be licensed, certified or registered as aforesaid.

6. *Lawn Irrigation Systems.* Except as otherwise provided in this Code, no person shall test or repair, undertake to test or repair or hold himself/herself out as being available for the testing or repair of backflow prevention devices appurtenant to lawn irrigation systems , whether such system is connected to a commercial water supply system or a shared or individual well, unless he/she shall be Licensed a Journeyman Lawn Irrigation Installer when in the employ of a Master Lawn Irrigation System Installer, a licensed and bonded Master Lawn Irrigation System Installer, a Licensed and Bonded Master Plumber or a Licensed Journeyman Plumber when in the employ of a Master Plumber and

possess the appropriate Backflow Prevention Device Tester Certificate pursuant to this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be licensed, certified or registered as aforesaid. No partnership, corporation or other legal entity, or person conducting business under a fictitious name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be licensed, certified or registered as aforesaid.

7. *Water Heater Replacement.* Except as otherwise provided in this Code, no person shall replace, undertake to replace or hold himself/herself out as being available for such replacement of residential water heaters of a size not to exceed 120 gallon capacity or 40 KW or 140,000 BTU's unless he/she shall be a Licensed and Bonded Master Plumber, a Licensed Journeyman Plumber when in the employ of a Master Plumber, a Licensed and Bonded Master Water Heater Replacement Specialist, or a Licensed Journeyman Water Heater Replacement Specialist when in the employ of a Master Water Heater Replacement Specialist or Master Plumber pursuant to this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be licensed as aforesaid. No partnership, corporation or other legal entity, or person conducting business under a fictitious name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be licensed, certified or registered as aforesaid.

8. *Residential Hydronic Heat Systems.* Except as otherwise provided in this Code, no person shall install, test or repair, undertake to install, test or repair or hold himself/herself out as being available for the installation, testing or repair of backflow prevention devices appurtenant to residential heating systems of a size not exceeding four hundred thousand (400,000) BTUH heating, and steam generators intended for the production of steam for single person, single family residential steam saunas, unless he/she shall be a Licensed and Bonded Master Pipefitter or Master Plumber or a Licensed Journeyman Pipefitter or Journeyman Plumber when in the employ of a Master Pipefitter or Master Plumber and possess the appropriate Backflow Prevention Device Tester Certificate pursuant to this Code. No person shall hold herself/himself out as being available to perform any such work unless she/he shall be licensed, certified or registered as aforesaid. No partnership, corporation or other legal entity, or person conducting business under a fictitious

name shall hold out such entity as being available to perform any such work in any advertising medium or publication unless a principal or employee of such entity shall be licensed, certified or registered as aforesaid.

9. *Hardship Clause.* In the event of a loss of a Master Licensee to a company employing tradesmen licensed in St. Louis County, through no fault of that company, a licensed Journeyman of the trade of the absent Master Licensee; or in the event of the loss of a Master Drainlayer to a company through no fault of that company, a person who would otherwise be eligible to qualify as a Master Drainlayer in the trade of the absent Master Drainlayer; and who shall be a full time employee of that company, shall be designated as an Interim Master after meeting all bonding and insurance requirements. That company may operate under an Interim Master, who will have the same rights, responsibilities and standing of a Master in that trade, for a period of not more than one (1) year from the date of the hardship. That company must submit to the Department of Public Works, Division of Plumbing Inspection, the information required by this Code to activate a Master License.

The granting or denial of a hardship license may be appealed to the Board of Plumbing Examiners at the next regularly scheduled meeting of the Board, no sooner than seven (7) calendar days and no later than thirty-eight (38) calendar days following the date appeal is received by the Board Secretary. The appeal must state the reasons for the appeal and must be accompanied by a fee of one hundred ($100.00) dollars. The final decision of the Board involving a hardship privilege is appealable in the same manner as other decisions of the Board. Additional appeals may be made pursuant to the procedures in Chapter 1115, 1116, 1117, SLCRO 1974 as amended.

10. Residential Fire Sprinkler Systems.
Fire protection for one (1) and two (2) family dwellings that is part of a system as follows:

A) A multipurpose fire sprinkler system that provides potable domestic water to both fire sprinklers and all plumbing fixtures shall be permitted by this Code and installed by a licensed Master Plumber or Journeyman Plumber certified by the Board of Plumbing Examiners for this installation.

B) A stand-alone sprinkler system, separate and independent from the water distribution system, shall be permitted and installed as required by the

Mechanical Code. On a combination main, the connection to the potable water service and/or distribution system shall be permitted by this Code by a licensed Master Plumber whom shall leave a tee and valve for connection by Master Sprinkler Fitter. The dedicated fire line connection to the potable water main shall be permitted by this Code by a licensed Master Sprinkler Fitter.

1103.P-150 Bond And Insurance Required.

1. No permits required under the provisions of this Code shall be issued until such applicant shall have on file in the Office of Plumbing and Sewer Inspection an approved surety bond in the amount of Twenty-Five Thousand Dollars ($25,000.00), and a certificate of Contractor Commercial General Liability Insurance in the minimum amount of One Million Dollars ($1,000,000.00) per occurrence. Contractor shall agree to maintain a standard ISO version Commercial General Liability policy form, or its equivalent, providing coverage for, but not limited to, Bodily Injury and Property Damage, Premise/Operations, Products/Completed Operations, Contractual Liability, Broad Form Property Damage, Explosion (X), Collapse (C), and (U) Underground coverage, Sever ability of Interest commercial General Liability with limits of not less than $1,000,000 per occurrence, Combined Single Limits (CSL) for bodily injury and property damage that may occur as result from operations. Coverage shall also extend to products and completed operations, contractual liability, and Explosion (X), Collapse (C) and Underground (U). St. Louis County, Missouri, shall be named as an additional insured.

2. County Counselor Approval. The bonds and insurance required herein shall be approved by the County Counselor and shall be given for the faithful observance of this Code and Sections 341.090 to 341.220 R.S.Mo. and all orders, rules and regulations adopted hereunder or under the provisions of sections 341.090 to 341.220 R.S. Mo. for the protection of the public health and safety and shall indemnify St. Louis County, Missouri, or any other governmental agency, or any person, firm, or corporation for any damage or injury sustained through the negligence or malfeasance of such applicant, their servants, agents or employees in performing work or for any damages or injury sustained due to such applicant's failure to perform work in a careful and workmanlike manner, in conformity with this Code and the orders, rules and regulations adopted hereunder or under the provisions of Sections 341.090 to 341.220 R.S. Mo. or for the use of St. Louis County, Missouri due to non-payment of fees

thirty (30) days from due date, or for the use of any person, firm or corporation with whom said applicant contracts to do work to indemnify any such person, firm or corporation for damages sustained due to failure of applicant to do work so contracted and shall be conditioned that the principal in said bond will employ licensed Journeyman in the performance of work which requires a Journeyman license under this Code.

1103.P-152 Qualifications For Application, Examination, License, Registration Or Certification.

1. *Master Plumber.*

An applicant for a Master Plumber's license shall have the following qualifications:

(A) At least five (5) years of experience as a Journeyman Plumber licensed under this Code, in addition to fulfilling the requirements of the Journeyman Plumber License, or under laws and regulations requiring similar qualifications. The applicant for Master Plumber shall have at least ten (10) years of practical experience in the design, planning, installation and supervision of plumbing systems including but not limited to, drainage and vent piping facilities; potable water supply and distribution piping systems; Plumbing Appliances, Appurtenance, and fixtures; and potable water cross connection control facilities. Or, in lieu thereof, possess such experience or training, as is the equivalent thereto. Equivalent training and experience shall mean that:

(1) The applicant shall be a civil or mechanical engineer, registered with the Missouri Board for Architects, Professional Engineers and Land Surveyors, and have four (4) years of experience in the design, planning and installation of plumbing, drainage, vent piping facilities, potable water supply and distribution piping and potable water cross connection control which must be obtained under the direction of a Master Plumber licensed under this Code or under laws and regulations requiring similar qualifications;

Or:

(2) The applicant shall have satisfactorily completed a five (5) year course in practical plumbing, drainage, vent piping facilities, potable water supply and distribution piping and potable water cross

connection control at a recognized trade or technical school, and five (5) years of experience in the design, planning and installation of plumbing, drainage, and vent piping facilities, potable water supply and distribution piping and potable water cross connection control, which must be obtained under the direction of a Master Plumber licensed under this Code or under laws and regulations requiring similar qualifications;

Or:

(3) The applicant shall be a Master Plumber who has qualified for a license under examination, rules and regulations, similar to the St. Louis County, Missouri, Board of Plumbing Examiners Examination rules and regulations; has been working under rules and regulations equal to or exceeding the rules and regulations of this Code; has been examined and qualified for a St. Louis County Journeyman Plumber license; and has worked under the direction of a licensed St. Louis County, Missouri, Master plumber for at least two (2) years;

Or:

(4) Such other experience and/or training as the Board of Plumbing Examiners determines is equivalent.

(B) He/she shall possess the ability to direct other persons in the performance of plumbing work and shall be skilled in designing and installing plumbing fixtures and facilities, and shall have a thorough knowledge of the art of plumbing necessary for the protection of the public health.

(C) An applicant shall be required to successfully pass an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

2. *Journeyman Plumber.*

An applicant for a Journeyman Plumber license shall possess training and experience in all phases of the plumbing industry. They shall be skilled in installing plumbing fixtures and facilities and shall have a thorough knowledge of the art of the plumbing system as it relates to the protection of the public health and shall have at least five (5) years of experience as

an Apprentice Plumber under the direction and supervision of a Master or Journeyman Plumber licensed under the rules and regulations of this Code. In addition, an applicant shall provide proof of apprenticeship training as required in Section P-154 par 5, (effective January 1, 2016), or under laws and regulations requiring similar qualifications, or, in lieu thereof, the applicant shall provide proof of such experience and/or training as is equivalent to the requirements of this Code. Proof of apprentice class room training shall be a transcript, grade sheet or letter from a Dean or Administrator at the school or organization for each class completed with a passing grade by the student. (To become effective January 1, 2016.)

Equivalent training and experience may be considered to mean either:

(A) A degree in civil or mechanical engineering from an accredited college or university, and three (3) years of experience in the design, planning and/or installation of plumbing, drainage, vent piping facilities, potable water supply and distribution piping and potable water cross connection control under the direction of a Master or Journeyman Plumber licensed under the rules and regulations of this Code, or under laws and regulations requiring similar qualifications.

Or

(B) The satisfactory completion of a three (3) year course in practical plumbing, drainage, vent piping facilities, potable water supply and distribution piping, and potable water cross connection control at a recognized trade or technical school and five (5) years of experience as an Apprentice Plumber under the personal direction of a Master or Journeyman Plumber licensed under the rules and regulations of this Code, or under rules and regulations requiring similar qualifications;

Or

(C) Such other experience and/or training as the Board of Plumbing Examiners determines is equivalent.

Note 1. Employment in plumbing maintenance for one year may be deemed the equivalent of one (1) year of experience required for Master or Journeyman Plumber License.

Note 2. Experience for any license may not be acquired during the identical times and dates as the experience is acquired for a second license

(D) An applicant shall be required to successfully pass an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

3. *Master Drainlayer.*

An applicant for a Master Drainlayers license shall possess a current Master Plumber license issued by St. Louis County or have the following qualifications:

(A) Five (5) years of experience in drainlaying under the personal direction of a Master Drainlayer licensed under the rules and regulations of this Code, or under laws and regulations requiring similar qualifications or such other experience and/or training as the Board of Plumbing Examiners determines is equivalent. In lieu thereof the applicant shall have a degree in civil or mechanical engineering from an accredited college or university, and three (3) years of experience in design, installation and planning of private and public sanitary storm sewers and sewerage systems.

(B) The applicant shall possess the ability to direct other persons in the installation of sanitary and storm sewers, and sewerage systems, private and public and shall have a thorough knowledge of the art of drainlaying necessary for the protection of the public health.

(C) An applicant shall be required to receive a passing grade on an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

4. *Master Pipefitter.*

An applicant for a license as a Master Pipefitter shall have the following qualifications:

(A) A minimum of ten (10) years of verifiable training and/or experience as a pipefitter under a Department of Labor approved apprenticeship program or with a reputable, bona fide process piping contractor, at least five (5) years of which has been in a supervisory capacity or such other training and experience as the Board of Examiners determines to be equivalent.

(B) A thorough knowledge of the design and installation of process piping systems in general and backflow prevention devices, assemblies and methods relating to process piping systems in particular.

(C) Meet all appropriate local, state and federal requirements for conducting a business in St. Louis County, Missouri, including but not limited to, obtaining applicable licenses, registrations and tax numbers.

(D) An applicant shall be required to receive a passing grade on an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

5. Journeyman Pipefitter.

An applicant for a Journeyman Pipefitter License shall have the following qualifications:

(A) A minimum of five (5) years of verifiable training and/or experience as a pipefitter under a Department of Labor approved apprenticeship program or with a reputable, bona fide process piping contractor or such other training and experience as the Board of Examiners determines to be equivalent.

(B) A thorough knowledge of the installation of process piping systems in general and backflow prevention devices, assemblies and methods relating to process piping systems in particular.

(C) An applicant shall be required to receive a passing grade on an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

6. Master Sprinkler Fitter.

An applicant for a Master Sprinkler Fitter license shall have the following qualifications:

(A) A minimum of ten (10) years of training and/or experience as a Sprinkler fitter, at least five years of which shall have been under a Department of Labor approved apprenticeship program or with a reputable, bona fide Fire Suppression Sprinkler System Contractor, and at least five (5) years of which shall have been as a licensed Journeyman or in a similar supervisory capacity, or such other

experience and/or training as the Board of Examiners determines to be equivalent.

Or

(B) A bachelor's of science degree in Civil or Mechanical engineering from an accredited university and the applicant shall have had at least five (5) years of experience in automatic sprinkler system design, planning and/or installation of same under the supervision of a Master Sprinkler Fitter licensed under this Code or equivalent license, and must be a licensed professional engineer licensed to practice in the State of Missouri.

Or

(C) A NICET Level IV certification in the Automatic Sprinkler System Layout field, in which the applicant shall have received training in the sprinkler system design, and the applicant shall have had at least five (5) years of experience in automatic sprinkler system design, planning and/or installation of same under the supervision of a Master Sprinkler Fitter licensed under this Code or equivalent license, at least five (5) years of which shall have been in a supervisory capacity.

Or

(D) A NICET Level III certification in the Automatic Sprinkler System Layout field, in which the applicant shall have received training in the sprinkler system design, and the applicant shall have had at least ten (10) years of experience in automatic sprinkler system design, planning and/or installation of same under the supervision of a Master Sprinkler Fitter licensed under this Code or equivalent license, at least five (5) years of which shall have been in a supervisory capacity.

(E) A thorough knowledge of the design and installation of fire suppression sprinkler systems in general and backflow prevention devices, assemblies and methods relating to fire suppression systems in particular.

(F) Meet all appropriate local, state and federal requirements for conducting a business in St. Louis County, Missouri, including but not limited to, obtaining applicable licenses, registrations and tax numbers.

(G) An applicant shall be required to receive a passing grade on an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

7. *Journeyman Sprinkler Fitter.*

An applicant for a Journeyman Sprinkler fitter license shall have the following qualifications:

(A) A minimum of five (5) years of verifiable training and/or experience as a sprinkler fitter under a Department of Labor approved apprenticeship program or with a reputable, bona fide Fire Suppression Sprinkler System Contractor or such other training and experience as the Board of Examiners determines to be equivalent.

(B) Be thoroughly familiar with the installation of fire suppression sprinkler systems in general and backflow prevention devices, assemblies and methods relating to fire suppression systems in particular.

(C) An applicant shall be required to successfully pass an examination designed or selected by the Board of Examiners in addition to the foregoing requirements.

(D) An applicant shall be required to receive a passing grade on an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

8. Lawn Irrigation Installer.

An applicant for a Master Lawn Irrigation Installer license shall have the following qualifications:

(A) A minimum of six (6) years of verifiable training and/or experience in the design and installation of lawn irrigation systems under a Department of Labor-approved program or bona fide Lawn Irrigation Contractor, at least three (3) of which was in a supervisory capacity, or such other experience and/or training as the Board of Examiners determines to be equivalent.

(B) A thorough knowledge of the design and installation of lawn irrigation systems, particularly the installation and repair of backflow prevention devices relating to lawn irrigation systems.

(C) Meet all appropriate local, state and federal requirements for conducting a business in St. Louis County, Missouri including but not limited to obtaining applicable licenses, registrations and tax numbers.

(D) An applicant shall be required to receive a passing grade on an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

9. Journeyman Lawn Irrigation Installer.

An applicant for a Journeyman Lawn Irrigation Installer license shall have the following qualifications:

(A) A minimum of three (3) years of verifiable training and/or experience in the installation of lawn irrigation systems under a Department of Labor-approved program or bona fide Lawn Irrigation Contractor, or such training and experience as the Board of Examiners determines to be equivalent.

(B) A thorough understanding of the methods of installation of lawn irrigation systems, particularly the testing and repair of backflow prevention devices relating to lawn irrigation systems.

(C) An applicant shall be required to receive a passing grade on an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

10. *Backflow Prevention Assembly and Device Tester.*

An applicant for a Backflow Prevention *Assembly and* Device Tester Certificate shall have the following qualifications:

(A) Be certified by the Missouri Department of Natural Resources as a Backflow Prevention Device Tester.

(B) Must be licensed, certified and/or registered as a Master Plumber, Journeyman Plumber, Journeyman Pipefitter, Master Pipefitter, Journeyman Sprinkler Fitter, Master Sprinkler fitter, Journeyman Lawn Irrigation Installer or a Master Lawn Irrigation Installer under the foregoing provisions of this Code.

Note: EVERY BACKFLOW PREVENTION CERTIFICATE / LICENSE NUMBER SHALL INDICATE THE TYPE(S) OF WATER SYSTEMS FOR WHICH THE HOLDER IS QUALIFIED.

11. *Interim Journeyman License.*

In the event the Board of Plumbing Examiners determines that a shortage of licensed Journeymen in a particular trade exists in St. Louis County, an Interim Journeyman License for that trade may be granted.

(A) An applicant for an Interim Journeyman License for that trade may be granted to a person whose most recent residence and employment as a journeyman or apprentice was more than 125 miles from the St. Louis County courthouse and who has previously registered and is currently registered as an apprentice or experienced apprentice working under a bonded St. Louis County Licensed Master in that trade and who meets all the practical experience and training qualifications required by this Code for license as a Journeyman in that trade, and by the applicants choice has not passed the required written examination. Applicants for an Interim Journeyman License shall submit a written application to the Board and pay the same fee(s) as an applicant for a regular Journeyman License.

(B) Interim Journeyman licenses shall expire one year after the date of issuance and are non-renewable. A person who's Interim Journeyman License has expired is not eligible to apply for another Interim Journeyman license in that trade.

(C) An Interim Journeyman license may be upgraded to a regular Journeyman license by passing the appropriate examination. Applicant for the appropriate examination must apply for issuance of the exam credentials during the term of the Interim License. If the Interim license has expired, a new application must be made to the Board. The Board will accept the previous review of qualification for experience and training unless there is information that the previous review considered information that was falsified or otherwise invalid.

(D) An interim Journeyman License may not be used to qualify the number of Apprentices that may be approved for an entity employing Journeymen.

12. *Master Water Heater Replacement Specialist.*

An applicant for a Master Water Heater Replacement Specialist license shall have the following qualifications:

(A)

The applicant shall submit supporting documents to demonstrate a thorough understanding of the methods of installation of water heaters.

Supporting documents may consist of:

- Completion certificates from WH manufacturer's installation training programs (including training outline) with a minimum of 50 hours collectively.
- Verification of installation experience (time associated with experience; W-2 and a notarized affidavit(s) from previous employers)from working for appliance stores, repair shops, etc.
- Completion certificate from a certified vocational program (Ranken, etc.)

It will be the discretion of this Board of Examiners to determine if the applicant meets the minimum "thorough understanding of the methods of installation of water heaters."

(B) Meet all appropriate local, state and federal requirements for conducting a business in St. Louis County, Missouri including but not limited to obtaining applicable licenses, registrations and tax numbers.

(C) Pass an examination approved or selected by the Board of examiners in addition to the foregoing requirements.

13. *Journeyman Water Heater Replacement Specialist.*

An applicant for a Journeyman Water Heater Replacement Specialist license shall have the following qualifications:

(A) A thorough understanding of the methods of installation of water heaters, as evidenced by the submission of supporting documents.

Supporting documents may consist of:

- Completion certificates from a Water Heater manufacturer's installation training programs

(including training outline) with a minimum of 50 hours collectively.

- Verification of installation experience (time associated with experience; w2 and a notarized affidavit(s) from previous employers) from working for appliance stores, repair shops, etc.
- Completion certificate from a certified vocational program (Ranken, etc.)

It will be the discretion of this Board of Examiners to determine if the applicant meets the minimum "thorough understanding of the methods of installation of water heaters."

(B) Pass an examination approved or selected by the Board of Examiners in addition to the foregoing requirements.

14. *Clarification of Experience Qualification.*

Where the qualifications in this Section (152) indicate years of experience, then education, by itself, when not accompanied by actual on job training, may only be used to meet one-half the license requirements for experience. The education that shall qualify to substitute for experience must meet the following criteria: a) be full time beyond high school education (alternate high school education will not be considered); b) must be from a fully accredited educational institution and part of a fully accredited program of instruction; and c) must be a program of instruction applicable to the license.

1103.P-154 Apprenticeship.

1. A Master licensed by St. Louis County, who employs an apprentice in St. Louis City, and/or the Missouri Counties of St. Louis, Jefferson, Franklin, and St. Charles County, and/or the Illinois Counties of Monroe, Madison, and St. Clair County shall register that apprentice in St. Louis County under the rules contained in this ordinance. All persons serving an apprenticeship in any trade registered under this Code shall register with the Board of Plumbing Examiners prior to the start of their apprenticeship training in that trade. The Master is held solely responsible to register all apprentices. Penalties for failure to register an apprentice shall be suspension or revocation of the Master license by the Board of Plumbing Examiners. A Joint Apprenticeship Training Committee (JATC),

registered with the Labor Department, may act on behalf of an employer who is not a licensed Master under this Code, to facilitate the registration of apprentices.

(A) The word "apprentice" as used in this Code shall mean a person learning, or already having experience, in the principles and art of the trade category in which the person is registered, under the personal direction and supervision of a licensed Master or Journeyman.

(B) The word "Experienced Apprentice" as used in this Code shall mean a person, who in the judgment of the Board of Plumbing Examiners, previous to his application, has received a minimum of two and one-half (2-½) years of equivalent training and experience learning the principles and art of the trade category in which the person is registered during which the applicant has received a minimum of five hundred (500) hours of approved classroom training, and who has received a minimum of ten (10) hours of OSHA approved Safety Training for Construction, and who has been certified by the Master for whom he/she is currently employed that said apprentice is capable of performing installations that are in compliance with the Code and with the principals and art of the trade category, and who shall continue his training and experience under the direction and supervision of a licensed Master until qualified to apply for Journeyman in that trade.

(C) An Apprentice applicant whose training was not received under a St. Louis County licensed Master may also apply for "Experience Apprentice" upon meeting the requirements listed in the above paragraph or the equivalent as determined by the Board.

2. Personal Supervision of Apprentices.

An Apprentice is to be under the supervision of a Master or Journeyman at all times. An apprentice may only be supervised by a Master or Journeyman. The Master or Journeyman is not required to constantly watch the Apprentice but is to lay out the work required and permit the Apprentice to perform the work on his/her own. Masters or Journeymen are permitted to leave the immediate work area and remain on job site without being accompanied by the Apprentice. But, the Apprentice should know where the Master or Journeyman is located on the job site, so she/he can request assistance and/or direction.

Job site is defined as follows:

(A) A single building or structure, or a group of related and supporting buildings, on one site covered by one or more permits, or

(B) A designated subdivision consisting of more than one single family residence on one contiguous section of land, or

(C) A residential complex containing one or more multi-family structures on one contiguous section of land and contained within one designated development.

3. No licensed apprentice plumber shall serve more than a seven year licensed apprenticeship period. If, upon completion of a 7-year licensed apprenticeship period, such licensed apprentice plumber does not apply for the examination for a journeyman plumber's license within the licensed apprenticeship period and successfully pass the examination for a journeyman plumber's license, his or her apprentice plumber's license shall not be renewed and will be deemed expired.

Exception:

Pursuant to Board Policy 1201015N: if a licensed apprentice plumber cannot meet the number of hours required to take the Journeyman's test within the seven years of the apprenticeship period due to no fault of the licensed apprentice plumber, the Board may extend the expiration of that license.

An apprentice or experienced apprentice must make an initial application to the Board within twelve (12) months of completion of the experience requirement for license (minimum term as set forth in this section). The Board may revoke an apprentice license for failure to make such application for Journeyman License. The Board may review all apprentice and experienced apprentice's registrations that have extended more than two (2) years beyond the listed minimum term. Registration may be canceled if the Board determines, after providing the registrant with notice and an opportunity to be heard, that the registrant is not learning the principles and art of the trade category in which he or she is registered, and is not making an attempt to become licensed. The Board may remove "Experienced Apprentice" status, if the Board determines that the registrant has inadequate knowledge of the principals and art of the trade category to hold such registration in which he or she is registered. The Board may return such registrant to a lesser classification. The decision of the Board involving a

registration may be appealed in the same manner as other decisions of the Board.

If an applicant fails to take an examination for license as required by this Code, the application shall be denied. The applicant may submit a new application for examination, accompanied by the required application fee. Application fees for examination for a plumber's license are not refundable.

(A) Plumber Apprentice - minimum term of apprenticeship shall be five (5) years.

(B) Experienced Plumber Apprentice - minimum term of apprenticeship shall be as determined by the Board of Plumbing Examiners but no less than a total of five (5) years of equivalent training and experience.

4. Apprentices and/or Experienced Apprentices are prohibited from registering in more than one (1) trade category in the same time period.

5. An applicant for Apprentice or Experienced Apprentice Registration shall:

(A) Register with the Board of Plumbing Examiners using the form approved and provided by the Board. Said registration shall include the applicant's name, Social Security Number, address, zip code, age and telephone number. The applicant shall also include on the application the name of the licensed Master under which the applicant will be receiving training and instructions.

(B) Furnish a letter from a St. Louis County Master, licensed in the trade in which he/she is registering confirming the apprentice's or experienced apprentice’s employment and previous experience and accepting responsibility for training said apprentice.

(C) Furnish a listing of all journeymen, apprentice and experienced apprentices currently in the St. Louis County Master’s employ by name and license or registration number.

(D) Proof of enrollment within six months of application in (This requirement to become effective January 1, 2011):

(1) An applicable apprenticeship program certified by the Bureau of Apprenticeship and Training of the United States Department of Labor (BAT/ATELS); OR

(2) A Board approved, equivalent apprenticeship program such as classroom/laboratory training by a Trade School such as Ranken Technical College, or Jefferson College or by any school or organization approved, accredited or certified, as applicable, by:

(a) The Higher Learning Commission, a Commission of the North Central Association of Colleges and Schools; or

(b) The Accrediting Commission of Career Schools and Colleges of Technology; or

(c) The National Center for Construction Education and Research; or

(3) An applicable, integrated five (5) year combined classroom and field training apprenticeship program that is conducted by any school or organization approved, accredited or certified, as applicable, by:

(a) The Higher Learning Commission, a Commission of the North Central Association of Colleges and Schools; or

(b) The Accrediting Commission of Career Schools and Colleges of Technology; or

(c) The National Center for Construction Education and Research; or

(E) A written, individual training program, providing five (5) years of combined of educational training, classes and field work or on-the-job training obtained as follows:

(1) At least 500 classroom hours of educational training or classes covering work that requires a license under this Section as allowed by the (Note to this subsection below) that is conducted by any combination of schools or other organizations approved, accredited, or certified as applicable by:

(a) The Higher Learning Commission, a Commission of the North Central Association of Colleges and Schools; or

(b) The Accrediting Commission of Career Schools and Colleges of Technology; or

(c) The National Center for Construction Education and Research; and

(2) The balance of the required hours needed to equal five (5) years through field work and/or on-the-job training under the supervision and inspection of a Journeyman licensed under this Section to perform the work involved.

Note: Within the total 500 classroom hours presented as part of any individualized training program the individual program must contain a minimum of 440 hours technical instruction in the installation, alteration, reconstruction, repair, replacement and/or servicing of Plumbing Systems.

(E) Applicants shall pay a registration fee of Ten Dollars ($10.00) and provide a photograph for identification purposes to the Board.

6. Apprentices and Experience Apprentices shall, during the month of July of each year after registration, report their training and employment status to the Board. Such report shall be on a form provided by the Board, shall list for the past year, (July 1 to June 30,) all employers, and period of time worked.

Note: Failure to report this required information to the Board of Examiners may cause the registration to be canceled.

7. Any Master employing an apprentice and/or an experienced apprentice shall advise the Board in writing immediately upon the commencement or termination of the apprentice's employment. In addition by the last work day of July of each year the Master shall provide to the Board a list of each apprentice and/or experienced apprentice in their employ as of June 30th of the prior month.

8. The total number of apprentices and experienced apprentices employed by a Master at any given time shall not exceed the total number of licensed Journeyman employed at that time plus one (1) additional apprentice or experienced apprentice for each

active Master. In times of work shortages, application may be made to the Board of Plumbing Examiners, by a St. Louis County licensed Master or JATC, to waive the aforementioned requirement.

1103. P-155 Interceptors (Separators) – Registration, Maintenance And Inspection Required.

1. Upon adoption of Rules and Regulations by The Metropolitan St. Louis Sewer District, MSD, for inspections of existing interceptors to be scheduled annually, the County Executive and/or the Code Official is authorized to enter into a contract with MSD for record keeping of such inspections per the requirements of this section.

2. Interceptors, including but not limited to grease interceptors, oil interceptors/separators, installed in accordance with this code shall be inspected and certified as to proper maintenance and operation annually, by persons who are properly licensed Plumbers pursuant to this Code. The owner/user shall maintain all interceptors in proper working condition.

3. The owner of these devices shall maintain a written record of interceptor maintenance for two years. All such records shall be available at all times and shall be submitted to the inspector at the inspector's request. These records shall contain the date of inspection or maintenance, name of the person performing the inspection or maintenance, and the manager's signature or initials for verification.

(A) Hydromechanical grease interceptors shall be cleaned as required by use and as required by the manufacturer, but at intervals not longer than ninety (90) days at the owners/users expense. Gravity Grease interceptors and Oil and sand interceptors shall be cleaned as required by use, but at intervals not longer than one hundred eighty (180) days. Interceptors shall be kept free of inorganic solid materials such as grit, rocks, gravel, sand, eating utensils, cigarettes, shells, towels, rags, etc., which could settle into the interceptor and thereby reduce the effective volume. The use of biological chemicals as a grease degradation agent is conditionally permissible upon written approval of the Chief Plumbing Inspector. Any establishment using this method shall maintain the interceptor in such a manner that abatement from the interceptor's outlet is consistently attained.

(B) The results of such inspections shall be submitted to the Office of Plumbing and Sewer Inspection, within thirty (30) days after making such test, on a form which is acceptable to the Code Official, and shall be completed and signed by the tester. A copy shall also be provided at time of inspection, or an appropriate sticker shall be applied to maintenance records posted in the location of the device.

(C) The Office of Plumbing and Sewer Inspection shall maintain all records of inspections performed in accordance with the Code requirements and notify all owners when retesting is required. Violation notices shall be issued and notification shall be sent to the Health Department and MSD, for failure to perform or register the required test.

(D) The fee for such notification, record maintenance and registration shall be the rate specified in Chapter 1100, SLCRO 1974 as amended. Fees shall be paid by the employing Master in a manner approved by the Code Official, at the time the test report is submitted by the device tester to the Office of Plumbing and Sewer Inspection.

(E) Installations of grease and oil interceptors/clarifiers shall be performed in accordance with this code by persons who are properly licensed pursuant to this Code as a Plumber.

(F) Inspections of grease and oil interceptors/clarifiers by persons who are properly licensed pursuant to this Code as a Plumber and certified by the Board of Plumbing Examiners for this inspection.

(G) This provision shall take effect no later than one year and no sooner than 90 days after the final adoption of this ordinance and the adoption of regulations requiring such inspections by MSD.

1103. P-156 Backflow Prevention Assembly and Devices – Registration, Maintenance And Testing Required.

1. Backflow prevention assembly and devices installed in accordance with this code shall be tested and certified as to proper operation at the time of installation and each year thereafter by persons who are properly licensed and certified pursuant to this Code. At the time of installation a permanent tag shall be attached to the backflow prevention assembly and device on which shall be recorded the permit number, the

tester's name, registration number, and the date tested. Each subsequent test shall be recorded on the tag in like manner. This tag shall remain attached to the device until such time as the device is replaced or retired. Tags shall be made of materials sufficiently durable to withstand the environment in which the device is installed. The water user, whether water originates from a commercial water supply system or shared or individual well, shall maintain all backflow prevention devices in proper working condition.

2. The installation testing and maintenance of backflow prevention devices shall be performed in accordance with this Code. In addition regulations, requirements, standards and procedures established by the Missouri Department of Natural Resources, Public Drinking Water Program become a requirement of this Code.

3. The results of such tests shall be submitted to the Office of Plumbing and Sewer Inspection, within thirty (30) days after making such test, on a form which is acceptable to the Code Official, and shall be completed and signed by the tester. A copy shall also be provided, within thirty (30) days, to the owner, and water customer if different than the owner and if records for the device are not maintained by St. Louis County, the supplier of water.

4. Where the supplier of water has contracted with St. Louis County to maintain records of backflow testing required by state law, the Office of Plumbing and Sewer Inspection shall maintain all records of tests performed in accordance with the Code requirements and notify all water customers and device owners when retesting is required, send a list of licensed and bonded Masters with such notification, issue violation notices for failure to perform or register the required test, notify the supplier of water and request termination of the potable water connection of any water customer and owner of a device who shall fail to have any required test performed. If the device owner receives water from a shared or individual well, the Office of Plumbing and Sewer Inspection shall maintain all records of tests performed in accordance with the Code requirements, notify all device owners when re-testing is required, send a list of licensed and bonded Masters with such notification, and issue violation notices for failure to perform or register the required test.

5. The fee for such notification, record maintenance and registration shall be the rate specified in Chapter 1100 SLCRO 1974 as amended. Fees shall be paid by the employing Master in

a manner approved by the Code Official, at the time the test report is submitted by the device tester to the Office of Plumbing and Sewer Inspection.

1103. P-157 Replacement of Residential Dishwasher – Registration And Certification Required.

Residential Dishwashers shall be replaced by a licensed Master Plumber or Licensed Journeyman Plumber in accordance with this code and shall be certified as to proper installation at the time of replacement. At the time of replacement a permanent tag shall be attached to the dishwasher on which shall be recorded the Certificate of Replacement number, the installer's name, license number, and the date installed. This tag shall remain attached to the dishwasher until such time as the dishwasher is replaced or retired and shall be made of materials sufficiently durable to withstand the environment in which the device is installed.

2. The results of such replacement shall be submitted to the Office of Plumbing and Sewer Inspection within fifteen (15) days after making such replacement and test, on a form acceptable to the Code Official, and shall be completed and signed by the Master Plumber. A Certificate of Completion shall be provided by the Master Plumber, within fifteen (15) days of completion of the replacement, to the owner.

4. The Office of Plumbing and Sewer Inspection shall maintain all records of all Certificates of Replacement in accordance with the Code requirements and issue violation notices for failure to perform or register the required Certificate of Replacement.

5. The fee for such notification, record maintenance and registration shall be specified in Chapter 1100, SLCRO 1974 as amended. Fees shall be paid by the employing Master in a manner approved by the Code Official.

6. Residential Dishwasher Replacement under a Homeowner Permit requires an inspection and appropriate fees as specified in Chapter 1100 SLCRO 1974 as amended. The homeowner must make all dishwasher connections visible at the time of inspection.

1103.P-158 Installations And Initial Test Of Backflow Prevention Assembly and Devices.

The installation and initial test of backflow prevention assembly and devices shall be performed in accordance with this

code and the standards and procedures established by the Missouri Department of Natural Resources, Public Drinking Water Program by persons who are properly licensed pursuant to this Code and who also possess a current Backflow Prevention Device Tester Certificate issued under the Standards and Procedures established by the Missouri Department of Natural Resources, and registered with the Code Official.

The testing, repair, replacement or retrofit installation of existing Backflow Prevention assembly and Devices for Plumbing systems, and Process Piping systems may be performed by Journeyman Plumbers, Journeyman Pipefitters, Master Plumbers, or Master Pipefitters licensed under this Code who also possess a current Backflow Prevention Device Tester Certificate issued under the Standards and Procedures established by the Missouri Department of Natural Resources, and registered with the Code Official. All testing must be performed under the supervision of an appropriately licensed and certified Master.

Clarification:

To test and repair Backflow assemblies in compliance with the Plumbing Code Ordinance the tester shall hold the appropriate license (Plumber, Pipefitter, Sprinkler Fitter) and shall have certification by the Missouri Department of Natural Resources as a Backflow tester and that certification shall be registered and a Backflow Tester license issued under the Plumbing Code Ordinance. All testing must be performed under the supervision of an appropriately licensed Master.

1103. P-159 Residential Multi-Purpose Fire Protection Systems Installers.

Residential Multi-Purpose Fire Protection Systems Installers for One and Two Family Dwellings.

The installation of Residential Multi-Purpose Fire Protection Systems shall be performed in accordance with this code and the standards and procedures established by the St. Louis County Board of Plumbing Examiners, by persons who are properly licensed pursuant to this Code and possess a current certification for ASSE Series 7000 (current edition), Professional Qualifications Standard for Residential Potable Water Fire Protection System Installers & Residential Fire Protection System Inspectors for One and Two Family Dwellings issued by American Society of

Sanitary Engineering (ASSE) or other approved third party certification agencies with similar or more stringent qualifications.

The installation documents shall contain the following statement signed by the ASSE Series 7000 Certified or equivalent Master Plumber:

A) ”I certify that I personally prepared and/or directly supervised an ASSE Series 7000 Certified Journeyman in preparation of the installation documents. I assume full responsibility for document accuracy.”

B) Master Plumber Signature:
Master Plumber STL. Co LIC #:
ASSE Series 7000 Certification #:

The testing, repair, replacement or retrofit installation of existing Residential Multi-Purpose Fire Protection Systems may be performed by Journeyman Plumbers or Master Plumbers licensed under this Code who also possess a current certification for ASSE Series 7000(current edition), Professional Qualifications Standard for Residential Potable Water Fire Protection System Installers & Residential Fire Protection System Inspectors for One and Two Family Dwellings issued by American Society of Sanitary Engineering (ASSE) or other approved third party certification agencies with similar or more stringent qualifications.

To install Residential Multi-Purpose Fire Protection Systems the Plumbing Code Ordinance requires the installer to hold the appropriate license (Plumber or Master Plumber) as well as be certified by American Society of Sanitary Engineering (ASSE) or other approved third party certification agencies with similar or more stringent qualifications as a ASSE Series 7000(current edition), Professional Qualifications Standard for Residential Fire Protection System Installers & Residential Fire Protection System Inspectors for One and Two Family Dwellings and that certification be registered with the code official. All installations must be performed under the supervision of an appropriately licensed Master Plumber.

1103.P-160 Licenses, Registration Or Certification Application And Renewal.

In order to obtain any license, registration or certification required under this Code, a person must comply with the following:

1. New Applicants shall:

(A) Submit a completed application for examination form with the required application fee to the Board of Plumbing Examiners.

(B) Said form shall include all information and documentation necessary to verify that the applicant meets all the practical experience and training qualifications required by this Code for the appropriate license, registration or certification. Applicants may attach additional documentation as needed.

(C) Upon receipt of an application for examination, no later than seven (7) calendar days prior to their next meeting, it shall be provided to the Board of Plumbing Examiners at its next scheduled meeting. The Board shall conduct an investigation to verify that the information on the application is true and accurate and that all requirements and qualifications are met.

(D) The Board shall, within sixty (60) days of final action by the Board notify the applicant in writing of the approval or denial of said application. If the application is approved, the applicant becomes eligible to take the examination, if examination is required by this Code. If the Board denies an application, the Board shall include in the notice the reason for the denial. Any applicant whose application is denied shall have the right to request a hearing before the Board of Appeals. A request for hearing may not be filed more than thirty (30) days after the applicant is notified in writing of the Board's denial of the application. As soon as practicable after receipt of a timely request for hearing, the Board of Appeals shall send written notice to the applicant or his attorney of record of the time and place of the hearing, and such notice shall in every case be given at least ten days before the hearing. Hearings shall be conducted in accordance with the requirements of Chapter 536 R.S.Mo. As soon as practicable after the conclusion of the hearing, the Board shall adopt a written decision, including

findings of fact and conclusions of law, and give written notice of its decision to the applicant or his attorney of record in accordance with Chapter 536 R.S. Mo. The decision of the Board of Appeals may be reviewed in the same manner as decisions of the Code Official.

(E) Applicants who pass the examination must submit application for license with the required license fee; provide all information required on the application form a full-face photograph or the equivalent as determined by the Board, for identification purposes.

(F) Applicants who fail the examination will be notified by the Board and advised of re-application procedures.

(G) An applicant shall pay all appropriate examination, registration, certification and/or license fee(s) as required by this Code.

(H) The Board of Examiners may withhold approval of an otherwise qualified applicant if the applicant was previously determined by the Board either to have violated a provision of this Code or to have possessed any license, registration or certificate issued pursuant to this Code, which was suspended or revoked within the six-month period immediately preceding the date of his/her application.

2. *Licensed Renewal Applicants shall:*

(A) Submit a completed application for license renewal, a full-face photograph or the equivalent as determined by the Board, for identification purposes with each renewal.

(B) As soon as practicable after the passage of this Code, the Board of Plumbing Examiners shall, after providing reasonable opportunity for public participation, adopt reasonable rules and regulations to interpret and implement the provisions of this Code with respect to continuing education. A licensee may obtain a copy of the rules and regulations upon application and upon payment of fee established for this purpose. Holders of active licenses shall also submit verification that they have attended continuing education courses, seminars, films or other training approved by the Board of Plumbing Examiners in the following minimums starting January 1, 1999:

(1) Master Contractors twelve (12) PEU (Professional Education Units) per three-year (3) license cycle pro-rated on a yearly base.

(2) Journeyman Licensee twelve (12) PEU per three-year license cycle pro-rated on a yearly base.

(3) There may be a carryover of a maximum of four (4) PEU's in excess of the required amount of PEU's to the next license cycle.

(4) PEU's earned under the licensing provisions of the Mechanical Code shall also apply to the PEU's required in this code, if PEU's earned under the licensing provisions of the Plumbing Code shall also apply to the Mechanical Code.

(C) A person applying for renewal of a license, registration or certification may file his/her application up to ninety (90) days but not less than thirty (30) days before the license, registration or certificate expires. A person applying for such renewal, prior to its expiration, shall file only a new application form, surety bond, (if required) and pay the fee(s) required under this Code.

(D) Upon written application and for good cause shown, waivers or extension of time of the credit hour or reporting requirements of this Code may be granted by the Board in individual cases or classes of cases involving hardship or extenuating circumstances. Extensions granted by the Board may be conditioned on the payment of a late filing fee of thirty ($30) dollars. If the Board grants an extension, the license expiration date shall be extended to the date set by the Board for completion of the credit hour and reporting requirements.

(E) A person who fails to comply with all of the above requirements for renewal of a license, registration or certificate prior to its expiration, shall, in addition to becoming compliant with the requirements of this subsection, pay a processing fee of one hundred ($100) dollars. A person who submits a renewal application more than one (1) month after the license expiration shall be required to submit to re-examination (if examination is required) under the same terms and conditions imposed upon new applicants.

(F) Failure to receive an application for renewal of a license or certificate of authority shall not relieve the

licensee or certificate holder from their duty to timely renew, nor shall it relieve them from the obligation to any additional fee(s) necessitated by any late renewal.

3. Inactive Licenses:

Any licensed person who is not working at his/her licensed trade and who desires to retain his/her license may do so by notifying the Board of Plumbing Examiners that he/she wishes to be placed in inactive status. Such notice shall be in writing and shall state that the license holder is not working at his/her licensed trade, wishes to be placed in inactive status, understands that he/she is prohibited from working while inactive and agrees to notify the Board to activate his/her license prior to resuming work. It shall be a violation of this Code for a license holder to perform work in his/her license category while in inactive status. Inactive Master license holders may maintain a Journeyman License concurrently and enjoy the privileges of that license. The Board shall respond in writing to the license holder in each inactivation or reactivation action and each such action shall be noted in the Board minutes. An inactive license shall be issued stating the license number and type, which is inactive. This inactive license shall be valid for a period of ten (10) years. Three (3) months prior to the expiration date, the department shall notify the holder at his last known address, the date that his inactive license will expire so that it can be renewed at the holder's request and payment of fees and other requirements of the Board.

It is the responsibility of the Inactive License holder to notify the Board of any license change or change in address. Maintenance of any other license will be equivalent to notifying the Board of address change.

License holders in inactive status, who renew their licenses, are not required to accrue continuing education course hours, as a condition of renewal. However, they are required to accrue the minimum continuing education hours for any prior year or any part thereof in which their license was active.

1103.P-161 Use and Re-use of Non-potable water within or upon a premises.

Clarification of requirements of other sections of this code.

1. Gray water collected from plumbing drainage piping and used within a building for appropriate purposes shall be installed

as permitted by this Code by a licensed Master Plumber or a licensed Journeyman Plumber.

2. Reclaimed water delivered to a building site/premises by a public reclaimed water distribution system's series of mains and appurtenances: The connection to that system, any treatment as needed, and the distribution of the reclaimed water within the site shall be installed as permitted by this Code by a Licensed Master plumber, a licensed Journeyman Plumber or Master Drainlayer.

3. Rainwater collected from exterior downspouts to a collection container and the overflow from such container piped to a discharge point shall be installed as permitted by this Code by a Licensed Master Drainlayer.

   Exception:

   A) A Licensed Master Irrigation Installer or licensed Journeyman Irrigation Installer, with additional certification obtained under guidelines determined by or acceptable to the Board of Plumbing Examiners, may install collection container(s) not to exceed an accumulated 1200 gallons for use in irrigation and /or watering premises for one (1) and two (2) family residences.

   B) A Licensed Master Plumber or a licensed Journeyman Plumber may install any collection container within the property boundaries of the building.

   C) For one and two family attached residential dwellings, the homeowner is authorized to install a single tank of not more than sixty-five (65) gallons or a series of interconnected tanks, none of which is larger than sixty-five (65) gallons accumulating not more than two-hundred (200) gallons.

4. Overflow authorized to discharge to public sewers and public waterways from all collection containers shall be piped as permitted by this Code by a licensed Master Drainlayer.

5. Any Rainwater drawn from a collection container or tank for use:

A) For plumbing devices and appurtenances, shall be piped and installed as permitted by this Code by a licensed Master Drainlayer, Master Plumber or a licensed Journeyman Plumber.

B) For stand-alone fire suppression, shall be used and installed as permitted by the Mechanical Code. The connection to the container and/or tank shall be permitted by this Code by a licensed Master Sprinkler Fitter or licensed Journeyman Sprinkler Fitter.

C) For process piping, shall be used and installed as permitted by the Mechanical Code. The connection to the container and/or tank shall be permitted by this Code by a licensed Master Pipe Fitter or licensed Pipe Fitter.

D) For irrigation, including irrigation water piping, pumps and appurtenances, the connection to container or tank shall be used and installed as permitted by this Code. The connection to the container and/or tank shall be permitted by this Code by a licensed Master Irrigation Installer or licensed Journeyman Irrigation Installer licensed to test backflow devices under this code, or by a licensed Master Plumber or a licensed Journeyman Plumber.

6. Any potable make-up water to any tank or container collecting storm water runoff, shall be protected by a backflow device or assembly per this Code and shall be piped and installed to that tank or container, as permitted by this Code by a licensed Master Plumber or a licensed Journeyman Plumber.

1103.P-162 Duration Of Licenses, Registrations And Certifications.

Master and Journeyman Licenses shall expire on the date of the expiration as indicated on the Master and Journeyman License. All licenses must be renewed to remain in effect as described in this Ordinance and in this section. The duration of each license shall be the period set by the Board of Examiners. The normal duration of a Master and Journeyman License is three (3) years or as specified elsewhere in this Ordinance.

1. Master and Journeyman licenses must be renewed for a three-year (3) period on expiration.

2. The duration of an Interim Journeyman License is one (1)

year, and is non-renewable.

Note: Failure to renew Department of Natural Resources Backflow Prevention Assembly Certification or to notify the Office of Plumbing and Sewer Inspection of such renewal shall cancel any registration or certification issued by the Board of Plumbing Examiners for the testing of Backflow Prevention Assemblies on the expiration date indicated on the Department of Natural Resources certification.

1103.P-164 License Limitations.

Any Master licensed or registered under this Code shall be limited to obtaining permits required under the provisions of this Code, for a single company, firm, proprietorship, partnership or corporation at any given date or time and shall be registered with the St. Louis County Office of Plumbing and Sewer Inspection as an officer or a full time employee of said company at least thirty (30) days prior to exercising the privileges of the license/registration on behalf of said company. Such companies shall be registered with the State of Missouri, Office of Secretary of State, and Jefferson City, Missouri.

1103.P-166 Advertising.

No person, corporation, partnership, joint venture or other entity shall place or authorize the placement of an advertisement or message offering any services subject to any provision of this Code in any advertising medium unless the advertisement or message clearly states the name, business address and license number of at least one (1) appropriately licensed, certified and/or registered person qualified to perform such services and who is in responsible charge and control of work performed by said entity.

1103.P-168 Credentials.

1. *Credentials not Assignable.*

No license, registration or certificate issued under this Code shall be assigned or transferred.

2. *Use of Holder's Name by Another.*

No person having obtained any license, registration or certificate under this Code shall allow his/her name, license, certificate or registration to be used by another person either

for the purpose of obtaining permits, doing business or performing work regulated by this Code.

3. *Notification to Office of Plumbing and Sewer Inspection.*

In the first month of each calendar year, every person licensed, registered or certified under this Code shall notify the Office of Plumbing and Sewer Inspection of the name of the business for which they are the licensee, registration or certificate holder, the address of their place of business, their current telephone number and shall give immediate notice to the Office of any changes in any of the above.

4. *Use on Permit Applications.*

Every person licensed, registered or certified under this Code shall indicate both their name and the name of their business on all permit applications.

5. *Illegal Use of Names – Companies, Firms or Corporations.* Any company, firm or corporation in the business of installing plumbing, backflow prevention devices, water heaters or drainlaying shall employ a licensed and bonded Master who shall be in responsible charge of all work performed by the company in the applicable discipline. Such company, firm or corporation shall be registered with the Secretary of State of Missouri at least thirty (30) days prior to performance of any work covered by this Code. Any change in the management of a company, firm or corporation with regard to employment or participation of the required Licensed Master must be reported to the Examining Board prior to exercising the privileges of the license on behalf of that company, firm or corporation.

1103.P-170 Application, Examination, Registration, Certification, License, And Miscellaneous Fees.

1. The fee for registration as an Apprentice is Ten Dollars ($10.00).

2. (A) The application fee for each examination required by this Ordinance, or for qualification as an Interim Journeyman is Thirty ($30.00) Dollars.

   (B) The fee for each examination, if administered by St. Louis County is One Hundred Forty Dollars ($140.00).

   (C) The fee for replacement of each examination authorization is Fifteen Dollars ($15.00).

(D) The fee for each Home Owner examination administered by St. Louis County is Twenty-Five Dollars ($25.00).

3. The fee for issuance or renewal of each Master license shall be One Hundred-fifty Dollars ($150.00), (Fifty Dollars ($50.00) per year), prorated on an annual basis.

4. The fee for issuance or renewal of a Journeyman license, shall be Forty-five Dollars ($45.00), (Fifteen Dollars ($15.00 per year), prorated on an annual basis.

5. The fee for issuance or renewal of a Backflow Prevention Device Tester's Certificate is Five Dollars ($5.00).

6. The fee for issuance or renewal of an inactive license is Thirty Dollars ($30.00).

7. The fee for replacement of lost licenses shall be Ten Dollars ($10.00).

8. The fee for a replacement list of currently credited PEU's per licensee shall be Ten Dollars ($10.00).

9. The fee for issuance or renewal of a Residential Multi-Purpose Potable Water Fire Protection Systems Installer Certificate is Five Dollars ($5.00).

1103.401 Amendments To The Uniform Plumbing Code – Chapter 1 – Administration.

Chapter 1 is not adopted and not included in the Plumbing Code adopted by St. Louis County pursuant to Section 1103.020

1103.402 Amendments To The Uniform Plumbing Code ™

Chapter 2 – Definitions.

Chapter 2 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

201.1 Terms Defined in Other Codes:

Where terms are not defined in this Code and are defined in Chapters 1003, 1008, 1100, 1115, 1116, 1117, 1102, 1105, 1107, 1108, 1109, or 1110 SLCRO 1974 as amended, such terms shall have the meanings ascribed to them in those Codes.

Addition. An increase in building area, aggregate floor area, height or number of stories of a structure.

Additional Inspection. An inspection which is not a required inspection as defined in this Code but which in the judgment of the Code Official is reasonably necessary to enforce this Code or as an inspection which is required as a result of unusual or complicated construction and/or is defined as an inspection which is made as a result of non-compliance, not ready, lockout etc. See Extra Inspection. Fees for additional inspections shall be as specified in Chapter 1100 SLCRO 1974 as amended.

Alteration. Any construction or renovation to an existing structure other than repair or addition.

Authority Having Jurisdiction. St. Louis County

Bedroom. A room furnished with a bed and intended primarily for sleeping.

Board. The Board of Plumbing Examiners.

Board of Appeals. The St. Louis County Building Commission created in Article IV, Section 4.330 of the St. Louis County Charter.

Board of Registration. The Missouri Board for Architects, Professional Engineers, Professional Land Surveyors, and Landscape Architects.

Boiler. See Water Heater Boiler

Building Commission. The St. Louis County Building Commission created in Article IV, Section 4.330 of the St. Louis County Charter.

Building Code. The St. Louis County Building Code, 1115, 1116, 1117 SLCRO 1974 as amended.

Building Drain. That part of the lowest piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it

to the building sewer beginning five (5) feet (1525 mm) outside the building wall, or five (5) feet (1525 mm) beyond plumbing appliances, appurtenances or equipment installed outside the walls of the building such as but not limited to grease, oil, and sand interceptors.

Building Classification. The arrangement adopted by the Authority Having Jurisdiction for the designation of buildings in classes according to occupancy.

Building Trap. A device, fitting, or assembly of fittings installed in the building drain to prevent circulation of air between the drainage system of the building and the building sewer.

Central Use Facility(s). A restroom facility or facilities designed and sized to accommodate the total occupant load of the building, located within the distance required by the Code for maximum access and meeting the requirements of the Code within its use category.

Certified Backflow Assembly Tester. A person who is certified by the Missouri Department of Natural Resources as a Backflow Prevention Device Tester and possesses a Backflow Prevention Device Tester Certificate issued pursuant to this Code for the particular application involved.

Certified in Plumbing Design (CPD). A person who has successfully completed the CPD examination as a part of the international certification program for engineers and designers of plumbing systems and so designated by the American Society Of Plumbing Engineers.

Code Authority/Code Official. The Director of Public Works of St. Louis County, Missouri or his duly authorized representative.

Committee. The Committee of Plumbing Code Review as created herein.

Containment. (Cross-connection) Protection of the public water system is obtained by installation of an approved backflow prevention assembly or air-gap separation at the user connection from the main service line(s).

Cross-Connection. Any actual or potential connection or structural arrangement, between a public or private potable water supply system and any other source or system through which it is possible to introduce into any part of the private or public water system any used water, industrial fluid, gas or substance other than the intended potable water with which the system is supplied. By-pass arrangements, jumper connections, removable sections, swivel or change-over devices through which or because of which, backflow can or may occur are considered to be cross-connections.

Cross-Connection, Direct. A continuous, enclosed interconnection or cross-connection to allow the flow of fluid from one system to the other.

Cross-Connection, Indirect. A potential cross-connection such that the interconnection is not continuously enclosed and the completion of the cross-connection depends on the occurrence of one or more abnormal conditions.

Cross-Connection, Isolation. Protection of the user water system by installation of an approved backflow prevention device or assembly at the point of connection between the users water system and any device, equipment, appliance, appurtenance assembly or area which might constitute a real or potential cross-connection.

Customer. Any person who receives water from a public water system, except those persons receiving water for resale.

Customer Service Line. The pipeline from the public water system to the first tap, fixture, receptacle or other point of customer water use or to the first auxiliary water system or pipeline branch in a building.

Customer Water System. All piping, fixtures and appurtenances, including auxiliary water systems, used by a customer to convey water on his/her premises.

Dead End. That part or branch of a drainage piping system, which is without a free circulation of air.

Direct Cross-Connection. A continuous, enclosed interconnection or cross-connection to allow the flow of fluid from one system to the other.

Disaster. A disaster shall include but not necessarily be limited to flood, tornado, severe storm, earthquake or similar

type event. The Code Official shall make the determination whether an event shall be declared a disaster.

Downspout. The rain leader from the roof to the building storm drain, combined building sewer, or other means of disposal located outside of the building.

DWV. An acronym for "drain-waste-vent" referring to the combined sanitary drainage and venting systems and the storm water drainage system. This term is technically equivalent to "soil-waste-vent" (SWV).

Emergency. An event or occasion that requires immediate action in order to preserve or restore the public peace, health, safety or welfare.

Employee. A person, who produces a product or service, employed by another usually for wages or salary in a position below the executive level.

Engineer. An engineer registered or licensed to practice professional engineering in Missouri in accordance with the professional registration laws of the state of Missouri.

Extra Inspection. Is defined as an inspection, which is required as a result of unusual or complicated construction and/or is defined as an inspection, which is made as a result of non-compliance, not ready, lockout etc. An inspection, which is not a required inspection as defined in this Code but which in the judgment of the Code Official, is reasonably necessary due to non-compliance with Code requirements, or work not ready or accessible for inspection when requested. Fees for extra inspections shall be as specified in Chapter 1100 SLCRO 1974 as amended.

Facility. A single tract or contiguous tracts of land and any improvements on them, upon which one (1) or more service connections are located, and which, except for easements and public right-of-way, are wholly owned, leased or otherwise subject to the control of the customer.

Fixture Group. A set of fixtures within a room or rooms serving an individual or group of individuals at a unique single time.

Floor Area, Net. The actual occupied area not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms and closets.

Health Department. The St. Louis County Department of Public Health.

HDPE. High Density Polyethylene.

Transportation. The St. Louis County Department of Transportation.

Irrigation Backflow Assembly. An assembly consisting of a Reduced Pressure Zone Backflow Device and a properly sized Shock Arrestor located downstream and within 12 inches of the backflow device.

Isolation – (Cross-Connection). Protection of the user water system by installation of an approved backflow prevention device or assembly at the point of connection between the users water system and any device, equipment, appliance, appurtenance assembly or area which might constitute a real or potential cross-connection.

Main & Branch System. The conventional method of water distribution. This system utilizes a main to service several branches, which in turn service individual fixtures.

Manifold System.

1) The "home run" system utilizes a centrally located manifold to individually distribute supply lines to each fixture.

2) The "remote manifold" system utilizes a trunk or main, which services several small manifolds that in turn service individual fixtures.

Master License Disabled. Master licensee who is unable to obtain permits and receive inspections because an approved bond or the required insurance certificate, current phone and address on file is not correct, or the Master licensee is in arrears on any fees or charges owed St. Louis County.

Master License Enabled. Master licensee who is able to obtain permits, receive inspections and who has on file with approved bond and insurance certificate, current phone and address is on file with St. Louis County. The Master licensee shall not be in arrears on any fees and charges owed St. Louis County.

Master License Inactive. A Master licensee who has chosen to put his Master license inactive.

Mechanical Code. The St. Louis County Mechanical Code, Chapter 1108 SLCRO 1974 as amended.

Minor Repairs. The term "minor repairs" shall be construed to mean repairs within the interior of any building to leaks in drains, pipes, traps and valves, opening waste or supply pipes, and traps or drains. It shall not be construed to include any work involving connections to or replacement or rearrangement of soil pipes, supply pipes, waste pipes, vent pipes or inside rain leader pipes, or the replacing or setting of any fixture, or replacement or repairs to Backflow Prevention Devices, pressure reducing or regulating valves, or any other installation, repair or alteration which in the judgment of the Chief Plumbing Inspector is of such a nature which if improperly installed, repaired or altered would endanger the public health. Exemption from the permit requirements of this Code shall not be deemed to grant authorization for any work to be done in violation of the provisions of this Code or any other laws or ordinances of this jurisdiction.

MSD. The Metropolitan St. Louis Sewer District.

Multiple Single-Family Dwelling. Wherever the term multiple single-family dwelling is used in this Code, it shall be construed to include two-family dwellings.

Multipurpose Residential Fire Protection Piping Systems – A piping system intended to serve all plumbing fixtures and fire protection needs.

Net Floor Area. The actual occupied area not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms, and closets.

Office. The Office of the Chief Plumbing Inspector. (Plumbing and Sewer Inspection).

Other Establishment. Any public or private structure other than a dwelling, which generates sewage.

Parallel Water Distribution System. A Parallel Water Distribution System usually refers to plastic pipe systems, usually PEX or PEX-AL-PEX systems that use a manifold in the system.

Plumbing System. Includes all potable water building supply and distribution pipes, all plumbing fixtures and traps, all drainage and vent pipe(s), and all building drains and building

sewers, including their respective joints and connection, devices, receptors, and appurtenances within the property lines of the premises, and shall include potable water piping, potable water treating or using equipment, and water heaters and water heating boilers for potable water.

Exclusion: The receiving, unloading, moving, storing, hoisting, setting, aligning and leveling of casework housing plumbing components, such as laboratory fume hoods and hospital headwall units, shall not be considered to be components of plumbing systems and shall not be subject to the licensing provisions of this code.

Exclusion: Lawn Irrigation Systems, when connected to potable water supply and protected by a reduced principle backflow preventer assembly shall be considered to be irrigation equipment and not subject to specific Plumbing Code requirements. The lawn irrigation system is considered to be all piping, components, sprinklers, valves, etc., beyond the discharge side of the Irrigation Backflow Assembly.

Exclusion: Residential Fire Protection Systems, separate and independent from the water distribution system and protected by a backflow prevention assembly shall be considered to be a Stand Alone Fire Sprinkler System. The Residential Fire Protection System is considered to be all piping, components, sprinklers, valves, etc. beyond the discharge side of the Potable Water Service and Potable Water Distribution System Valve as installed and permitted under the Mechanical Code.

Public Water System. A system for the provision to the public of piped water for human consumption, if such system has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days per calendar year. Such system includes any collection, treatment, and storage or distribution facilities used in connection with such system.

Quick Closing Valve. A fast-action solenoid valve, spring loaded self-closing faucet, push-pull type valves and faucets, or any other device capable of instantaneously closing.

Rainwater Harvesting. A technology used to collect, convey, and store rain from relatively clean surfaces such as a roof, land surface or rock catchment for later use.

Re-inspection. See Extra Inspection.

Required Inspection. An inspection which falls within the minimum number of inspections required by this Code and Chapter 1115, 1116, 1117, SLCRO 1974 as amended.

Roof Drain. A drain installed to receive water collecting on the surface of a roof and to discharge it into a leader, down spout, or conductor. Roof drain includes sump receivers, clamps, grates, sumps, extensions, hangers, supports and all other appurtenances necessary for its function, security and stability.

Roughing-In. The installation of all parts of the plumbing system, which can be completed prior to the installation of fixtures. This includes drainage, water supply, gas piping, and vent piping and the necessary fixture supports.

1. *Ground Rough In.* All underground piping, which shall include waste, vent, and distribution piping.

2. *Stack Rough In.* All waste, vent and distribution water supply lines above ground.

Sanitary Sewer. A sewer, which carries sewage and excludes storm, surface, and ground water.

Service Connection. Any water line or pipe connected to a water distribution main or pipe for the purpose of conveying water to a point of use.

Sewer District. The Metropolitan St. Louis Sewer District (MSD) or private sewer company having jurisdiction in the location where work is to be performed.

Soil Characteristics, Limiting. Those soil characteristics which preclude the installation of a standard private sewage system including but not limited to evidence of water table or bedrock closer than four (4) feet to the ground surface and percolation rates slower than forty-five (45) minutes per inch. Also the amount of rock fragments in areas of significant potential for groundwater contamination.

Standpipe. A vertical pipe generally used for the storage and distribution of water for fire extinguishing.

Strapped Plumbing. A plumbing scheme where drain piping from upper floors is supported just below floor joists of lowest

floor providing gravity flow to public or private sewer, and exits the building through a wall penetration.

Water Customer. Any person who receives water from a public water system.

Water Distribution System. All piping, conduits, valves, hydrant, storage facilities, pumps and other appurtenances, excluding service connections, which serve to deliver water from a water treatment plant or water supply source to the public.

Water Service Pipe/Building Supply. The pipe from the water main or other source of potable water supply, including the corporation, and meter (if installed), to the water distributing system of the building served.

Water System. All sources from which water is derived for drinking or domestic use by the public, also all structures, conduits and appurtenances by means of which water for use is treated, stored or delivered to consumers, except service connections from water distribution systems to buildings and plumbing within or in connection with buildings served.

Water Supply Source. All sources of water supply including wells, infiltration galleries, springs, reservoirs, lakes, streams or rivers from which water is derived for public water systems, including the structures, conduits, pumps and appurtenances used to withdraw water from the source or to store or transport water to the water treatment facility or water distribution system.

Welded Joint or Seam. Any joint or seam obtained by the joining of metal or plastic parts in the plastic molten state.

Welder, Pipe. A person who specializes in the welding of pipes and holds a valid certificate of competency from a recognized testing laboratory, based on the requirements of the ASME Boiler and Pressure vessels code, Section IX for metal pipe and/or based on the requirements of the AWS B2.4 Specification and /or Plastics-Pipe-Institute (PPI), Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe for Welding Procedure and Performance Qualification for Thermoplastics.

Workmanlike. Executed in a skilled manner; i.e., generally plumb, level, square, in line, undamaged and without marring adjacent work.

Chapter 3 – General Regulations

1103.403 Amendments to The Uniform Plumbing Code ™ - Chapter 3 – General Regulations.

Chapter 3 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

301.2.5 Existing Buildings. In existing buildings or premises in which plumbing installations are to be altered, repaired, or renovated, the Authority Having Jurisdiction may permit deviation from the requirements of this Code, provided that such proposal to deviate is first submitted for proper determination in order that health and safety requirements, as they pertain to plumbing, shall be observed.

1. *Reuse of Water Service.*

   (A) Existing water service may be used in connection with new buildings or new plumbing and drainage work only when they are found on examination and test to conform in all respects to the requirements governing new work and the proper authority having jurisdiction shall notify the owner to make any changes necessary to conform to this Code. No building or part thereof shall be erected or placed over any part of a water service, which is constructed of materials other than those approved elsewhere in this Code for use under or within a building.

   (B) For alterations and additions to a building with an existing 3/4" size water service:

   (1) For the installation of an additional 9 WSFU's which then results in an existing residential or commercial building to total no more than 2½ baths and a maximum total of 31 WSFU's the 3/4" size water service shall be allowed to remain with no change.

   (2) For the installation adding more than 9 WSFU's or totaling more than 31 WSFU's, the 3/4" size water service shall be replaced and sized in accordance with the provisions of Chapter 6 of this Code.

301.5.3 Design Documents.

The registered professional engineer shall provide four (4) complete sets of signed and sealed documents for the alternative engineered design for submittal to the Authority Having Jurisdiction. The design documents shall include at a minimum, a floor plan and a riser diagram of the work. Where appropriate, the design documents shall indicate the direction of flow, all pipe sizes, grade of horizontal piping, loading and location of fixtures and appliances.

305.0 *Sewers Required.*

310.5 Obstruction of Flow.

No fitting, fixture and piping connection, appliance, device, or method of installation that 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 per Section 301.2 of this code. The use of an automatic air vent type fitting is prohibited. The enlargement of a three (3) inch (80 mm) closet bend or a stub to four (4) inches (100 mm) shall not be considered an obstruction.

311.0 Independent Systems.

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

Exception: Where one building stands in the rear of another building on an interior lot, and no private sewer is available or can be constructed to the rear building through an adjoining court, yard, or driveway, the building drain from the front building shall be permitted to be extended to the rear building.

The General requirements for building drains and building sewers serving single service Fats, Oil, or Grease (FOG) generating facilities. (See drawing # 19 in appendix M)

1. Commercial Units.

(A) Separation of sanitary, and FOG building drains exiting the building.

(1) All sanitary, and FOG building drains shall exit the building separately and shall be combined in a sampling manhole prior to leaving the property. Storm Drains shall exit the property separately where conditions allow.

Exception: Where the footprint of the building on the property does not provide adequate clearance for this installation it shall be installed inside the building. Access from the outside shall be provided for this installation.

2. One, Two & Four Family Residential

(A) Separate FOG building drain not required

311.2 General requirements for building drains and building sewers serving multi-tenant one and two story buildings (also called strip stores). (See drawing # 20 in appendix M).

1. There shall not be installed within the building structure a common drain to all tenant units. Each tenant will have installed an independent connection with a private sewer through a sampling tee. The private sewer will be located a minimum of five feet (5') from the building and a minimum of five feet (5') from the property line.

2. If the tenant is a FOG generating facilities there shall be a separate FOG building drain.

(A) All grease generating appliances and all fixtures collecting FOG laden waste shall pass through a hydromechanical grease interceptor (HGI) before connection to the separate FOG building drain.

Exception: Strip stores and/or commercial plumbing installations as shown in Drawing 20, containing a maximum of 75 gpm (maximum 4 inch diameter outlet) discharge from the hydromechanical interceptor may be routed to the common sanitary drain within three (3) feet of the exterior foundation wall and prior to exiting the building.

Waste drain lines from garbage disposals, dishwashers and pre-rinse sinks, before entering a grease interceptor, shall first flow through a solids interceptor.

312.3 Building Sewer and Drainage Piping.

No building drain or other drainage piping or part thereof, constructed of materials other than those approved for use under or within a building, shall be installed, or less than one (1) foot (305mm) below the surface of the ground.

No building sewer or drainage piping or part thereof, shall be installed under or within five (5) feet (1524 mm) of any building or structure nor less than thirty (30) inches (760 mm) below the surface of the ground.

Exception: Transition from all drainage thirty (30) inches (760 mm) below the surface of the ground to the building sewer at a maximum of forty-five (45˚) degrees.

312.13 Exposed ABS Piping.
ABS piping shall not be exposed to direct sunlight.

Exception:

(1) ABS piping exposed to sunlight that is protected by water based synthetic latex paints

(2) ABS piping exposed as vent termination pipe through roof.

312.14 Exposed PVC Piping.
PVC piping shall not be exposed to direct sunlight.

Exceptions:

(1) PVC piping exposed to sunlight that is protected by water based synthetic latex paints.
(2) PVC piping wrapped with not less than 0.04 inch (1.02 mm) thick tape or otherwise protected from UV degradation

(3) PVC piping exposed as vent termination pipe through roof.

313.0 *Protection of Piping, Materials and Structures.*

314.4.2 *Welding Thermoplastic Pipe and Fittings.*

Plastic pipe and fittings designed to be joined by thermoplastic welding processes used for owner and/or operator installed gas transmission mains and for other applications such as Gas Service Lines and Gas Mains, Domestic Water Mains and Potable Water Service Lines shall comply with AWS B2.4 Specification and/or Plastic-Pipe-Institute (PPI), Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe, for Welding Procedure and Performance Qualification for Thermoplastics.

Welding shall be performed by certified or qualified installers meeting the requirements of AWS B2.4, Individual Manufacturer Qualifications under the regulations of PPI, qualifications given by material distributor or manufacturer, or certification or qualification issued by owner. Qualification by Manufacturers will last for the duration of one (1) year from time qualified unless installer has used the proceeded within the time allotted (determined by individual manufacturer.) The one (1) year qualification for a refresher course will commence from the date of the refresher course.

320.0 Rehabilitation of Piping Systems.

320.1 General.
When pressure piping systems, all Sanitary and Storm Sewer Systems, and all Potable Water Systems are rehabilitated using an epoxy lining system, such rehabilitation must comply with the requirements of ASTM F2831 or other means of sleeving existing piping shall meet manufacturer specifications.

321.0 *Parking Garages.*

321.1 *Parking Structures Drainage.*

Drainage systems for parking structures shall be designed and installed in the following manner:

1. Drainage systems for roofs and all uncovered areas shall discharge into the storm sewer in a manner prescribed by this code (See”6”).

2. Drainage systems for intermediate floor areas and all other covered areas shall discharge into the sanitary sewer in a manner prescribed by this code (See “5” & “6”).

3. Floor drains for parking structures, in parking areas, need not be trapped.

4. Sanitary drains shall discharge through sand and oil interceptors. The oil interceptor shall be located on the outside of the building.

5. All storm and sanitary piping that connect to sanitary or combination sewers shall be trapped prior to connection to the sewer.

6. Drainage and vent systems installed in parking structures shall not be interconnected with internal sanitary systems.

7. All drainage lines, sanitary and storm, shall be routed through inspection manhole prior to connection to sewer main or other approved discharge.

322.0 *Hospitals and Ambulatory Care Facilities and Nursing Homes.*

All plumbing facilities shall comply with the Missouri Licensing Law Regulations and Codes for Hospitals and Ambulatory Care Facilities and Nursing homes.

322.2 *Water Heating Equipment.*

1. The water heating equipment shall have sufficient capacity to supply six and one-half (6-1/2) gallons of water at one hundred ten (110) degrees Fahrenheit per hour per bed for fixtures; four (4) gallons of water at one hundred and twenty (120) degrees Fahrenheit per hour per bed for kitchens, and four and one half (4-1/2) gallons of water at one hundred and sixty (160) degrees Fahrenheit per hour per bed for laundry. The rinse water temperature of automatic ware washing equipment shall be one hundred and eighty (180) degrees Fahrenheit.

2. Such water heating equipment may be of the instantaneous, semi-instantaneous, flash or storage type. Where direct fired water heaters are used, they shall be of an approved high pressure type. Submerged steam heating coil shall be of copper.

All water heating equipment shall be fabricated of non-corrosive metal or lined with non-corrosive material.

Chapter 4 – Plumbing Fixtures

1103.404 Amendments to the Uniform Plumbing Code ™ - Chapter 4 – Plumbing Fixtures.

Chapter 4 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so note or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

402.3.1 Nonwater Urinals approved by Authority Having Jurisdiction.

406.0 ***Special Fixtures and Specialties.***

406.1 ***Water and Waste Connections.***

Baptisteries, ornamental and lily ponds, aquaria, ornamental fountain basins, and similar fixtures and specialties requiring water and/or waste connections shall have adequate backflow and back-siphonage protection and shall be submitted for approval to the Authority Having Jurisdiction prior to installation.

406.2 Restaurant kitchen and other special use sinks may be made of approved type bonderized and galvanized sheet metal of not less than No. 16 U.S. Grade (0.0625) (1.6mm) and stainless steel of approved quality and grade. All sheet metal plumbing fixtures shall be adequately designed, constructed, and braced in an approved manner to satisfactorily accomplish their intended purpose.

418.0 Floor Drains.

418.2 Strainer. Floor drains and floor sinks shall be considered plumbing fixtures, and each such drain or sink shall be provided with an approved-type strainer having a waterway equivalent to the area of the tailpiece. Floor drains and floor sinks shall be of an approved type and shall provide a watertight joint in the floor.

418.3 Location of Floor Drains.
Floor drains shall be installed in the following areas:

(1) All toilet rooms designated as handicapped, and toilet rooms containing two or more water closets or a combination of one water closet and one urinal, except in a dwelling unit.

(2) Commercial kitchens and in accordance with Section 704.3.

(3) Laundry rooms in commercial and institutional buildings and common laundry facilities in multi-family dwelling buildings.

(4) Boiler rooms.

(5) *Commercial and Institutional Kitchens.*

(6) Toilet rooms designated for Public Use

(7) Within fifteen (15’) feet and in the same room as a hot water heater or water heater boiler.

(8) Within fifteen (15’) feet and in the same room as backflow devices which have received approval from the Missouri Department of Natural Resources, which have in their design the capability of a discharge.

(9) All wheel chair accessible roll-in showers shall be supplied, in addition to the shower drain, with a threshold drain outside the shower within 5 feet of the shower drain, whenever a threshold or obstacle to natural drainage to the shower drain exists. Where the drain is required, the waste line of the threshold drain shall be connected to the shower drain waste pipe above the trap.

(10) When required by owner or designer, a floor drain shall be installed within five feet of the mop basin drain, and the waste line of that drain shall be connected to the mop basin drain waste pipe above the trap.

(11) All basements with or without fixtures shall require a floor drain.

411.2.15 Floor drains and floor sinks shall be installed in accordance with the provisions set forth in this Code and in the manner set forth hereunder:

A. A connection for a floor drain at the automatic clothes washer above ground may be discharged directly into the riser-pipe (stand pipe) above the trap of the automatic clothes washer drain and the floor drain need not be trapped.

B. Underground traps three inches (3") in diameter and larger for floor drains, hub drains or stand pipe receptors need not be vented if sufficient stack vents or vent stack are connected to the underground system to ensure adequate ventilation and protection of the trap seals.

C. Traps two inches (2") in diameter installed for floor drains, hub drains and standpipe receptors shall be individually vented.

D. The connection of a floor drain, three (3”) or four (4”) inches in size when installed underground

shall be connected into the horizontal building drain not less than five (5’) feet downstream from the soil or waste stack.

E. Floor sinks being used as indirect waste receptors for plumbing fixtures or appliances shall be individually wasted and vented in accordance with the provisions established in this Code.

F. Floor sinks, three (3") inch trap size and larger, being used as indirect waste receptors for drip drainage and other similar discharges may be either individually vented or line vented in accordance with the provisions established in this Code.

422.6 *Food Service Establishments.*

Food service establishments with an occupant load of one hundred (100) or more shall be provided with separate facilities for employees and customers. Customer and employee facilities may be combined for occupant loads less than one hundred (100). Customer occupant load shall be determined as one occupant per each 15 square foot or part thereof, of dining and waiting area. Where outdoor seating is provided for a restaurant, the actual outdoor seating area shall be included in the total occupant load area for the restaurant. When separate facilities are required for employees and customers and the total number of employees exceeds 40 at any time, a second toilet room shall be provided for employees and such toilet rooms shall be uni-sex. Employee toilet rooms do not require physically disabled accessibility if other facilities in this establishment are available which meet physically disabled accessibility requirements.

TABLE 422.1
MINIMUM PLUMBING FACILITIES

Each building shall be provided with sanitary facilities, including provisions for persons with disabilities as prescribed by the Authority Having Jurisdiction. Table 422.1 applies to new buildings, additions to a building, and changes of occupancy or type in an existing building resulting in increased occupant load.

Exception: New cafeterias used only by employees. For requirements for the physically disabled, ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities, may be used. Access to public toilet facilities shall not be areas used by employees preparing food or areas used for the repair or assembly of products obtained or consumed by customers, or storage rooms, or mechanical equipment rooms.

Exceptions:

1. Where outdoor seating is provided for a restaurant, the actual outdoor seating area shall be included in the total occupant load for the restaurant.

2. Re-occupancy with no change of use may require a change in the number of fixtures due to increase in occupant load or re-configuration of the space.

Notes:

1. The figures shown are based upon one (1) fixture being the minimum required for the number of persons indicated or any fraction thereof

2. Building categories not shown on this table shall be considered separately by the Authority Having Jurisdiction.

3. Drinking fountains shall not be installed in toilet rooms.

4. Laundry trays. One (1) laundry tray or one (1) automatic washer standpipe for each dwelling unit or one (1) laundry tray or one (1) automatic washer standpipe, or combination thereof, for each twelve (12) apartments. Kitchen sinks, one (1) for each dwelling or apartment unit.

5. For each urinal added in excess of the minimum required, one (1) water closet may be deducted. The number of water closets shall not be reduced to less than two-thirds (2/3) of the minimum requirement.

6. As required by PSAI Z4.1, Sanitation in Places of Employment.

7. Where there is exposure to skin contamination with poisonous, infectious, or irritating materials, provide one (1) lavatory for each five (5) persons.

8. Twenty-four (24) lineal inches (610 mm) of wash sink or eighteen (18”) inches (457 mm) of a circular basin, when

provided with water outlets for such space, shall be considered equivalent to one (1) lavatory.

9. Laundry trays, one (1) for each fifty (50) persons. Service sinks, one (1) for each hundred (100) persons.

10. General. In applying this schedule of facilities, consideration shall be given to the accessibility of fixtures. Conformity purely on a numerical basis may not result in an installation suited to the need of the individual establishment. For example schools shall be provided with toilet facilities on each floor having classrooms, for students and for teachers.

(A) Surrounding materials, wall and floor space to a point two (2) feet (610 mm) in front of urinal lip and four (4') feet (1,219 mm) above the floor, and at least two (2) feet (610 mm) to each side of the urinal shall be lined with non-absorbent materials.

(B) Trough urinals are prohibited.

(C) Waterless urinals are prohibited.

11. A restaurant is defined as a business which sells food to be consumed on the premises.

(A) The number of occupants for a drive-in restaurant shall be considered as equal to the number of parking stalls.

(B) Employee toilet facilities are not to be included in the above restaurant requirements. Hand washing facilities shall be available in the kitchen for employees.

(C) For a drive-thru or take-out restaurant with seating, not to exceed twenty (20) customers, toilet facilities shall be provided available to customers and employees. A minimum of one (1) toilet room consisting of one (1) water closet, one (1) lavatory, and one (1) floor drain shall be available to customers.

(D) For a drive-thru restaurant or take-out with no seating, toilet facilities are required for employees only.

(E) For a facility defined as a restaurant dispensing fuel to the public which offers food and drink in a structure larger than seven hundred fifty (750) square feet, separate

toilet facilities for male and female shall be provided available to customers and to employees.

(1) Where there are more than twelve (12) but fewer than twenty -three (23) fuel dispensing stations available, there shall be provided for the male toilet room two (2) water closets, one (1) urinal, one (1) lavatory, and one (1) floor drain and there shall be provided for the female toilet room three (3) water closets, one (1) lavatory, and one (1) floor drain.

(2) For each additional ten (10) fuel dispensing stations there shall be provided for the male toilet room an additional one (1) water closet or urinal, and one (1) lavatory, and there shall be provided for the female toilet room an additional one (1) water closet, and one (1) lavatory.

12. For a facility dispensing fuel to the public which offers food and drink in a structure larger than seven hundred fifty (750) square feet, separate toilet facilities for male and female shall be provided available to customers and to employees.

(1) Where there are more than twelve (12) but fewer than twenty -three (23) fuel dispensing stations available, there shall be provided for the male toilet room two (2) water closets, one (1) urinal, one (1) lavatory, and one (1) floor drain and there shall be provided for the female toilet room three (3) water closets, one (1) lavatory, and one (1) floor drain.

(2) For each additional ten (10) fuel dispensing stations there shall be provided for the male toilet room an additional one (1) water closet or urinal, and one (1) lavatory, and there shall be provided for the female toilet room an additional one (1) water closet, and one (1) lavatory.

13. Where food is consumed indoors, water stations may be substituted for drinking fountains. Offices or public buildings for use by more than six (6) persons shall have one (1) drinking fountain for the first one hundred fifty (150) persons and one (1) additional fountain for each three hundred (300) persons thereafter. At least one (1) drinking fountain of those

required shall be located within twenty-five (25) feet of the entrance to the primary toilet room on any floor.

14. There shall be a minimum of one (1) drinking fountain per occupied floor in schools, theaters, auditoriums, dormitories, offices or public building.

15. The total number of water closets for females shall be at least equal to the total number of water closets and urinals provided for men. This requirement does not apply to retail or wholesale stores. For any facility which undergoes major renovation as a place of assembly for public amusement including, but not limited to, sports stadiums, arenas, auditoriums and assembly halls, there should be provided, at a minimum, the number of water closets for women as there are provided the total number of water closers and urinals for men. The term "major renovation" means any reconstruction, rehabilitation, addition or other improvement which increases the occupant load of the building by more than 20%.

16. Smaller-type Public and Professional Offices such as banks, dental offices, law offices, real estate offices, architectural offices engineering offices and similar uses. A public area in these offices shall use the requirements for Retail or Wholesale Stores.

17. Recreation or community room in multiple dwellings or apartment buildings, regardless of their occupant load, shall be permitted to have single-accommodation facilities in common-use areas within tracts or multi-family residential occupancies where the use of these areas is limited exclusively to owners, residents and their guests. Examples are community recreation or multi-purpose areas in apartments, condos, townhouses or tracts.

18. A drinking fountain shall not be required in occupancies of 30 or less. When a drinking fountain is not required, then footnotes 3, 12 and 13 are not required.

19. Provide one service sink per floor.

20. Provide one (1) service sink per structure or per wing.

21. Provide one (1) service sink per floor in facilities over Five Thousand Five Hundred (5500) square feet.

22. Provide a minimum of one (1) exterior hose bibb on all buildings.

CHAPTER 5 - WATER HEATERS

1103.405 Amendments to the Uniform Plumbing Code ™ - Chapter 5 – Water Heaters.

Chapter 5 of the 2015 Uniform Plumbing Code™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

501.2 Any system with a new or a replacement water heating apparatus shall be provided with an approved, listed and adequately sized thermal expansion device (expansion tank), installed within ten (10) feet of, and on the cold water supply to the water heater, between the water heater shut-off valve and the water heater, at least 18 inches away from the cold water inlet fitting on the water heater. The tank may be installed in a vertical up, vertical down, or horizontal position in accordance with the manufacturer's recommendation. If the expansion tank is installed horizontally it must be adequately supported. No support shall be provided from the water heater.

This expansion tank meets the requirements in 608.2 regarding protection from thermal expansion and maintenance of pressure setting of the regulator.

The measured static building pressure, and the pressure at which the expansion tank has been set shall be written in ink on a permanent durable type label (equal to an Avery #AVE6578 2" x 2-⅝" Label) attached to the expansion tank in a visible location.

Shut-off valves for water heaters shall be installed in view of, within 10 feet of, within easy reach from the ground, and shall be readily accessible No shutoff shall be installed on the branch to the expansion tank.

The expansion tank shall be installed in such a manner that the removal or replacement of the water heater is not impaired.

Exceptions:

1. Engineered systems that provide equivalent protection may be approved by the Authority Having Jurisdiction or his/her representative.

2. Listed non-storage instantaneous heaters having an inside diameter of not more than three (3”) inches (76 mm).

3. Water heaters, 30 gallon or less, installed under counter or in confined spaces in multi-family units, where space does not permit the installation of an expansion tank, adequately sized mechanical water hammer arrestors may be used to provide for thermal expansion with the approval of the Authority Having Jurisdiction or his/her representative.

507.5 Drainage Pan.
Where a water heater is located in an attic, in or on an attic-ceiling assembly, floor-ceiling assembly, or floor-subfloor assembly where damage results from a leaking water heater, a watertight pan of corrosion-resistant materials shall be installed beneath the water heater with not less than ¾ of an inch (20 mm) diameter drain to an approved location. Such pan shall be not less than 1 ½ inches (38 mm) in depth.

508.0 ***Other Water Heater Installation Requirements.***

508.4 When a water heater is located in an attic, attic-ceiling assemble, floor-ceiling assemble, or floor-subfloor assembly, or furred space, or above the ground or basement level and does not have a floor drain available, where damage may result from a leaking water heater, a watertight safe pan of corrosion-resistant materials shall be installed beneath the water heater and shall be laid on or be supported by a structurally sound base to ensure proper drainage. The drain from the pan shall discharge to a non-concealed point of disposal to alert occupants in the event of a leak.

The pan shall have a minimum depth of 2 inches (51 mm) and shall be of such shape and capacity as to prevent splashing or flooding, and shall be made water-tight. The pan shall not be less than 3 inches (76 mm) larger than the unit in width and length. Metallic pans shall have a minimum thickness of not less than 0.0276-inch (0.7 mm) galvanized sheet metal. Non-metallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm). Non-metallic safe pans shall be permitted to be used only with electric water heaters. Pan shall have a 1 inch (25.4 mm) minimum tapping and increase to a 1-1/4 inch (31.8 mm) diameter drain made of galvanized steel, copper, brass, solid core PVC or CPVC which terminates and discharges through an air gap or air break into a properly trapped and vented, receptor, hub drain, floor drain or floor drain with a funnel grate, or to an approved location. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than

one-eighth unit vertical in 12 units horizontal (1-percent slope). Every passageway to an attic water heater shall have an unobstructed solid continuous flooring not less than twenty-four (24”) inches (610 mm) wide from the trap door or opening to the water heater. If the trap door or opening is more than eleven (11’) feet (3352 mm) above the floor, a stairway or ladder permanently fastened to the building shall be provided. Such stairway or ladder shall lead directly to the edge of the trap door or opening and shall comply with the provisions of this section.

Exception: A portable ladder may be used for access for water heaters in attics on the single-story portion of a Group U, Division 1 or R occupancy.

508.5 *Relief Valve Discharge.*

Discharge from a relief valve into a water heater pan is permitted.

Chapter 6 – Water Supply and Distribution.

1103.406 Amendments to The Uniform Plumbing Code ™ - Chapter 6 – Water Supply And Distribution.

Chapter 6 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

601.2.1 *Temperature Maintenance.*

Where Required – Heated water distribution systems in buildings, where developed length of heated water piping from the source of the heated water to the farthest fixture exceeds hundred (100’) feet, shall maintain heated water temperature in all supply piping to within twenty-five (25’) feet of any heated water outlet.

603.2 *Approval of Devices or Assemblies.*
Before a device or an assembly is installed for the prevention of backflow, it shall have first been approved by the Missouri

Department of Natural Resources. Devices or assemblies shall be tested in accordance with recognized standards or other standards acceptable to the Authority Having Jurisdiction. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in Section 603.5.1 through Section 603.5.20.

Devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested at the time of installation, repair, or relocation and not less than on an annual schedule thereafter, or more often when required by the Authority Having Jurisdiction. When found to be defective or inoperative, the device or assembly shall be repaired or replaced.

No device or assembly shall be removed from use or relocated or other device or assembly substituted, without obtaining an approved permit.

Testing or maintenance shall be performed by a certified backflow assembly tester or repairer in accordance with ASSE Series 5000 or otherwise approved by the Authority Having Jurisdiction.

603.4 General Requirements.

All assemblies shall conform to listed standards and be acceptable to the Authority Having Jurisdiction over the selection and installation of backflow prevention assemblies. In addition to the standards for approval established elsewhere in this Code all Reduced Pressure Principle Backflow Prevention Assemblies and Double Check Valve Backflow Prevention Assemblies of any nature shall have the approval of the University of Southern California Foundation for Cross Connection Control and Hydraulic Research, and the Missouri Department of Natural Resources.

603.4.3 Access and Clearance.

Access and clearance shall be provided for the required testing, maintenance, and repair. Access and clearance shall be in accordance with the manufacturer’s instructions, and not less than 12 inches (305 mm) or not more than 60” (1524 mm) between the lowest portion of the assembly and grade, floor, or platform.

Installations elevated that exceed 5 feet (1524 mm) above the floor or grade shall be provided with a permanent platform within five (5) feet (1524 mm) below the device capable of supporting a tester or maintenance person.

603.4.6 Integral Backflow Preventers

Fixtures, appliances or appurtenances with integral backflow preventers or integral airgaps manufactured as a unit shall be installed in accordance with their listing requirements, the manufacturers' instructions and as acceptable by the Authority Having Jurisdiction.

603.4.8 Drain Lines.

Drain lines serving backflow devices or assemblies shall be sized in accordance with the discharge rates of the manufacturer's flow charts of such devices or assemblies and a floor drain shall be installed within fifteen (15') feet and in the same room as backflow devices or assemblies which have received approval from the Missouri Department of Natural Resources, which have in their design the capability of a discharge.

603.5.6 Protection from Lawn Sprinklers and Irrigation Systems.

Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by a reduced-pressure principle backflow prevention assembly (RP)

603.5.6.2 Systems with Backflow Devices.

Where systems have a backflow device installed downstream from a potable water supply pump or a potable water supply pump connection, the device shall be a reduced-pressure principle backflow prevention assembly (RP).

603.5.8 Water-Cooled Equipment.
Water-cooled compressors, degreasers, or other water-cooled equipment shall be protected by a listed Reduced Pressure Zone backflow preventer installed in accordance with the requirements of this chapter.

603.5.9 Aspirators.

Water inlets to water-supplied aspirators shall be equipped with a vacuum breaker or equipped with a listed Reduced Pressure Zone Backflow Preventer installed in accordance with its listing requirements and this chapter. The discharge shall drain through an air gap. When the tailpiece of a fixture to receive the discharge of an aspirator is used, the air gap shall be located above the flood-level rim of the fixture.

603.5.10 Steam or Hot Water Boilers.

Potable water connections to steam or hot water boilers shall be protected from backflow by a reduced pressure principle backflow prevention assembly in accordance with Table 603.2. When chemicals are introduced into the system, a reduced pressure principle backflow prevention assembly shall be provided in accordance with Table 603.2.

603.5.16 Special Equipment

Portable cleaning equipment, dental vacuum pumps and chemical dispensers shall be protected from backflow by an air gap or a reduced pressure principle backflow preventer.

603.5.18 Pure Water Process Systems.

The water supply to a pure water process system, such as dialysis water systems, semiconductor washing systems, and similar process piping systems, shall be protected from backpressure and backsiphonage by installation of a reduced-pressure principle backflow preventer.

Exception: Portable dialysis equipment meant for use in a private residence. The equipment shall be protected by using a 316 stainless steel, corrosion resistant, double check with an atmospheric port, ASSE 1022, NSF Standard 18, (vented backflow preventer), or air gap as a means of backflow prevention in lieu of a Reduced Pressure Zone Backflow Preventer.

603.5.21 *Installation of Backflow Preventers.*

1. No person except those qualified, licensed and/or registered and bonded under this Code shall install a Backflow Prevention Device.

2. A permit is required for the installation of all Reduced Pressure Principle Backflow Prevention Devices and Double Check

Valve Assembly Backflow Prevention Devices. Permits shall be issued and inspections performed by the plumbing section of the Department of Public Works. Permits shall be issued only to those contractors who are licensed and/or registered and bonded under this Code.

3. All backflow prevention devices shall be accessible. Backflow prevention devices shall not be installed in pits or similar potentially submerged locations or in fume, chemical or fuel hoods, or in any area containing fumes that are toxic, poisonous or corrosive.

4. Pressure type vacuum breakers shall be installed at a height of at least twelve (12) inches above the flood level rim of the fixture, tank, or similar device or assembly.

5. Double check valves and reduced pressure principle valves such devices or assemblies shall be installed at not less than twelve (12) inches above the grade, floor or platform with the maximum of sixty (60)inches above floor. They shall not be installed within access panels, over any machinery or equipment, or in any location, which might create a safety, hazard to those employed in testing and maintenance of these devices or assemblies.

6. Installation shall meet current Missouri Department of Natural Resources Regulations and St. Louis County Current Plumbing Code Ordinance. Where a conflict occurs between this Chapter and Missouri Department of Natural Resources the more stringent requirement shall apply.

603.5.22 Backflow devices shall be installed on the water supply from a community water system to a building, when the use of the building changes to a use that requires containment under this regulation, and/or when any potable or non-potable water is provided within the new or existing building.

604.3 Copper or Copper Alloy Tube.

Copper or copper alloy tube for water piping shall have a weight of not less than Type L.
Exception: Type M copper or copper alloy tubing shall be permitted to be used for water piping where piping is above ground in or on a building.

TABLE 6-4-A								
MATERIAL		Under-Ground			Water Distribution Pipe and Fittings (Inside Building)			Building Supply Pipe and Fittings Water Service - (Outside Building)
		In-side	Out-side		HOT	COLD		COLD
Asbestos - Cement								
Brass		X	X		X	X		X
Copper		X	X		X	X		X
Cast Iron		X	X		X	X		X
CPVC (Schedule 40 and above)		X[1]	X[1]		X	X		
Galvanized Malleable Iron		X	X		X	X		X
Galvanized Wrought Iron		X	X		X	X		X
Galvanized Steel		X	X		X	X		X
HDPE		X	X			X		X
PE								
PE-AL-PE					X[1]	X[1]		
PEX		X[1]			X[1]	X[1]		X[1]
PEX-AL-PEX					X[1]	X[1]		
PVC ASTM 2241-Class 160-SDR 26)			X					X
PVC ASTM 2241--Class 200 -SDR 21			X					X
PVC ASTM 1785-Schedule 40		X	X			X		X
PVC ASTM 1785-Schedule 80		X	X			X		X
PVC AWWA C900 (C905) DR14 Class 200 Pressure Pipe			X					X

Note: [1] Downstream from Pressure Reducing Valve

604.10 Plastic Materials.

Approved plastic materials shall be permitted to be used in water service piping, provided that where metal water service piping is used for electrical grounding purposes, replacement piping therefore shall be of like materials.

Exception 1: When a grounding system acceptable to the Authority Having Jurisdiction is installed, inspected, and approved, metallic pipe shall be permitted to be replaced with nonmetallic pipe.

Exception 2: When plastic pipe is being installed in construction of water service pipe, the plastic pipe shall

terminate ten (10’) feet outside the building foundation wall. The metallic pipe allowed by this section shall be installed from ten (10’) feet outside the foundation to and within the building to the outlet of the house valve or the outlet of the PRV whichever is further from the entrance to the building. Protection from electrolysis (corrosion) shall be provided. Where metal water service piping is used for electrical grounding purposes, replacement piping therefore shall be of like materials.

604.13 Water Heater Connectors.

Flexible metallic (copper and stainless steel) water heater connectors, reinforced flexible water heater connectors, or braided stainless steel or polymer braided with EPDM cores water heater connectors that connect a water heater to the piping system shall be installed in accordance with ASME A112.18.6/CSA B125.6. Copper, copper alloy, or stainless steel flexible connectors shall not exceed 24 inches (610 mm). PEX, PEX-AL-PEX, PE-AL-PE, PE-RT tubing or CPVC tubing shall not be installed within the first 18 inches (457 mm) of piping connected to a water heater.

605.12.2 Solvent Cement Joints.

Solvent cement joints for PVC pipe and fittings shall be clean from dirt and moisture. Pipe shall be cut square and pipe shall be deburred. When surfaces to be joined are cleaned and free of dirt, moisture, oil, and other foreign material, primer purple in color shall be applied in accordance with ASTM F656. Primer shall be applied until the surface of the pipe and fitting is softened. Primer shall not be purple. Solvent cements in accordance with ASTM D2564 shall be applied to all joint surfaces. Joints shall be made while both the inside socket surface and outside surface of the pipe are wet with solvent cement. Joint shall be held in place and undisturbed for one (1) minute after assembly.

606.2 Fullway Valve.

A fullway stop and waste valve controlling outlets shall be installed on the service entrance. Water piping supplying more than one building on one premises shall be equipped with a separate fullway stop and waste valve to each building, so arranged that the water supply can be turned on or off to an individual or separate building provided; however, that supply piping to a single-family residence and building accessory

thereto shall be permitted to be controlled on one valve. Such shutoff valves shall be accessible. A fullway valve shall be installed on the discharge piping from water supply tanks at or near the tank. A fullway valve shall be installed on the cold water supply pipe to each water heater at or near the water heater.

606.5 Control Valve.

A control valve shall be installed immediately ahead of each water-supplied fixture, appurtenance, or appliance and immediately ahead of each slip joint or appliance supply. A control valve shall be installed for sill cocks, wall hydrants, yard hydrants, street washers, and lawn irrigation systems in addition to all required backflow assemblies.

Parallel water distribution systems shall provide a control valve either immediately ahead of each fixture being supplied or installed at the manifold, and shall be identified with the fixture being supplied. Where parallel water distribution system manifolds are located in attics, crawl spaces, or other locations not readily accessible, a separate shutoff valve shall be required immediately ahead of each individual fixture or appliance served.

a. In each dwelling unit, one or two bathrooms back to back or one over the other may be considered a group. However, in each dwelling unit with two or more bathroom groups not adjacent to each other, one or more control valves or individual fixture valves shall be provided so that each group may be isolated from the others.

b. In multi-dwelling units, one or more control valves shall be provided so that the water to any plumbing fixture or group of fixtures in any one dwelling unit may be shut-off without stopping flow of water to fixtures in other dwelling units.

608.2 *Excessive Water Pressure.*

An approved type pressure regulator preceded by an adequate strainer shall be installed in all water service pipes near its entrance to the building and the static pressure reduced to eighty (80) pounds per square inch (552 kPa) or less. Such regulator (s) shall control the pressure to all water outlets in the building unless otherwise approved by the Authority Having Jurisdiction. Pressure at any fixture shall be limited to no

more than eighty (80) psi under no-flow conditions. Sill cocks and outside hydrants may be left on full main pressure at the option of the owner. For potable water services up to and including one and one-half (1-1/2) inch (40 mm) regulators, provision shall be made to prevent pressure on the building side of the regulator from exceeding main supply pressure. Approved regulators with integral bypasses are acceptable.

Exception: Where the water service pipe supplies water directly to a water pressure booster system, an elevated water gravity tank, or to pumps provided in connection with a hydro-pneumatic or elevated water supply tank system a pressure-reducing valve is not required.

Each such regulator and strainer shall be accessibly located above ground or in a vault equipped with a properly sized and sloped bore-sighted drain to daylight, shall be protected from freezing, and shall have the strainer readily accessible for cleaning without removing the regulator or strainer body or disconnecting the supply piping. All pipe size determinations shall be based on eighty (80%) percent of the reduced pressure when using Table 610.4.

608.5 Discharge Piping.

The discharge piping serving a temperature relief valve, pressure relief valve, or combination of both shall have no valves, obstructions, or means of isolation and meet the following requirements:

(1) The discharge piping shall be equal to the size of the valve outlet and shall discharge full size to the flood level of the area receiving the discharge and pointing down.

(2) Materials shall be rated at not less than the operating temperature of the system and approved for such use.

(3) Discharge pipe shall discharge independently by gravity through an air gap into the drainage system or outside of the building with the end of the pipe not exceeding 2 feet (610 mm) and not less than 6 inches (152 mm) above the ground and pointing downwards.

(4) The discharge piping shall discharge in such a manner that does not cause personal injury or structural damage.

(5) No part of such discharge pipe shall be trapped or subject to freezing.

(6) The terminal end of the pipe shall not be threaded.

609.0 Installation, Testing, Unions, and Location

609.1 Installation.

Water piping shall be adequately supported in compliance with Table 313.3. Burred ends shall be reamed to the full bore of the pipe or tube. Changes in direction shall be made by the appropriate use of fittings, except that changes in direction in copper or copper alloy tubing shall be permitted to be made with bends, provided that such bends are made with bending equipment that does not deform or create a loss in the cross-sectional area of the tubing. Changes in direction are allowed with flexible pipe and tubing without fittings in accordance with the manufacturer's instructions. Provisions shall be made for expansion in hot-water piping. Piping, equipment, appurtenances, and devices shall be installed in a workmanlike manner in accordance with the provisions and intent of the code. Building supply yard piping shall be not less than 42 inches below finish grade.

609.10.1 Mechanical Devices.

Where listed mechanical devices are used, the manufacturer's specifications as to location and method of installation shall be followed.

Exception: For one (1) family, and two (2) families attached residential units, in order to absorb water hammer a mechanical water hammer arrester shall be installed as follows:

1. Bathroom groups:

   (A) Single bathrooms, minimum size "A" or single bathrooms back to back on a branch, minimum size "B", an approved mechanical device on both the hot and cold water branches serving the bathroom group.

   (B) For more than one (1) bathroom group served by a vertical riser an approved, minimum size "B", mechanical device on both the hot and cold water at the top of the riser.

   (C) For each appliance with quick-closing valves a properly sized approved mechanical device on both the hot

and cold water shall be installed as close as possible to the quick-closing valves. Appliances that include quick-closing valves are washing machines, dishwashers and ice makers. Other appliances that are not listed here may be determined to have quick-closing valves, and shall be properly protected.

2. Lawn Irrigation Systems

(A) Where a lawn irrigation system is installed, an Irrigation Backflow Assembly consisting of a Reduced Pressure Zone Backflow Device and within twelve (12”) inches a properly sized mechanical water hammer arrestor shall be installed on the supply line to the backflow device or assembly for the irrigation system.

(1) The size of the water hammer arrestor shall be a minimum of size “C”. It shall be sized based on the following Table 609.10 -1.

Table 609.10 – 1	
Pipe Size	Arrestor Size
¾”	“C”
1”	“D”
1¼” – 1½”	“F”
2”	“C” + “F”

Based on PDI Reference Standards

610.0 *Size of Potable Water Piping.*

610.1 The size of each water meter shall be as determined by the water purveyor. Each potable water supply pipe from the meter or other source of supply to the fixture supply branches, risers, fixtures, connections, outlets, or other uses shall be based on the total demand and shall be determined according to the methods and procedures outlined in this section. Other than systems sized by the use of Table 610.4, the system shall be designed to ensure that the maximum velocities allowed by the Code and the applicable standard are not exceeded.

610.7 Conditions for Using Table 610.4

On any proposed water piping installation sized using Table

610.4, the following conditions shall be determined:

1. Developed length of supply pipe from the Property line to most remote outlet.

2. Difference in elevation between the property line or other source of supply and the highest fixture or outlet.

610.8 *Size of Meter and Building Pipe Using Table 610.4.*

The size of the building supply pipe and the building branch piping in areas served by Missouri American Water Co. or its successor shall be determined as follows:

(Note: The water purveyor will determine the size of the meter installed.)

Table 610.4 – In the title line delete "and Meter Sizes".

The column in Table 610.4 titled "Meter and Street Service, Inches" is deleted.

1. Determine the available pressure at the source of supply.

2. Subtract one-half (1/2) pound per square inch pressure (3.4 kPa) for each foot (305 mm) of difference in elevation between such source of supply and the highest water supply outlet in the building or on the premises;

3. Use the "pressure range" group within which this pressure will fall using Table 610.4;

4. Select the "length" column which is equal to or longer than the required length;

5. Follow down the column to a fixture unit value equal to or greater than the total number of fixtures units required by the installation;

6. Having located the proper fixture unit value for the required length, size of building supply pipe and the building branch piping as found in the left hand columns titled "Building Supply and Branches, Inches" shall be applied.

No building supply pipe shall be less than one (1) inch (25.4 mm) in diameter. For light commercial strip centers, when the water service serves more than one tenant space, a one and one-half (1-½) inch minimum size water service shall be provided to the most remote tenant space.

610.8.1 *Size of Meter and Building Pipe Using Table* 610.4.

The size of the meter and the building supply pipe and the building branch piping, in areas not served by Missouri American Water Co. or its successor shall be determined as follows:

Column in Table 610.4 titled "Meter and Street Service, Inches" is not deleted and may be used to determine the size of the building supply pipe as determined by the water purveyor.

Use the procedure in 610.8 with the following exceptions:

1. Having located the proper fixture unit value for the required length, size of meter and building supply pipe and the building branch piping as found in the two left hand columns shall be applied. No building supply pipe shall be less than one (1) inch (25.4 mm) in diameter. For light commercial strip centers, when the water service serves more than one tenant space, a one and one-half (1-½) inch minimum size water service shall be provided to the most remote tenant space.

610.9 *Size of Branches.*

When Table 610.4 is used, the minimum size of each branch shall be determined by the number of fixture units to be served by that branch, the total developed length of the system, and the street service size, minimum one (1) inch (26.7 mm) in diameter as per Section 610.8. No branch piping is required to be larger in size than that required by Table 610.4 for the building supply pipe.

612.3.2.1 Installer Qualifications.

1. For a multipurpose fire sprinkler system

   (A) Licensed as a Plumber and certified by the Board of Plumbing Examiners. Technical and experience qualifications and examination criteria shall be determined by the Board of Plumbing Examiners

2. For a stand-alone sprinkler system

   (A) Licensed as a sprinkler fitter under the St. Louis County Mechanical Code.

Chapter 7 – Sanitary Drainage

1103.407 Amendments to the Uniform Plumbing Code ™ – Chapter 7 – Sanitary Drainage.

Chapter 7 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

If any conflict of interpretations or requirements of parts or sections of this Chapter disagree with other similar Code provisions or other St. Louis County Ordinance requirements, the more stringent shall apply.

703.0 *Size of Drainage Piping.*

703.1.1 *Exceptions.*

1. Any portion of the building drain which is underground and which receives the discharge from a water closet shall be a minimum size of four inches (4") and the four inch (4") pipe size shall terminate at the clean-out thirty-six inches (36") above the finish floor. The minimum size of any other portion of the drainage system, which receives the discharge from a water closet, shall be a minimum size of three inches (3").

    (A) Approval may be given by the Authority Having Jurisdiction or his representative to approve the use of a minimum size of three (3”) inches for the discharge of a single water closet when there is no four (4”) inches or larger underground drain readily available. This approval may be given, if such approval does not exceed the capacity of the drain, and, that it would be an undue hardship, or interrupt ongoing business activity, or require extensive demolition of a finished living area, or damage or destroy existing architectural or decorative furnishings.

2. Minimum size of the building sewer shall be six inches (6") in diameter and shall have the minimum of a two (2%) percent slope.

3. No soil or waste stack shall be smaller than the largest horizontal branch connected thereto. A 3x4 inch water closet bend shall not be considered a reduction in pipe size.

4. Any structure in which a building drain is installed shall have at least one stack vent or vent stack sized in accordance with section 904.1, not less than three inches (3") in diameter, or the size of the building drain. If the building drain is less than three inches (3") in diameter the vent shall be carried full size through the roof.

5. Any vent pipe extending through the roof shall be not less than two (2”) inches in diameter and shall extend from its terminus at least eighteen (18”) inches below the interior side of the roof deck.

6. No portion of the drainage system installed underground or below a basement or cellar shall be less than two (2”) inches in diameter with the exception of vent piping which shall be a minimum of one and one-half (1-1/2”) inches and condensate waste discharge lines which shall not be less than one and one-quarter (1 1/4”) inches in diameter.

7. The maximum length of two (2”) inch underground kitchen sink waste piping shall not exceed fifteen (15’) feet from the point of connection to a horizontal branch drain or building drain to the point where the kitchen sink waste piping extends above the floor. The clean out above the floor shall be the same size as the underground kitchen sink waste piping and shall be thirty-six (36”) inches above the finished floor level.

705.5.2 Solvent Cement Joints.

Solvent cement joints for PVC pipe and fittings shall be clean from dirt and moisture. Pipe shall be cut square and pipe shall be deburred. Where surfaces to be joined are cleaned and free of dirt, moisture, oil, and other foreign material, primer shall be applied in compliance with ASTM F656. Primer shall be applied until the surface of the pipe and fitting are softened. Primer shall not be purple. Solvent cements in accordance with ASTM D2564 shall be applied to all joint surfaces. Joints shall be made while both the inside socket surface and outside surface of pipe are wet with solvent cement and joint shall be held in place and undisturbed for 1 minute after assembly.

707.4 Location.

Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal and each run of piping, that is more than one hundred (100’) feet (30480 mm) in total developed length, shall be provided with a cleanout for each one hundred (100’) feet (30480 mm), or fraction thereof, in length of such piping.

An additional cleanout shall be provided in a drainage line for each aggregate horizontal change of direction exceeding 135 degrees (2.36 rad). A cleanout shall be installed above the fixture connection fitting, serving each urinal, regardless of the location of the urinal in the building.

Exceptions:

1. Cleanouts may be omitted on a horizontal drain line less than five (5’) feet (1524 mm) in length unless such line is serving sinks or urinals.

2. Cleanouts may be omitted on any horizontal drainage pipe installed on a slope of seventy-two (72°) degrees (1.26 rad) or less from the vertical angle (angle of one-fifth (1/5) bend).

3. Accepting the building drain and its horizontal branches, a cleanout shall be required on any pipe or piping, which is above the floor level a minimum of three feet (3’) above the lowest floor of the building.

(A) In residential buildings of slab floor construction or where a stack cleanout is not accessible, the cleanout shall be installed in the building drain and shall terminate not more than five feet (5') outside the building wall.

4. An approved type of two-way cleanout fitting, installed inside the building wall near the connection between the building drain and building sewer or installed outside of a building at the lower end of a building drain and extended to grade, shall be substituted for an upper terminal cleanout.

710.1 Backflow Protection.

Where a fixture is installed on a basement level or floor level that is lower than the next upstream manhole cover of the public or private sewer serving such drainage piping, shall be protected from backflow of sewage by at a minimum installing an approved type of backwater valve or installing, when required by The Authority Having Jurisdiction, a plumbing line supported from floor joists by approved hangers serving that basement level or floor level (strapped plumbing) receiving the discharge from an approved watertight sump or receiving tank. (see trapped plumbing drawings, Figure 17 and Figure 18 in Appendix “M”). Fixtures on floor levels above the upstream manhole cover such elevation shall not discharge through the backwater valve or

into the lower level, approved watertight sump or receiving tank, but instead shall drain by gravity to the public sewer.

Cleanouts for drains that pass through a backwater valve shall be clearly identified with a permanent label stating "Backwater Valve Downstream".

710.2 Sewage Drainage.

Drainage piping serving fixtures that are located below the crown level of the main sewer shall discharge into an approved watertight sump or receiving tank, so located as to receive the sewage or wastes by gravity. From such sump or receiving tank, the sewage or other liquid waste shall be lifted and discharged into the building drain or building sewer by approved ejectors, pumps, or other equally efficient approved mechanical devices.

Note: For clarification

1. Fixtures above the upstream manhole cover drain by gravity

2. Fixtures below the upstream manhole cover and above the crown of the sewer, drain by gravity through a backwater valve, or as directed by the Authority Having Jurisdiction shall drain as indicated in item 3 below.

3. Fixtures below the upstream manhole and below the crown of the sewer shall be lifted and discharged into the building drain or building sewer by means of an approved pumping system (strapped plumbing).

710.6 Backwater valves.

Backwater valves, gate valves, unions, full-way ball valves, motors, compressors, air tanks, and other mechanical devices required by this section shall be located where they will be accessible for inspection and repair at all times and, unless continuously exposed, shall be watertight, enclosed in a masonry pit, or a pit of Concrete, metal, or other approved material, construction, and manufacture, fitted with an adequately sized removable cover.

Backwater valves shall comply with ASME A112.14.1, have bodies of cast iron, plastic, copper alloy, or other approved materials, shall have non-corrosive bearings, seats and self-aligning discs, and shall be so constructed as to ensure a positive mechanical seal. Such valves shall remain sufficiently open during periods of low flows to avoid screening of solids and

shall not restrict capacities or cause excessive turbulence during peak loads. Unless otherwise listed, valve access covers shall be bolted type with gasket and each valve shall bear the manufacturer's name cast into body and cover.

Alternate design of Backwater Valves that may be adequately serviced without installation in a pit may be used with the approval of the Authority Having Jurisdiction.

710.14 At stream and channel crossings, a minimum depth of two (2') feet shall be allowed only where greater depths cannot be achieved. Where this minimum cover cannot be achieved, Schedule 50 ductile iron pipe with restrained joints must be used unless otherwise directed by the Authority Having Jurisdiction. Stream and channel crossings must be protected with rock blanket.

712.3 Air Test.

The air test shall be made by attaching an air compressor testing apparatus to any suitable opening, and, after closing all other inlets and outlets to the system, forcing air into the system until there is a uniform [gage] gauge pressure of five (5) pounds per square inch (34.5 kPa) or sufficient to balance a column of mercury ten (10") inches (254 mm) in height. The pressure shall be held without introduction of additional air for a period of at least fifteen (15) minutes. Plastic pipe and fittings, may be tested under this paragraph with the approval of the Authority Having Jurisdiction, and must conform to requirements of the manufacturer.

Part II – Building Sewers

713.1.1 ***Building/House traps may be installed.***

Exception: Building/House traps shall be installed on individual and combined, sanitary and storm house/building laterals connected to combined sewers, and where required by the Authority Having Jurisdiction. Each building trap when installed shall be provided with a cleanout and with a relieving vent or fresh air intake on the inlet side of the trap which need not be larger than one-half (1/2) the diameter of the drain to which it connects. Such relieving vent or fresh air intake shall be carried to finish grade and terminate in a screened outlet located outside the building.

713.2 When a public sewer is not available for use within two hundred (200) feet of any legal boundary of the property to be connected to the sewer, drainage from buildings and premises may

be connected to an approved private sewage disposal system, upon approval by MSD.

715.1 Materials.

The building sewer, beginning five (5’) feet (1525 mm) from any building or structure, shall be of such materials as may be approved by the Authority Having Jurisdiction under the approval procedures set forth in Chapter 3 of this Code. Sewer laterals exceeding one hundred (100’) feet shall include a full size cleanout, maximum size shall be eight (8”) inches, to surface within ten (10’) feet of anticipated location of the building foundation wall or the first (1st) story exterior wall of a slab on grade building.

717.0 ***Size of Building Sewers.***

The minimum size of any building sewer shall be determined on the basis of the total number of fixture units drained by such sewer, in accordance with Table 717.1. No building sewer shall be smaller than the building drain, but in no case less than six (6”) inches (152 mm) and at a uniform minimum slope of 2 percent (2%).

For alternate methods of sizing building sewers, see Appendix C.

718.3 No building sewer or other drainage piping or part thereof, which is constructed of materials other than those approved for use under or within a building, shall be installed under or within five (5’) feet (1525 mm) of any building or structure, or part thereof, nor less than thirty (30”) inches below the surface of the ground.

1. *Exception:* Transition from building drain to building sewer at a maximum of 45˚.

2. *Exception:* Where necessary to connect to a drainage line above ground.

The provisions of this subsection include structures such as porches and steps, whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.

719.0 ***Cleanouts.***

719.6 Approved manholes shall be permitted to be installed in

lieu of cleanouts when first approved by the Authority Having Jurisdiction. The maximum distance between manholes shall not exceed four hundred (400') feet (121.9 m). Connections to manholes shall be by approved method.

720.0 ***Sewers and Water Pipes.***

Building sewers or drainage piping of clay or materials, which are not approved for use within a building, shall not be run or laid in the same trench as the water pipes.

Exception: The underground water service pipe and the building sewer shall not be less than ten feet (10') apart horizontally and shall be separated by undisturbed or compacted earth.

The water service pipe may be placed in the same trench with the outside building sewer and water piping may be placed in the same trench with the inside building drain provided approval is given by the Authority Having Jurisdiction and both the following requirements are met:

1. The bottom of the water pipe, at all points, shall be at least twelve (12") inches (305 mm) above the top of the sewer or drain line.

2. The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a minimum clear horizontal distance of at least twelve (12") inches (305 mm) from the sewer or drain line.

Water pipes crossing sewer or drainage piping constructed of clay or materials, which are not approved for use within a building, shall be laid a minimum of twelve (12") inches (305 mm) above the sewer or drainpipe.

Note: For the purpose of this section, "within the building" shall mean within the fixed limits of the building foundation.

722.0 ***Abandoned Sewers and Sewage Disposal Facilities.***

722.1 Every abandoned building (house) sewer, or part thereof, shall be plugged or capped in an approved manner at the connection to the sewer main or at a location acceptable to the Authority Having Jurisdiction.

722.2 Every cesspool, septic tank, and seepage pit which has been abandoned or has been discontinued otherwise from further use or to which no waste or soil pipe from a plumbing fixture is

connected, shall have the sewage removed there from and disposed of in a manner required by law, the bottom broken out and be completely filled with compacted earth, sand, gravel, concrete, or other approved material.

TABLE 721.1

Minimum Horizontal Distance Required From Building Sewer (feet)	
Buildings or Structures[1]	2 feet (610 mm)
Property line adjoining private property	Clear[2]
Water Supply Wells	100 feet[3] (30,480 mm)
Streams	50 feet (15,240 mm)
On-site domestic water line	10 feet[4] (3048 mm)
Public Water Main	10 feet[5,6] (3048 mm)

Notes:

1. Including porches and steps, whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures and appurtenances.

2. See also Section 313.3

3. All drainage piping shall clear domestic water supply wells by at least one hundred (100’) feet (30480 mm) (15240).

4. See Section 609.2

5. For parallel construction.

6. For crossings, approval by the Health Department or Authority Having Jurisdiction shall be required.

CHAPTER 8 – INDIRECT WASTE

1103.408 Amendments to the Uniform Plumbing Code ™ - Chapter 8 –Indirect Wastes.

Chapter 8 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

801.3.3 Food-Handling Fixtures.

Food-preparation sinks; steam kettles, potato peelers, ice cream dipper wells, dishwashing machines, silverware washing machines, and similar equipment shall be indirectly connected to the drainage system by means of an air gap or air break. Bins, sinks, and other equipment having drainage connections and used for the storage of unpackaged ice used for human ingestion, or used in direct contact with ready-to-eat food, shall be indirectly connected to the drainage by means of an airgap. Each indirect waste pipe from food handling fixtures or equipment shall be separately piped to the indirect waste receptor and shall not combine with other indirect waste. The piping from the equipment to the receptor shall not be less than the drain on the unit, but it shall not be smaller than one (1”) inch (25.4 mm).

803.3 Pipe Size and Length

Except as hereinafter provided, the size and construction of indirect waste piping shall be in accordance with other sections of this Code applicable to drainage and vent piping. No vent from indirect waste piping shall combine with any sewer-connected vent, but shall extend separately to the outside air. Indirect waste pipes exceeding five (5’) feet (1524 mm), but less than fifteen (15’) feet (4572 mm) in length shall be directly trapped, but such traps need not be vented.

Indirect waste pipes less than fifteen (15’) feet (4572 mm) in length shall not be less than the diameter of the drain outlet or tailpiece of the fixture, appliance, or equipment served, and in no case less than one (1”) inch (25.4 mm) in size. Angles and changes of direction in indirect waste pipes of more than fifteen (15’) feet shall be provided with cleanouts so as to permit flushing and cleaning.

1. A direct connection for a floor drain at the automatic clothes washer above ground may be discharged into the riser-pipe (standpipe) above the trap of the automatic clothes washer drain and the floor drain shall not be trapped.

2. A laundry sink on ground floor may discharge, un-trapped, directly into the washer standpipe above the trap with no vent required.

804.1 Standpipe Receptors.

Plumbing fixtures or other receptors receiving the discharge of indirect waste pipes shall be approved for the use proposed; shall be of such shape and capacity as to prevent splashing or flooding, and shall be located where they are readily accessible or inspection and cleaning. No standpipe receptor for a clothes washer shall extend more than 30 inches (762 mm), or not less than 18 inches (457 mm) above its trap. No indirect waste receptor shall be installed in a toilet room, closet, cupboard, or storeroom, nor in a portion of a building not in general use by the occupants thereof; except standpipes for clothes washers shall be permitted to be installed in toilet and bathroom areas where the clothes washer is installed in the same room.

807.0 *Appliances.*

807.3 Domestic Dishwashing Machine.

The discharge from a sink, dishwasher, and garbage disposal (food-waste-grinder) may discharge through a single one and one-half (1½") trap. The discharge from the dishwasher shall be a full-sized opening, which shall be a minimum of five-eighths inch (5/8") inside diameter in size, looped up and firmly secured to the highest point under the counter and be connected with a wye fitting between the discharge of the garbage disposal (food-waste-grinder) and the trap inlet, or to the head of the garbage disposal (food-waste-grinder). An approved dishwasher air gap fitting on the discharge side of the dishwashing machine may be used. Listed air gaps shall be installed with the flood level (FL) marking at or above the flood level of the sink or drain board, whichever is higher. In the installation of a double bowl kitchen sink (residential) with a garbage disposal (food-waste-grinder), the fixture trap shall be installed on the same side of the sink in which the garbage disposal is installed.

Chapter 9 - VENTS

1103.409 Amendments to the Uniform Plumbing Code ™ - Chapter 9 – Vents.

Chapter 9 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

904.3 *Minimum Size of Stack Vent or Vent Stack.*

Any structure in which a building drain is installed shall have at least one stack vent or vent stack sized in accordance with Table 7-5 not less than four inches (4") in diameter, not less than three inches (3") in diameter for one (1) and two (2) family residential, if the building drain is less than three inches (3") in diameter the vent shall be the size of the building drain carried full size through the roof. In no case shall the aggregate cross-sectional area of all vents, in the system, be less than the cross-sectional area of the largest required common building drain serving that system.

905.7 Vent Pipe Fittings Allowed.

All vent piping subject to back drainage shall use fittings appropriate to the sanitary waste system.

906.1 Roof Termination.

Each vent pipe or stack shall extend through its flashing and shall terminate vertically not less than twelve (12”) inches (305 mm) above the roof nor less than one (1’) foot (305 mm) from any vertical surface.

906.3 Use of Roof.

Vent pipes shall be extended separately or combined, of full required size, not less than twelve (12”) inches (305 mm) above the roof or fire wall. Flag-poling of vents shall be prohibited. All vents within ten (10’) feet (3048 mm) of any part of the roof that is used for purposes other than weather protection shall extend not less than seven (7’) feet (2134 mm) above such roof and shall be securely stayed.

906.7 Frost or Snow Closure.

Vent terminals shall be a minimum of two (2) inches (51 mm) in diameter but in no event smaller than the required vent pipe. The change in diameter shall be made inside the building at least eighteen (18”) inches below the roof in an insulated space and terminate not less than twelve (12”) inches (305 mm) above the roof, or as required by the Authority Having Jurisdiction.

907.3 Residential Relief Vent.

In a residential structure a relief vent shall be connected to a waste stack a minimum of six (6”) inches (152 mm) below the bottom of the joist at the lowest level except when there is a plumbing vent through the roof installed from plumbing fixtures or future rough-ins below the lowest level.

908.1 *Vertical Wet Venting.*

Except as provided for in other sections of this Code, wet venting is limited to vertical drainage piping receiving the discharge from the trap arm of one (1) and two (2) fixture unit fixtures that also serves as a vent not to exceed four (4) fixtures. All wet vented fixtures shall be within the same story; provided, further, that fixtures with a continuous vent discharging into a wet vent shall be within the same story as the wet vented fixtures. No wet vent shall exceed six (6’) feet (1829 mm) in developed length.

908.1.4 *See Appendix M.*

909.0 Special Venting for Island Fixtures.

909.1 General. Alternate approved installation is described below and depicted in Drawing 7, Appendix M.

Traps for island sinks and similar equipment shall be roughed in above the floor and may be vented by extending the vent as high as possible, and no lower than bottom of sink/fixture it serves and then returning it downward and connecting it to the horizontal sink drain more than five (5’) feet (1524 mm) downstream from the vertical fixture drain. The return vent shall be connected to the horizontal drain through a wye-branch fitting. Drainage fittings shall be used on all parts of the vent and a minimum slope of one-quarter (1/4”) inch per foot (20.9 mm/m) back to the drain shall be maintained. Pipe sizing shall be as elsewhere required in this Code with minimum size to be two (2") inch (51 mm). The island sink drain, upstream of

the return vent, shall serve no other fixtures. An accessible cleanout shall be installed in the vertical portion of the vent.

Chapter 10 – Traps and Interceptors

1103.410 Amendments to the Uniform Plumbing Code ™ - Chapter 10 – Traps and Interceptors.

Chapter 10 of the 2015 Uniform Plumbing Code ™ are amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

TABLE 1002.2

Horizontal Distance of Trap Arms

(Except for water closets and similar fixtures)*

TRAP ARM	DISTANCE TRAP TO VENT	TRAP ARM	DISTANCE TRAP TO VENT
Inches	Feet - Inches	m m	m m
1-1/4	3’-6”	32	1067
1-1/2	5’-0”	38	1524
2	8’-0”	51	2438
3	10’-0”	76	3048
4 & Larger	12’-0”	102 & Larger	3658

Slope one-fourth (1/4”) inch per foot (20.9 mm/m)

*The developed length between the trap of a water closet or similar fixture (measured from the top of the closet ring {closet flange} to the inner edge of the vent) and its vent shall not exceed six (6’) feet (1829 mm)

1003.3 Size. The size (nominal diameter) of a trap for a given fixture shall be sufficient to drain the fixture rapidly, a maximum of one pipe size larger than defined in Table 702.1. The trap shall be the same size as the trap arm to which it is connected.

Exception: One (1) and two (2) fixture unit fixtures may have trap arms one size larger than the trap size serving the fixture.

1008.0 Building/House Traps.

Building/House traps may be installed.

Exception: Building/House traps shall be installed on individual and combined, sanitary and storm house/building laterals connected to combined sewers, and where required by the Authority Having Jurisdiction.

Each building trap when installed shall be provided with a cleanout and with a relieving vent or fresh air intake on the inlet side of the trap which need not be larger than one-half the diameter of the drain to which it connects. Such relieving vent or fresh air intake shall be carried to finish grade and terminate in a screened outlet located outside the building.

1009.5 Location.

Each interceptor (clarifier) cover shall be readily accessible for servicing and maintaining the interceptor (clarifier) in working and operating condition. Interceptors (clarifiers) shall include means for visual inspection and access from above for both the influent and effluent sides. Manholes (24 inches (24”) in diameter, 24 inches (24”) maximum in length including ~~with~~ a roadway access cover) shall be provided for access to each compartment of an interceptor. Where depth is more than 24 inches (24”), a 36 inch (36”) minimum diameter access with steps shall be provided as approved by the authority having jurisdiction. The use of ladders or the removal of bulky equipment in order to service interceptors (clarifiers) shall constitute a violation of accessibility. Location of all interceptors (clarifiers) shall be shown on the approved building plan.

1014.1.3 Food Waste Disposal Units and Dishwashers.

Food Waste Disposal Units, rinse sinks and or Dishwashers are required to connect into a grease interceptor and they must first flow through a solids trap.

1014.2 Hydromechanical Grease Interceptors.

1014.2.4 Each grease trap required by this section shall have an approved rate of flow which is not less than that as determined by 1014.2.1 for sinks and Table 1014.2.1 for the total number of connected fixtures. The total capacity in gallons (L) of fixtures discharging into any such grease trap shall not exceed two and one-half (2-1/2) times the certified gpm (L/s) flow rate of the grease trap as determined by 1014.2. Any grease trap installed with the inlet more than four (4') feet (1219 mm) lower in elevation than the outlet of any fixture discharging into such grease trap shall have an approved rate of flow which is not less than fifty (50%) percent greater than that given in Table 1014.2.1. For hydromechanical grease interceptors installed inside the building or tenant space, the number of fixtures connected to or discharged into any one (1) hydromechanical grease interceptor shall not exceed the maximum drainage fixture units (DFUs) or operating flow rate of the hydromechanical grease interceptor. Floor drains receiving incidental water are not included as a fixture for the purposes of this paragraph.

1014.3.5 Construction Requirements.

1014.3.5.1 Purpose.

Gravity grease interceptors shall be designed to remove grease from effluent and shall be sized in accordance with this section. Gravity grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor. Each gravity grease interceptor shall pass through an inspection manhole, prior to any connection to the public sewer.

1014.3.5.1.1 Components and Materials.

Gravity grease interceptors shall be constructed of cast iron or steel and protected, inside and out, by an approved corrosion resistant coating. Precast Concrete interceptors shall be constructed with a minimum wall thickness of 4", concrete strength equal to minimum 4000 PSI at 28 days of age, shall have a maximum water to cementitious ratio (w/c) of 0.45, and the

entire interior, including all fittings, bolts, and appropriate connections shall be protected by a corrosion resistant coating with a minimum thickness of 18Mil. Polyethylene prefabricated interceptors shall comply with the requirements set forth in paragraph 4.3 of IAPMO/ANSI Z1001. Fiberglass interceptors shall meet IAPMO/ANSI Z1001 for Grease Interceptors and be constructed with resins that comply with ASTM C-581. Poured concrete interceptors are prohibited. Each interceptor shall be of watertight construction and be provided with a non-perforated cover non-bolted or bolted into place, made gas and watertight.

1014.3.6 Sizing Criteria.

Accredited third party systems (IAPMO, PDI) shall be sized using Table 1014.3.6. Where drainage fixture units (DFUs) are not known, the interceptor shall be sized based on the maximum DFUs allowed for the pipe size connected to the inlet of the interceptor and/or the manufacturer's published sizing criteria and recommendations. Refer to Table 703.2, Drainage Piping, Horizontal.

Non-Certified systems shall be sized based on calculations in gallons of effective capacity, provided that the total wet volume is not less than 500 gallons and provides a minimum retention time of 30 minutes based on drainage fixture units as determined by Table 1014.3.6

1016.0 Sand Interceptors.

1016.1 Discharge.

When the discharge of a fixture or drain contains solids or semi-solids heavier than water that would be harmful to a drainage system or cause a stoppage within the system, the discharge shall be through a sand interceptor, or combination Sand/Gas/Oil interceptor. Multiple floor drains shall be permitted to discharge into one sand/solids interceptor. Sand interceptors shall be required where a floor drain or multiple floor drains discharge(s) through an oil interceptor, or where the discharge of a floor drain may contain solids or semi-solids that would be harmful to or tend to obstruct the system. A sand interceptor shall be installed in front of a gas/oil interceptor unless the gas/oil interceptor is designed as a combination

sand/gas/oil interceptor to handle sediment and solids. Human waste is prohibited from entering an interceptor.

1016.2 Authority Having Jurisdiction.

Sand or Solids interceptors are required where the Authority Having Jurisdiction deems it advisable to have a sand interceptor to protect the drainage system.

1016.3 Construction and Size.

Sand or Solids interceptors shall be built of prefabricated coated steel, precast concrete where the entire interior including all fittings, bolts and appropriate connections are treated with a corrosion resistant coating, fiberglass, or other watertight material. The interceptor shall have an interior baffle for full separation of the interceptor into two sections. The outlet pipe shall be the same size as the inlet pipe of the sand or solids interceptor, the minimum being 3 inches (80 mm), and baffle shall have at least one opening equal to the diameter of the inlet pipe and at the same invert as the outlet pipe. The opening(s) shall be staggered so that there cannot be a straight line flow between the inlet pipe and the outlet pipe. The invert of the inlet pipe shall be no lower than the invert of the outlet pipe. The sand interceptor shall have a minimum dimension of 2 square feet (0.2 m2) for the net free opening of the inlet section and a minimum depth under the invert of the outlet pipe of 2 feet (610 mm). For each 5 gpm (0.3 L/s) flow or fraction thereof over 20 gpm (1.26 L/s), the area of the sand interceptor inlet section is to be increased by 1 square foot (0.09 m2). The outlet section in two or more compartment systems shall at all times have a minimum area of 50 percent of the inlet section. The outlet section shall be covered by a solid removable cover, set flush with the finished floor, and the inlet section shall have an open grating, set flush with the finished floor and suitable for the traffic in the area in which it is located.

1017.0 Oil and Flammable Liquids Interceptors.

1017.1 Interceptors Required.

All parking structures, repair garages and gasoline stations with grease racks or grease pits, and all factories which have oily, flammable, or both types of wastes as a result of manufacturing, storage, maintenance, repair or testing processes, shall be provided with an oil or flammable liquid interceptor which shall be connected to all necessary floor

drains. The separation or vapor compartment shall be independently vented to the outer air. If two (2) or more separation or vapor compartments are used, each shall be vented to the outer air or may connect to a header which is installed at a minimum of six (6") inches (152 mm) above the spill line of the lowest floor drain and vented independently to the outer air. The minimum size of a flammable vapor vent shall not be less than two (2") inches (51 mm), and when vented through a sidewall, the vent shall not be less than ten (10') feet (3048 mm) above the adjacent level at an approved location. The interceptor shall be vented on the sewer side and shall not connect to a flammable vapor vent. All oil and flammable interceptors shall be provided with gastight cleanout covers, which shall be readily accessible. The waste line shall not be less than three (3") inches (76 mm) in diameter with a full-size cleanout to grade an interceptor which is provided with an overflow, shall be provided with an overflow line (not less than two (2") inches (51 mm) in diameter) to an approved exterior waste oil tank having a minimum capacity of five hundred fifty (550) gallons (2080 L) and meeting the requirements of the Authority Having Jurisdiction. The waste oil from the separator shall flow by gravity or shall be pumped to a higher elevation by an automatic pump. Pumps shall be adequately sized and accessible. Waste oil tanks shall have a two (2") inch (51 mm) minimum pump-out connection at grade and a one and one-half (1-1/2") inch (38 mm) minimum vent to atmosphere at an approved location at least ten (10') feet 3048 mm) above grade.

Non-Certified systems shall be sized based on maximum fixture flow, provided that the total wet volume is not less than 500 gallons and provides a minimum retention time of 30 minutes based on peak flow, where peak flow is greater of the flow rate based on drainage fixture units as determined by Table 1014.3.6.

1017.2.1 Components and Materials.

Gas, Oil, and Flammable Liquid interceptors shall be constructed of cast iron or steel when protected, inside and out, by an approved corrosion resistant coating. Precast concrete interceptors shall be constructed with a minimum wall thickness of 4 inches, concrete strength equal to minimum 4000 PSI at 28 days of age, shall have a maximum water to cementitious ratio (w/c) of 0.45, and the entire interior, including all fittings, bolts, and appropriate connections shall be protected by a corrosion resistant coating with a minimum thickness of 18Mil. Polyethylene prefabricated interceptors shall comply with the requirements set forth in paragraph 4.3 of IAPMO/ANSI Z1001.

Fiberglass interceptors must meet IAPMO/ANSI Z1001 for Grease Interceptors and shall be constructed with resins that comply with ASTM C-581. Poured concrete interceptors are prohibited. Each interceptor shall be of watertight construction and be provided with a non-perforated cover non-bolted or bolted into place, made gas and watertight.

1017.3 *Combination Oil and Sand Interceptor.*

A combination oil and sand interceptor may be installed when the Authority Having Jurisdiction approves the design.

Chapter 11 – Storm Drainage

1103.411 Amendments to the Uniform Plumbing Code ™ - Chapter 11 – Storm Drainage.

Chapter 11 of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

1101.8 Areaway Drains.

All open subsurface space adjacent to a building, serving as an entrance to the basement or cellar of a building, shall be provided with a drain or drains. Such areaway drains shall be three (3”) inches (76 mm) minimum diameter for areaways not exceeding one hundred (100’) square feet (9.3 m^2) in area, and shall be discharged in the manner provided for subsoil drains not serving continuously flowing springs or ground water (see Section 1101.5.2). Areaways in excess of one hundred (100’) square feet (9.3 m^2) shall not drain into subsoil. Areaway drains for areaways exceeding one hundred (100’) square feet (9.3 m^2) shall be sized according to Table 1101.8.

1101.12.1 Primary Roof Drainage.

Roof areas of a building shall be drained by roof drains or gutters. The location and sizing of drains and gutters shall be coordinated with the structural design and pitch of the roof. Unless otherwise required by the Authority Having Jurisdiction, roof drains, gutters, vertical conductors or leaders, and horizontal storm drains for primary drainage shall be sized based on a storm rate of six (6") inches per hour of sixty (60) minutes duration and 100-year return period. Refer to Table D-1 (in Appendix D) for 100-year, 60 minute storms at various locations.

1101.12.2.1 Where parapet walls or other construction extend above the roof and create areas where storm water would become trapped if the primary roof drainage system failed to provide sufficient drainage, an independent secondary roof drainage system consisting of scuppers, standpipes, or roof drains shall be provided. Discharge from secondary roof drains onto any area which maybe occupied by persons or vehicles shall not be allowed to fall more than three (3) feet above the ground. Secondary roof drainage systems shall be sized in accordance with Section 1101.12.1 as amended by this Code. Overflow drains shall be the same size as the roof drains with the inlet flow line two (2") inches (51 mm) above the low point of the roof and shall be installed independent from the roof drains.

1101.2.2.1 Separate Piping System.

The secondary roof drainage system shall be a separate system of piping, independent of the primary roof drainage system. The discharge shall be above grade, in a location observable by the building occupants or maintenance personnel. Discharge from secondary roof drains onto any area which may be occupied by persons or vehicles shall not be allowed to fall more than three (3) feet above the ground. Secondary roof drain systems shall be sized in accordance with Section 1101.11.1 based on the rainfall rate for which the primary system is sized.

No part of the primary roof drainage system such as drains, scuppers, piping, gutters, or appurtenances, which is a part of the primary roof drainage system, may be used in the design or installation of the secondary roof drainage system.

1101.12.3 When approved by the Authority Having Jurisdiction, the requirements of Sections 1101.12.1 as amended and 1101.12.2 shall not preclude the installation of an engineered roof drainage system that has sufficient capacity to prevent water

from ponding on the roof in excess of that allowed in the roof structural design with a rainfall rate of at least twice a rate of six (6”) inches per hour, and with a blockage in any single point in the storm drainage system.

1101.13.1 Rain Leaders and Conductors.

Rain leaders and conductors connected to a building storm sewer shall have a cleanout installed at the base of the outside leader or outside conductor and a minimum of three (3’) feet and a maximum of five (5’) feet above the finished floor on all inside conductors and interior downspouts, before it connects to the horizontal drain.

1101.13.2 Conductors installed above ground in buildings shall be in accordance with the applicable standards reference in Table 701.2 for above ground drain, waste and vent pipe.

1101.16.2 Combining Storm with Sanitary Drainage.

The sanitary and storm drainage system of a building shall be entirely separate, except where a combined sewer is used, in which case the building storm drain shall be connected in the same horizontal plane through a single wye fitting to the combined building sewer not less than 10 feet (3048 mm) downstream from a soil stack and outside the building and with a connection beyond the property line.

1106.2.2 Air Test.

The air test shall be made by attaching an air compressor testing apparatus to a suitable opening and, after closing all other inlets and outlets to the system, forcing air into the system until there is a uniform gauge pressure of 5 pounds-force per square inch (psi) (34 kPa) or sufficient to balance a column of mercury 10 inches (34 kPa) in height. The pressure shall be held without introduction of additional air for a period of not less than 15 minutes. Plastic pipe and fittings, may be tested under this paragraph with the approval of the Authority Having Jurisdiction, and must conform to requirements of the manufacturer.

1106.2.3 Exceptions:

When circumstances exist that make water tests, described in Section 1106.2.1 and Section 1106.2.2 , impractical, and for minor maintenance, repairs and installations, the Authority

Having Jurisdiction may perform the inspection tested under conditions approved by the Authority Having Jurisdiction to assure that the work has been in accordance with provisions of this Code.

1103.412 Amendments to the Uniform Plumbing Code ™ - Chapter 12 – Fuel Piping.

Chapter 12 of the 2015 Uniform Plumbing Code ™ is adopted and is included in this Plumbing Code for permitted installations under this ordinance. Where differences between the Plumbing Code and The St. Louis County Mechanical Code occur, the St. Louis County Mechanical Code shall govern the installation of FUEL PIPING.

1103.413 Amendments to the Uniform Plumbing Code ™ –Chapter 13 – Health Care Facilities and Medical Gas and Medical Vacuum Systems.

Chapter 13 of the 2015 Uniform Plumbing Code ™ is adopted and is included in the Plumbing Code for permitted installations under this ordinance. Where conflicts between the Plumbing Code and the St. Louis County Mechanical Code occur, the St. Louis County Mechanical Code shall govern installation of Medical Gas Systems.

1103.415 Amendments To The Uniform Plumbing Code ™ - Chapter 14 – Fire-stop Protection.

Chapter 14 of the 2015 Uniform Plumbing Code ™ is adopted. All fire-stop protection shall be done in accordance with the Building Code. Where conflicts between the Plumbing Code and the St. Louis County Building Code occur, the St. Louis County Building Code shall govern the installation. Reference to these requirements in the Plumbing Code does not establish a code requirement regarding licensing of the person(s) who install fire-stop materials.

CHAPTER 18

POTABLE WATER SUPPLY SYSTEMS

18.0 The installation of potable water systems shall be performed in accordance with the standards and procedures established by the Missouri Department of Natural Resources, and with the following requirements:

18.1 ***Permits Required.***

1. A permit is required for the installation of a well. Permits shall be issued by the Missouri Department of Natural Resources. Failure to secure proper permits by the well driller shall be a violation of this Code.

2. It is unlawful for any person or entity to engage in or perform the work of installing potable water piping from a point two feet (2') beyond the upper well terminal seal to the last potable connection or point of discharge without first registering with St. Louis County, a proper and valid Missouri Department of Natural Resources permit for the well drilling on the premises and the required fee, which will cover the cost of processing and one (1) inspection. The installation shall be installed in accordance with this Code.

18.2 *Testing of Water for Potability Required.* No water system, which is supplied by a well, shall be filled nor building occupied until the source of water supply is tested and determined to be safe for human consumption.

Testing shall be performed at or near the upper well terminal.

Pot-ability of the water shall be certified by a laboratory having suitable professional qualifications for the performance of such tests prior to filling of the interior water supply system, final inspection and/or occupancy of any building so supplied.

The Builder, Architect, Engineer, Well Driller, Plumber and property owner shall be held jointly and/or severally responsible for compliance with this section. Failure to comply shall be a violation of this Code.

CHAPTER 22

REGULATIONS GOVERNING INDIVIDUAL SEWAGE DISPOSAL SYSTEMS FOR HOMES AND OTHER ESTABLISHMENTS WHERE PUBLIC SEWAGE SYSTEMS ARE NOT AVAILABLE

22.1 *General Provisions.*

22.1.1 Where either a public water supply and/or sewer system, are not available, an individual water supply and/or sanitary sewage disposal system shall be provided and constructed on the same lot and the water distribution and drainage systems shall be connected thereto. Such individual systems shall meet the standards for installation of this Chapter 22 and Chapter 25.

22.1.2 All individual sanitary sewage disposal systems shall be constructed added to or altered in accordance with this Chapter 22.

22.1.3 Where a public sanitary sewerage system is legally and economically available to the building to be served, or within two hundred feet (200') of the property line, the Code Official shall require that sanitary sewage be discharged into that system.

22.1.4 All sanitary sewage shall be disposed of by an approved method of collection, treatment and effluent discharge.

22.1.5 Sanitary sewage or sanitary sewage effluent shall not be disposed of in any manner that will cause pollution of the ground surface, ground water, bathing area, lake, pond, watercourse, or tidewater, or create a nuisance nor shall it be discharged into any abandoned or unused well, or into any crevice, sink hole, or other opening either natural or artificial in a rock formation.

22.1.6 Where water under pressure is not available, all human body wastes shall be disposed of by depositing them in approved privies, chemical toilets, or such other installations acceptable to the Code Official and local Health Department Official.

22.1.7 All water-carried sanitary sewage shall pass through an approved mechanical sanitary sewage treatment plant prior to its discharge into the soil. Special wastes shall meet the standards for installation of chapters 7, 8, 9, & 10 prior to

entering the septic system. Where underground disposal is not feasible, consideration will be given to special methods of collection and disposal.

22.1.7.1 All individual sewage disposal systems shall permanently display a serial number chosen by and displayed as directed by the administrative authority.

22.1.7.2 Where percolation rates are less than sixty (60) minutes per inch, fifteen to thirty percent (15 to 30%) grade, a surface water diversion swale shall be added by scraping ground to a depth of six (6") inches and clean fill added and grass planted.

22.1.7.3 Where the grade is over thirty percent (30%) a French drain deeper than the bottom of the closest trench shall be installed and piped to daylight clear of field.

22.1.8 The building contractor, design engineer, owner, plumbing contractor and drainlaying contractor are jointly responsible for compliance with this Chapter 22.

22.1.9 Abandoned individual sanitary sewage disposal systems shall be disconnected from the buildings, pumped out and the contents properly disposed of, the septic tank bottom and/or the sewage treatment tank bottom shall be broken out and the septic tank backfilled with crushed limestone, gravel or clean compacted dirt.

22.1.10 No property shall be improved in excess of its capacity to properly absorb sanitary sewage effluent in the quantities and by the means provided in this chapter.

Note: Nothing contained in this Chapter shall be construed to prevent the Code Official from requiring compliance with higher requirements than those contained herein where such higher requirements are essential to maintain a safe and sanitary condition.

22.1.11 ***Minimum Standards.***

22.1.11.1 The following minimum standards shall apply to piping used in Individual Sewage Disposal Systems the standards of which are not otherwise designated.

Pumped Sewage Lines	ASTM D2241	Gasketed Joint Integral Bell SDR 21 Class 200
Distribution Field Piping	ASTM F810	Smooth wall HDPE No joint material - Thin Wall - 4 inch only
Distribution Field Piping	ASTM F405 ASTM F667	Heavy Duty Tubing & Pipe - Corrugated PE - Straight lengths only, no coiled pipe
Distribution Field Piping	ASTM D2729	Thin Wall PVC Perforated
Sewer Lateral Pipe	ASTM D1785 ASTM D2665	SCHD 40 DWV PIPE
Sewer Lateral Pipe	ASTM D3034	SDR 35 DWV PIPE SDR 26 DWV PIPE

22.2 ***Insufficient Lot Area – Improper Soil Conditions.*** When the Code Official determines that there is insufficient lot area, improper soil conditions or improper lot grade elevations for adequate sanitary sewage disposal for the building or land use proposed, no building permit shall be issued and no individual sanitary sewage disposal shall be permitted. In areas where soil conditions are critical, no building permit shall be issued until engineering data and test reports are submitted and approved by the Code Official.

22.3 ***Design of Individual Sewage System.***

22.3.1 The design of the individual sewage disposal system must take into consideration location with respect to wells or other sources of water supply, topography, water table, soil characteristics, area available, and maximum occupancy of the building.

22.3.2 The type of system to be installed shall be determined on the basis of location, soil permeability, ground water elevation and ground elevations.

22.3.3 The system shall be designed to receive all sanitary

sewage, excluding untreated special waste from the building. Drainage from footings or roofs shall not enter the system. Backwash from water softeners and swimming pool filtration systems shall not enter the system and shall be discharged properly. No storm water run-off flood or surface waters shall be permitted to flow or pond over any part of the sanitary sewage disposal system.

22.3.4 The individual sanitary sewage system shall consist of an approved mechanical sanitary sewage treatment plant, discharging into a sub-surface disposal field found adequate as such and approved by the Code Official.

22.3.5 *Backflow.* Plumbing fixtures connected to a private sewage disposal system that are subject to backflow, shall be protected by a backwater valve or a sewage ejector.

22.3.6 An approved mechanical sanitary sewage treatment plant must be designed to minimize flood damage, floodwater infiltration into the system and from the system into floodwaters. Any approved mechanical sanitary sewage treatment plant inlets and outlets and waste-disposal trenches should be above the base flood elevation. Ring levees may be needed to protect waste treatment facilities below the base flood elevation.

22.3.7 ***Design Criteria.*** Design criteria for sewage flow shall be selected according to type of establishment. See Table 22.3.7. For establishments not covered by Table 22.3.7 use table defining quantities of domestic sewage flows in the current edition 19 CSR 20 - 3.060.

TABLE 22.3.7

SEWERAGE FLOWS ACCORDING TO TYPE ESTABLISHMENT

TYPE OF ESTABLISHMENT	FLOW (Gallons per day per unit unless otherwise indicated)
RESIDENTIAL UNITS	
Single Family Dwelling	120 / Bedroom

Multiple Family Dwelling (with laundry capabilities)	120 / Bedroom
Multiple Family Dwelling, cottages (without laundry capabilities) In excess of two (2) persons per bedroom.	95 / Bedroom Add 50 / person
Mobile Home Parks	300 / home *

TYPE OF ESTABLISHMENT	FLOW (Gallons per day per unit unless otherwise indicated)
COMMERCIAL FACILITIES	
Service Stations	250 / Water Closet or Urinal plus 15 / each employee
Transportation terminals (airports, bus stops, railroad stations and the like)	5 / passenger
Laundromats	580 / machine
CAMPS	
Construction or Work Camps (With chemical toilets)	60 / person 40 / person
Summer Camps	60 / person
Campgrounds with Comfort Station (without water and sewer hookups)	100 / campsite

Travel Trailer / Recreational Vehicle park (with water and sewer hookups)	120 / space
ASSEMBLY and MERCANTILE	
Retail Stores	120 / 1000 sq. ft. of retail sales area.
Stadium, Auditorium, Theater, Drive-in	5 / seat or space
Swimming Pools, Spas, and Bathhouses	10 / person
Churches (Not including a Kitchen, Food Service Facility, Day Care or Camp)	3 / seat
Churches (With a Kitchen, Not including a Food Service Facility, Day Care or Camp)	25 / member Or 25 / 15 sq. Ft. of dining area whichever is greater
FOOD OR DRINK ESTABLISHMENTS **	
Bar (not serving food)	20 / seat
Restaurants	40 / seat Or 40 / 15 sq. Ft. of dining area whichever is greater
24 Hour Restaurant	75 / seat

TYPE OF ESTABLISHMENT	FLOW (Gallons per day per unit unless otherwise indicated)
Food Stands 1. Per 100 square foot of food stand floor space 2. Add per food employee	 50 gallons 25 gallons
Other food service facilities	5 / meal
Meat Markets 1. Per 100 square foot of market floor space 2. Add per market employee	 50 gallons 25 gallons
INSTITUTIONAL **	
Hospitals	300 / bed
Day Care Facilities	15 / person
Residential Care Facilities	60 / person
Rest Homes and Nursing Homes With Laundry	120 / bed
Rest Homes and Nursing Homes Without Laundry	60 / bed
Day Workers at Schools and Office	15 / person
Day Camps	25 / person

Day Schools With Cafeteria, gym and showers	35 / student
Day Schools With Cafeteria only	25 / student
Day Schools With neither Cafeteria nor showers	15 / student
Boarding Schools	100 / student

* Must consider flow into the soil absorption system from mobile homes where taps are allowed to run to prevent freezing.

** Establishments processing food shall be required to provide grease interceptors in an accessible location prior to the sewage treatment system.

Notes:

1. Establishments with flows greater than three thousand gallons per day (3,000 gpd) shall be regulated under Chapter 644 R.S.Mo. administered by the Department of Natural Resources.

2. Gallons per person per unit include normal infiltration for residential systems.

22.3.8 ***Alternate Design.***

22.3.8.1 Where soil conditions are such that the systems mentioned above cannot be expected to operate satisfactorily, approval of an alternate design, by a registered design professional, shall be secured from the Authority Having Jurisdiction. The minimum lot size on which an alternate disposal system may be installed for new construction shall be adequate for the alternate design as determined by the Authority Having Jurisdiction.

22.3.8.2 All individual mechanical sanitary sewage treatment plants to be installed to serve an individual single family dwelling and other structures within the St. Louis County, Missouri area must be tested and approved by the National

Sanitation Foundation, Ann Arbor, Michigan, and meet all requirements of the N.S.F. Standard #40 specifications Class I treatment listing.

22.3.8.3 All mechanical sewage treatment plants for individual single-family dwellings and other structures must be supplied with an N.S.F. approval emblem on the equipment for inspection purposes.

22.3.8.4 All companies, manufacturers and distributors must show proof of the availability of repair parts and also the availability of a qualified service company and personnel for necessary treatment plant maintenance.

22.3.8.5 Standards. The design of individual sanitary sewage disposal systems must conform to the Rules and Regulations of this Section, and all other applicable State and Federal Regulations.

22.3.8.6 The individual mechanical sanitary sewage treatment plant effluent quality must conform to regulations as stated in the Rules and Regulations of Missouri Department of Natural Resources.

22.4 ***Location of Individual Sewage Absorption System.***

22.4.1 Where the premises are served by a public water main, the minimum lot size in which an individual sanitary sewage disposal system may be installed is twenty thousand (20,000') square feet; otherwise, the required lot size on which an individual sanitary sewage disposal system may be installed is thirty thousand (30,000') square feet.

22.4.3 Minimum Distances. The minimum distances that shall be observed in locating the various components of the disposal system shall be as given in Table 22.4.3.

TABLE 22.4.3 MINIMUM SET-BACK DISTANCES

Minimum Distance In Feet From	Sewage Tank[1]	Disposal Area [2]
Private water supply well [3]	100	100
Public water supply well	300	300

Minimum Distance In Feet From	Sewage Tank[1]	Disposal Area [2]
Cistern	100	100
Spring	100	100
Classified stream, lake or impoundment *	50	50
Stream or open ditch [4]	25	25
Property lines**	10**	25
Building Foundation	10	25
Basement	25	25
Swimming pool	20	20
Water line under pressure	10	10
Suction water line	50	100
Upslope Interceptor Drain	---	10
Downslope Interceptor Drain	---	10
Top of slope of embankments or cuts of two feet (2') or more vertical height	---	20
Edge of surficial sink holes	50	100
Geothermal system or equivalent	50	100
Other soil absorption system except repair area	---	20

* A classified stream is any stream that maintains permanent flow or permanent pools during drought periods and supports aquatic life.

** Recommend twenty-five feet (25′) downslope of property line initially but repair may be allowed to ten feet (10′) of down slope property line.

Notes:

1. Includes sewage tanks, intermittent sand filters and dosing chambers.

2. Includes all approved disposal systems

3. Unplugged abandoned wells or wells with less than eighty feet (<80') of casing depth shall have one-hundred-fifty feet (150') minimum distance from all above.

4. Sewage tanks and soil absorption systems should never be located in the drainage area of a sinkhole.

5. All paved areas, underground utilities, and accessory uses shall have a minimum of ten (10’) feet of undisturbed soil between that use and any portion of the sewage disposal system.

22.4.4 *General.* All sewage disposal systems shall conform with the following general principles regarding site.

22.4.4.1 *Location.* Sewage disposal system shall be located on the premises consistent with the general layout topography, soil conditions, and surroundings, including abutting lots. Locations at a higher elevation through employment of a forced system may be used with the specific permission of the Authority Having Jurisdiction.

22.4.4.2 *Watersheds.* Sewage disposal facilities may be located on any watersheds of a public water supply system with the approval of the Code Official subject to the approval of affected suppliers of water.

22.4.4.3 Individual sanitary sewage disposal systems situated less than three thousand (3,000’) feet upstream from the public water intake structures shall not be less than two hundred (200’) feet, measured horizontally, from the high water level in the public water supply reservoir or the banks of tributary streams.

22.4.4.4 Individual sanitary sewage disposal systems situated beyond three thousand (3,000’) feet upstream from public water supply intake structures shall be located no less than one hundred (<100’) feet, measured horizontally, from the high water level in the public water supply reservoir or the banks of the tributary streams.

22.4.4.5 Prior to approval, the soil must prove satisfactory by a soil morphology evaluation, or when approved by the authority having jurisdiction, by the standard percolation test for

underground disposal, as provided for in this Code or when the percolation rate average is greater than one hundred twenty (120) minutes per inch (mpi), severe geological limitations, potential ground water contamination or other limiting soil characteristics exist, a soil morphology evaluation shall be made by a qualified soil scientist or engineer pursuant to the rules and regulations set forth by the Department of Health and the Department of Natural Resources, State of Missouri.

22.5 ***Percolation Tests.*** The following rules and regulations shall apply to the performance of percolation tests.

22.5.1 For the percolation test, four (4) test holes shall be made in separate test locations spaced uniformly over the proposed site. The test holes must be within the area where the absorption field is to be constructed and shall be placed in an appropriate pattern, usually fifty feet (50') apart in a square pattern, with the six foot (6') test bore to be located in the proposed drain field site.

22.5.2 Dig or bore the holes with horizontal dimensions of from four to twelve (4 to 12”) inches and vertical sides to the depth of the bottom of the proposed distribution trench.

22.5.3 Roughen or scratch the bottom and sides of the holes to provide a natural surface. Remove all loose material from the hole. Place two (2”) inches of coarse sand or fine gravel in the hole to prevent bottom scouring.

22.5.4 Fill the hole with clear water to a minimum depth of ten inches (10") over the gravel. By refilling, if necessary, or by supplying a surplus reservoir of water (automatic siphon) keep water in the hole for at least four hours.

22.5.5 In sandy soils the saturation and swelling procedures need not be required and the test may proceed if one (1) filling of the hole has seeped away in less than ten (10) minutes.) (In sandy soils, the water depth shall be adjusted to eight inches (8") over the soil bottom of the test hole. From a fixed reference point, the drop in water level shall be measured in inches to the nearest one eights inch (1/8") at approximately ten (10) minute intervals. A measurement can also be made by determining the time it takes for the water level to drop one inch (1") from an eight-inch (8") reference point. If eight inches (8") of water seeps away in less than ten (<10) minutes, a shorter interval between measurements shall be used but in no case shall the water depth exceed eight inches (8"). The test shall continue until three (3) consecutive percolation rate

measurements vary by a range of no more than ten percent (10%).)

22.5.6 Percolation rate measurements shall be made on the day following the saturation process, except in sandy soils.

22.5.7 In other than sandy soils, the water depth shall be adjusted to eight inches (8") over the soil at the bottom of the test hole. From a fixed reference point, the drop in water level shall be measured in inches to the nearest one-eighth inch (1/8") at approximately thirty (30)-minute intervals over a four (4) hour period, refilling between measurements to maintain an eight-inch (8") starting head.

The drop in percolation rate shall be calculated as follows:

The time interval shall be divided by the drop in water level to obtain the percolation rate in minutes per inch; the slowest percolation rate of the required tests shall be used to determine the final soil treatment system design. When results are greater than one hundred-fifty (>150) min/inch a detailed soils morphology evaluation must be conducted to justify the design; and for reporting the percolation rate, worksheets showing all calculations and measurements shall be submitted; and depth to bedrock or other restrictive layer shall be determined in areas where it is known that bedrock may exist at depths less than six feet (6').

22.5.8 If no water remains in the hole after overnight saturation, add clear water to a depth of about eight (8”) inches over the gravel. From a fixed reference point, measure the height of the water surface at approximately thirty (30) minute intervals over a four (4) hour period, refilling the hole to a depth of eight (8”) inches as necessary. The drop, which occurs during the final thirty (30) minute period, is used to calculate the percolation rate.

22.5.9 In sandy soils, or other soils in which the first twelve (12) inches of water seeps away in less than thirty (30) minutes, after the overnight saturation period, the time interval between measurements can be taken as ten (10) minutes and the test run over a period of one hour. The drop, which occurs in the final ten (10) minute period, is used to calculate the percolation rate.

22.5.10 When the percolation test results are above forty five (45) minutes per one (1”) fall, the engineer shall, at another suitable field location, perform a minimum of two (2) additional percolation test holes at the building site, even if the test

site is at a higher elevation which would require a pressure line to lift the treated sanitary sewage effluent to that location. If the additional percolation test results exceed forty-five (45) minutes per one (1”) inch fall, the engineer shall design an alternate system with approval of the plumbing official.

If the additional percolation test results are the responsibility of a registered design professional registered with the State of Missouri Board for Architects, Professional Engineers and Land Surveyors or Landscape Architects. After the test holes have been dug during the percolation and/or the morphology test a representative of the Office of Plumbing and Sewer Inspections, St. Louis County, Missouri shall be informed and requested to be present. The engineer shall contact this office twenty-four (24) hours prior to starting any test for the purpose of arranging for the Inspector’s presence.

Percolation and Morphology test site plan. The registered engineer shall submit a site plan with the percolation and/or morphology test results, which must indicate:

1. Lot size, property lines and easements.

2. Test hole locations and elevations.

3. Benchmark locations and elevations.

Note: Benchmark should be a spike in tree, iron pipe or hub set to remain through the construction period.

4. Basement floor elevation.

5. Proposed building and accessory use location.

6. Location of potable water service piping, well or cistern. A complete investigation of all existing potable water wells or cisterns located on all adjacent properties to the proposed new building site. The location of all existing potable water wells or cisterns shall be indicated and shown on the site plan of the proposed building if within seventy-five feet (75’) of the property line.

7. Driveway and all paved areas.

8. Results of the six (6’) foot test bore.

9. The engineer shall flag the test holes. Test holes shall not be backfilled (covered) until after the field has been

installed and approved by the Code Official.

10. Contours, at a minimum of two (2') foot intervals, in area of proposed drain field to include all adjacent areas within twenty-five (25') feet.

11. Locate proposed building sewer vent trap, building treatment unit, disposal field by elevation and distances to property lines.

12. Design of proposed treatment and disposal system.

13. The site plan shall include a statement that the engineer, or his representative, has inspected the site to determine the most suitable location for the proposed house or other establishment treatment unit and disposal field.

14. Percolation test results shall include date of test, test hole soaking period, depth of test holes, depth of water at start of test, average percolation rate for four (4) test holes.

15. Original engineer seal and signature on all documents.

22.6 ***Minimum Size of Absorption Field.***

22.6.1 In no case shall less than four hundred (400') square feet of absorption area be provided.

22.6.2 The minimum required size of the absorption field per bedroom is related to the percolation rate in minutes per inch of fall and shall be in accordance with Table 16.6.2. For soils with percolation rates of less than ten (<10) minutes per inch a soil morphology test shall be required.

TABLE 22.6.2

SQUARE FOOTAGE OF ABSORPTION FIELD REQUIRED*

Minutes per inch fall	Square Feet Per Bedroom
Between 2 and 15	200
Between 15 and 30	250

Between 30 and 45	300
Over 45	Alternate system to be considered

*Except as provided in Section 22.10.

22.6.3 For establishments other than a single family residence, subsection 22.3.7. shall be used to estimate the sewage flow rate. (Also, see Paragraph 22.8.)

22.6.4 The thickness of the porous soil below the point of the percolation test must be determined by means of using a soil auger. The effective absorption area shall be calculated only within this porous soil.

22.7 ***Morphology Tests.*** The following rules and regulations shall apply to the performance of morphology tests.

22.7.1 Follow the procedure as defined in the most current edition of the Missouri Department of Health Rules Governing On-site Sewage Systems. The minimum size of hole dug for shall be twenty four (24") inches wide and four (4') foot long at its deepest point, a minimum of five (5') feet deep, or to bedrock if at less than five (5') feet deep. A tube type morphology test may be used with the approval of the authority having jurisdiction.

22.8 ***Subsoil Investigation.*** In conjunction with the percolation test, and/or soil morphology test a subsoil investigation shall also be made. If rock, hardpan, or other impermeable stratum is found at a depth less than four (4’) feet, or if the ground water table is less than four (4’) feet below grade during any prolonged period, the Code Official shall determine whether an absorption field system is appropriate and if so the size of the absorption field required.

22.9 ***Code Official Field Survey Checklist.*** Upon receipt of an individual sanitary sewage system application an on-site field survey shall be performed. The property owner or his authorized representative shall be present at the Code Official’s field survey and sign the Field Survey Check List. Any authorized representative must have the property owner’s notarized authorization in writing to be filed with the Office of Plumbing and Sewer Inspections.

The Field Survey Check List, site plans with sewage treatment design, and all percolation data and/or all soil morphology data shall be approved by the Code Official and on file with the Office of Plumbing and Sewer Inspections prior to the issuing of the building permit.

22.9 ***Sewage Tank/Mechanical Sanitary Sewage Treatment Plant.***

22.9.1 Plans for all mechanical sanitary sewage treatment plants shall be submitted to the Code Official for approval. Such plans shall show all dimensions, reinforcing structural calculations and such other pertinent data as may be required by the Code Official. Such facilities shall have NSF approval for minimum type 1 discharge.

22.9.2 Installation of all mechanical sanitary sewage treatment plants shall comply with the manufacturing specifications and guidelines.

22.9.3 All mechanical sanitary sewage treatment plants shall be sized by an engineer but in no case shall it be less than the manufacturers specifications and guidelines or have less than a minimum treatment capacity of one hundred twenty gallons per bedroom per day (120 gals. pbd), or one thousand gallons (1000 gals) whichever is greater.

22.9.4 Mechanical sanitary sewage treatment plants shall be brought to within the maximum of fourteen (14”) inches of the finished grade. Where the Code Official permits a greater depth, the access manhole, minimum inside diameter thirty-six inches, must be extended to the finished grade and the manhole shall have a concrete marker at grade.

22.9.5 The effluent from all mechanical sanitary sewage treatment plants shall be disposed of underground by sub-surface absorption or other methods as approved by the Code Official.

22.9.6 When required by the Authority Having Jurisdiction, a flow meter shall be installed to measure the actual flow leaving the treatment unit and prior to entering the sub-surface absorption field or other method as approved by the Code Official.

22.10 ***Absorption Trenches.***

22.10.1 Absorption trenches shall be designed and constructed on the basis of the required effective absorption rate.

Percolation (min./in.)	Absorption Loading (sq.ft./bedroom) 150	Loading Rate (gal./sq. ft.)* 1.0
11–30	200	0.8
31–45	265	0.45
46–60***	300	0.4
61–1	600	0.2

* Gallons of sewage tank effluent per day per square foot of trench bottom.

** Soils with percolation rates of one to ten minutes per inch (1– 10 min./in.) or less shall either be evaluated for severe geological limitations by a registered geologist or a soil morphology examination shall be required.

*** Note: When percolation rate is greater than forty-five minutes per inch (45 min./in.), backfill above infiltration barrier shall be sand, loamy sand or sandy loam, when available. Two to four inches (2–4") of loamy soil shall be used to cap the sandy backfill. This is to keep rainwater from entering the system.

Must be designed and approved by a Missouri registered engineer.

22.10.2 All filter material shall be graveless unless approved by the Code Official. As a reference a type of graveless material that would be acceptable would be E-Z Flow Aggregate System or Enviro Chamber System or Infiltrator System Chambers or 4 inch corrugated plastic pipe meeting ASTM F405 High Density standards, or other system or material deemed equivalent by the Code Official.

If filter material is approved by the Code Official it shall cover the tile and extend the full width of the trench and shall be not be less than twelve (12”) inches deep beneath the bottom of the tile, and two (2”) inches above the top of the tile. The filter material shall be washed, Class "B" gravel. The filter material shall be covered by untreated building paper or by a minimum of eight (8”) inches of straw for a compacted thickness of two (2”) inches or other material approved by Authority Having Jurisdiction as the laying of the drain pipe proceeds.

22.10.3 All piping and piping fittings shall be designed for septic tank absorption field construction and shall be approved by the Code Official. When four 4" (inch) diameter corrugated plastic tubing is used it shall not be less than ASTM F405 High Density standards. The corrugated tubing shall have three (3) rows of not less than one-half inch (<½") or greater than three-fourths inch (>3/4") diameter holes and spaced longitudinally at four inches (4") on centers. Coiled tubing shall not be used.

22.10.4 Maximum length of lateral absorption lines shall not exceed one hundred (100') feet. The trench bottom shall be uniformly graded to slope from a minimum of two (2") inches to a maximum of four (4") inches per one hundred (100') feet.

22.10.5 Disposal field trenches shall have a bottom width of eighteen to thirty-six (18 to 36") inches; a depth of eighteen to thirty (18 to 30") inches and be spaced not less than ten (<10') feet apart (measured from edge of trenches).

22.10.6 Compaction and/or smearing of soils on the trench sidewalls and trench bottom occurring during excavation shall be avoided. When compaction and/or smearing of soils do occur the soil area shall be roughened and scratched to natural soil condition.

22.10.7 Dosing is required for all systems, except serial distribution systems, and shall be provided when the design flow requires more than 500 lineal feet of distribution line. Dosing shall be required when the distance between the bottom of the trench and a limiting condition is less than two feet (2').

22.11 ***Evaporation/Irrigation Alternate Design.***

22.11.1 When an absorption disposal field cannot be used for effluent disposal due to limiting soil characteristics, an evaporation/irrigation system may be installed. When the percolation tests are greater than one hundred-twenty (>120) minutes per inch, (mpi), or soil conditions are limited another alternate disposal design may be considered. The Code Official shall approve all alternate designs.

22.11.2 Evaporation irrigation trenches shall be designed and constructed on the basis of one hundred-fifty (150') lineal feet per bedroom for individual single-family dwellings. All other establishments shall be constructed on the basis of one point five (1.5') lineal feet of drain field per gallon of sewage flow, but in no case less than two hundred (200') lineal feet.

22.11.3 Maximum length of lateral evaporation irrigation lines shall not exceed one hundred (100') feet.

22.11.4 The trench bottom shall be uniformly graded to slope a maximum of two (2") inches per one hundred (100") feet.

22.11.5 Disposal field trenches shall have a bottom width of not less than eighteen (<18") inches nor greater than twenty-four (>24") inches. A maximum depth of eighteen (18") inches and a minimum depth of ten (10") inches and be spaced not less than ten (<10') feet apart (measured from edge of trenches).

22.11.6 Evaporation irrigation lines shall be constructed of four (4) inch corrugated perforated plastic piping not less than ASTM F-405 High Density specifications. The corrugated tubing shall have three (3) holes of not less than one-half inch (<½") or greater than three-fourths (>3/4") diameter holes and spaced longitudinally at four inches (4") on centers. All corrugated perforated piping shall be encased with a filter wrap of spun-bonded nylon, spun-bonded polypropylene or other substantially equivalent material approved by the Code Official. The Code Official shall approve all other piping designed for evaporation/irrigation lines. Coiled tubing shall not be used.

22.11.7 The piping and the full width of the trench shall be covered by a minimum of eight (8") inches of straw for a compacted thickness of two (2") inches over pipe or other approved filter material. The trench shall then be backfilled with clean soils consisting of sandy loam, clay loam, or silky clay loam. Backfill shall be free of rocks, hard clay soils, and debris.

22.11.8 All evaporation/irrigation disposal trenches shall be aerated manually after backfilling of the trenches. All trenches shall be seeded and strawed prior to any disturbance of the aerated soil.

22.11.9 ***Reserved for future use.***

22.11.10 Evidence of effluent discharge at the end of the last evaporation irrigation trench shall be interpreted as insufficient drain field footage and require the immediate addition of drain field.

22.12 ***Sand Filters.***

22.12.1 ***General Specifications for Design and Construction of a Sand Filter with Chlorination.***

22.12.1.1 ***General.*** A sand filter shall consist of a bed of clean, graded sand on which septic tank effluent is distributed by means of a siphon and pipe, with the effluent percolating through the bed to a series of under drains through which it passes to the point of disposal.

22.12.1.2 ***Filter Size.*** The filter size shall be determined on the basis of one point one five (1.15) gallons per square foot per day if covered and two point three (2.3) gallons per square foot per day if an open filter is to be used.

22.12.1.3 ***Dosing Tank Size.*** The septic tank effluent shall enter a dosing siphon tank of a size to provide one (1”) inch coverage of the sand filter.

22.12.1.4 ***Siphon.*** The siphon shall be of a commercial type and shall discharge the effluent to the sand filter intermittently. The siphon shall be omitted if a pump is used to lift septic tank effluent to the sand filter.

22.12.1.5 ***Surge Tank.*** A surge tank shall be used to receive the pump discharge prior to dosing on the sand filter.

22.12.1.6 ***Underdrains.*** Four-inch diameter vitrified clay pipe in two (2’) foot lengths laid with one-half (½”) inch open joints or unglazed farm tile in one (1’) foot lengths laid with open joints, with the top half of each joint covered with four (4”)inch wide strips of tar paper, burlap, or copper screen, or perforated bituminized-fiber pipe or other approved material shall be used for the under drains.

22.12.1.7 ***Underdrain Bed.*** The under drain pipes shall be laid at the bottom of fine sand filter, surrounded by washed gravel, crushed stone, slag, or clean bank run gravel ranging in size from one-half (½”) inch to two and one-half (2½”) inches and free of fines, dust, ashes or clay. The gravel shall extend from at least two (2”) inches below the bottom of the tile to a minimum of two (2”) inches above the top of the tile.

22.12.1.8 ***Underdrain Slope and Spacing.*** The under drains shall have a slope from two (2”) inches to four (4”) inches per one hundred (100’) feet and shall be placed at eight (8’) foot intervals.

22.12.1.9 ***Underdrain Fill.*** Above the gravel or other material surrounding the under drain shall be placed two (2’) feet of washed and graded sand having an effective size of from 0.35-0.5 mm and a uniformity coefficient of not over three point five

(3.5) (the effective size of a sand is that size of which ten percent (10%) by weight is smaller and the uniformity coefficient is the ratio of that size of which sixty percent (60%) by weight is smaller than the effective size).

22.12.1.10 ***Distribution Pipes.*** The distribution pipes shall be laid at the surface of the sand, surrounded by gravel as specified for the under drains.

22.12.1.11 ***Gravel Cover.*** The gravel should be covered with untreated building paper and the entire area covered.

22.12.1.12 ***Open Filter.*** If the filter is an open one, the four (4) sides shall be constructed of wood or concrete to prevent earth erosion from entering the sand filter bed.

22.12.1.13 ***Chlorine Contact Tank.*** The chlorine contact tank for disinfections of sand filter effluent and individual mechanical sanitary sewage treatment plants shall provide twenty (20) minute detention at average flow but in no case shall the capacity be less than fifty (<50) gallons. Chlorine control should be provided by the use of hypochlorite or chlorine machines commercially available.

22.13 ***Protection of Disposal Fields.***

22.13.1 All disposal field areas shall be protected from damage caused by, but not limited to pavement, vehicles, animals, tillage or other uses, which might affect the design and/or operation of the system.

22.14 ***Forced Line Systems.***

22.14.1 A holding tank of a minimum of one days flow from the building or five hundred gallon capacity whichever is greater shall be used to receive the building discharge prior to entering the pump and the forced line.

22.14.2 A slow down area shall be established between the forced line and the drain field. The slow down area shall be of sufficient size or length to prevent a surge of effluent through the drain field.

22.15 ***Bedroom Additions to Existing Single Family Dwellings.***

22.15.1 Where an alternation and/or additions are made to an existing single family dwelling resulting in an increase in the number of bedrooms, the existing disposal field shall be

enlarged to the minimum of:

ABSORPTION DISPOSAL FIELD	One hundred fifty square feet which is equal to 75 lineal feet of 2 foot wide trench per bedroom. If percolation data is available for existing absorption field the Administrative Authority may adjust footage requirements.
ALTERNATE DESIGN:	100 Lineal feet per bedroom.
EVAPORATION IRRIGATION	

22.16 ***Building Sewer and Land Block Step Downs.***

22.16.1 All piping from building drain to individual sewage disposal systems shall be six (6”) inches and a (6”) inch vent trap shall be installed at the inlet end of the mechanical sanitary sewage treatment plant.

22.16.2 All land block step-downs for absorption and/or evaporation/irrigation disposal trenches shall be of solid piping not less than scheduled 35 sewer piping.

22.16.3.1 Connections between corrugated pipe and SDR 35 fittings shall be made using approved rubber coupling.

22.17 ***Scavengers-Sewage and Waste Disposal.***

22.17.1 All solid and liquid contents of chemical toilets, septic tanks, seepage pits, and watertight pits for septic tank effluent shall be removed and disposed of in accordance with the Rules and Regulations of the St. Louis County Health Department.

22.18 ***Commercial Absorption Field Installations.***

22.18.1 Design criteria for commercial absorption field installations with guidelines from paragraphs 22.3.7 and 22 .5 and 22.8.

1. 35.4 minutes per one-inch (1") fall is utilized in the sample method as illustrated below.

2. When designing a system you must obtain the proper

percolation rate of the soil at the construction site before making any calculations.

3. Percolation test results = 35.4 minutes per one inch (1") fall.

4. 35.4 for one-inch (1") fall - 300 sq. Ft. of absorption field per bedroom - Table 16.6.2.

5. One (1) bedroom - occupancy for two (2) persons.

6. 300 sq. Ft. absorption field per bedroom = 150 sq. Ft. absorption field per person.

7. Water usage = 100 G.P.D. per person.

8. 100 G.P.D. per person discharging into 150 sq. Ft. area of absorption field = 1.0 gallons discharging into 1.5 sq. Ft. area of absorption field.

9. System being designed is a church with kitchen facilities with peak population of 500 persons.

10. Paragraph 22.5 states for this type of building the G.P.D. water usage for each person is 5 G.P.D.

11. 500 persons x 5 G.P.D. = 2500 G.P.D.

12. Multiply 1200 G.P.D. flow by required 1.5 sq. ft. of absorption area per gallon = 3750 sq. ft.

13. Absorption trench not to exceed 24 inches in width.

14. 2 sq. ft. = 1 Lineal ft or 24 inch wide trench.

15. 3750 sq. ft. 2 sq. ft. Per lineal ft = 1875 feet.

22.19 *Alternate Systems.* The following systems meeting the specified criteria are acceptable designs.

22.19.1 *Drip Irrigation.*

1. Definition: Drip Effluent/Irrigation System

   (A) Low volume, time controlled, and site specific engineered method of uniformly distributing NSF Class 1 treated, chlorinated and de-chlorinated effluent over a specific area of soil, at a specified depth, that will allow the soil to absorb the treated effluent at a set rate

(gal/day/sq ft) as specified in Title 19 - Department of Health, Division 20- Environmental Health and Epidemiology, Chapter.

(B) General Sanitation guidelines for the State of Missouri, for the morphology of the disposal area to be used.

1. Components of: Drip Effluent / Irrigation Systems

The components of the system shall include the items listed below:

(A) Treatment Tank

Treatment of the domestic wastewater shall be accomplished by the extended aeration process with non-mechanical flow equalization, pretreatment of the influent and filtration, chlorination and de-chlorination of the final effluent.

The use of ultraviolet treatment may be added at the option of the registered design professional. The treatment system shall provide primary, secondary, and tertiary treatment of the wastewater flow and be contained within a reinforced pre-cast concrete tank meeting ACT standard 318-95, minimum size One thousand (1000) gallon. Systems utilizing fiberglass, steel or plastic tanks are subject to review and individual approval to be considered for this application and shall be provided with protection against corrosion and deterioration. All tanks shall be prevented from flotation when dewatered as required.

(B) Holding Tank

A minimum One Thousand (1000) gallon low inlet pre-cast holding tank, with an access riser, necessary plumbing and electrical connections, all of which are cast into the tank at time of manufacture, will receive the treated effluent. No other openings should exist in order to eliminate possible ground water infiltration. The following components shall be installed in the tank:

(1) Pump: A properly sized, high head, filtered, intake effluent pump rated for continuous duty and designed for use in effluent water conditions shall be installed in the system. Pressure and flow requirements shall be determined by hydraulic calculation of elevation change, pipe friction loss,

drip line pressure loss and pressure required to flush drip tubing at the recommended rate of one point five (1.5) ft per sec. Minimum size of pump, sized by the registered engineer responsible for the design, is to be indicated on the drawings submitted for review.

(2) Pump Control: Pump operation shall be controlled by properly set floats connected to a vapor-proof junction box and wired in conjunction with the dosing controller.

(3) Pump Discharge Line: The pump discharge line from the pump to the field discharge manifold will include an adjustable pressure relief valve capable of being set at ninety percent (90%) of the pumps maximum discharge pressure so as to allow the pump to be able to run at a reduced working pressure in case of filter plugging.

(4) Air Vent: A one (1”) inch Air Vent shall be installed on the pump discharge line at the highest point available prior to installation of the drip tubing, at the highest points and at the end on both the Distribution and the Return Manifolds.

(5) Filter: A properly sized Disc “T” type Filter of one hundred-twenty (120) mesh, or approved equivalent, shall be installed on the discharge end of the pumping system and be located in a position to be monitored, cleaned and maintained on a regular basis.

(6) Dosing Controller: The dosing controller shall be externally mounted and be capable of twenty-four (24) hour continuous operation with repeatable start and stop times, and be able to be programmed as required to meet the desired application rates. The controller shall have HOA capability, (hand or automatic), and shall have adequate alarm, both horn and light, and alarm test capability, and be able to actuate twenty-four (24) volt solenoid on the discharge manifold for a specific time after pre-selected number of dosing cycles. The Dosing Controller shall control all zones.

(C) Drip Tubing Field

The following components shall be included in the Drip Tubing Field:

(1) Distribution Manifold: The distribution manifold from the pump to the drip tubing lines shall be of PVC Sch.40 and shall be properly sized using standard hydraulic principals, this being a pressurized system, for the hydraulic load and pressure loss desired. One end of the drip tubing run, or lateral, will be connected to the distribution manifold at the designed system distance and depth required, by means of a properly sized compression fitting at ninety (90°) degrees to the manifold. A properly sized air and vacuum relief valve shall be installed in this manifold at the highest points and at the end.

(2) Drip Tubing: Tubing is to be seventeen (17) millimeter O.D. with a minimum of fifty (50) mil wall. Emitters shall be pressure compensating and of the same material as the tubing, self-flushing, able to pass particles up to eight hundred (800)microns, shall be factory installed on two (2') foot centers and have a discharge rate of 0.61 gph at a pressure range of seven to sixty (7 to 60). The length allowed for each run shall be determined by performance graphs of the product and the topography of the site using standard hydraulic principles, this being a pressurized system. Inspector is to be given, at time of inspection, a minimum one (1') foot length sample of the installed tubing, which contains an emitter, and the identification tags taken from the coil of the installed tubing.

(3) Return Manifold: The Return Manifold shall be of PVC Sch.40 and shall be properly sized using standard hydraulic principals, this being a pressurized system, for the hydraulic load and pressure loss desired. The discharge end of the drip tubing shall be connected at ninety (90°) degrees to the manifold with a properly sized positive locking fitting to the return manifold. The return manifold shall connect the discharge end of the drip tubing run, or lateral, to the primary treatment tank and shall be laid out in a reverse return configuration so that the drip lateral that is first on the distribution manifold of the system is last on the return manifold in a manner that assures pressure balance in the system and therefore uniform flow. A properly sized air and vacuum relief valve shall be installed in this manifold at the highest points and at the end. A solenoid valve shall be

connected in the return manifold in order to depressurize the line for the flushing cycle allowing the maximum flow rate to be generated during flushing. Frequency of flushing and length of flush time shall be determined by the size of the field and rate of use expected. All manifolds shall have the capability of being individually flushed and drained.

2. St. Louis County Requirements

The following shall be provided to the Plumbing Inspection Department of St. Louis County Department of Public Works prior to approval for occupancy or as indicated:

(A) Certification by Design Professional: Upon completion of construction of the Drip Effluent / Irrigation Private Sewage System and prior to the occupancy permit being issued, it shall be the responsibility of the registered design professional who submitted the design to provide a signed and sealed letter stating his/her approval of the installation to the Plumbing Inspection Department of the St. Louis County Department of Public Works.

(B) Initial Maintenance Policy: A two-year (2) maintenance policy shall be obtained for the treatment plant, pumps, filters, related equipment, and other components of the Drip Effluent / Irrigation Private Sewage System. A copy of this maintenance policy shall be provided as soon as possible, but no later than thirty (30) days following issuance of occupancy permit, to the Plumbing Inspection Department of St. Louis County Department of Public Works. Maintenance policies obtained after the initial maintenance policy are recommended but not required to be provided. Failure to properly service the system on a regular basis could cause system malfunction requiring extensive repairs and loss of system use. A record of maintenance and a copy of all maintenance policies must be maintained on site.

(C) Annual Inspection: An inspection of the installation of the Drip Effluent/Irrigation Private Sewage System shall be conducted annually with a copy of the inspection report filed with the Plumbing Inspection Department of the St. Louis County Department of Public Works. A record of inspections including the date of the inspection, the license number and name of the inspector, and the name, address, and phone number of the inspectors employer shall be kept on the premises and shall be prominently posted in a permanent weather proof container in plain view of the

sewage system.

(1) Owner Instruction: Copies of approved system drawings, and the requirements of these rules and regulations shall be provided to the owner/s prior to, or at the time of occupancy.

(2) Subsequent Owner Notification: A copy of all test reports, records of all maintenance, copies of approved system drawings, and the requirements of these rules and regulations shall be provided to subsequent owners at the time of transfer of title.

Note: Typical Drip Effluent/Irrigation Private Sewage System schematic is attached in the Appendix and is a part of the requirements for the installation of this type of sewage system.

22.19.2 *Low Pressure Piping (L.P.P.).*

1. L.P.P. GOALS:

(A) Uniform distribution of effluent

(B) Dosing and resting cycles

(C) Shallow placement of trenches

2. L.P.P. CONSIST OF:

(A) Class I waste treatment tank - 1200 gallon minimum

(B) Pumping tank, flow chamber - 1000 gallon minimum

(C) Submerged, non-corrosive sump pump and lever control

(D) High water alarm

(E) Supply line and manifold

(F) Distribution laterals

(G) Suitable site and soil depth

3. *Low Pressure Piping*: The following requirements must be met:

(A) Use five-thirty two (5/32”) inch holes every five (5’) feet of pipe. Holes must be drilled in a straight line on one side of the pipe.

(B) Pea gravel or washed gravel 6 inches in bottom of trench, two to four (2-4”) inches over pipe.

(C) Trenches must be on contour, a transit will be required. Trench width six (6”) inches, depth eighteen to twenty-two (18-22”) inches.

(D) Use two (2’) foot manifold pipe if pump distance is more than one hundred (>100’) feet from dosing chamber.

(E) Minimum size pump allowed 4/10 H.P. However ½ H.P. is recommended.

(F) Two chamber dosing tank - 1000 gallon minimum.

(G) To pressurize this system, stand pipes using 5/32 inch holes must be used. Two psi minimum required.

(H) Piping can be 160 psi but recommend schedule 40. Use of SDR21 on two (2”) inch manifold will help the flow rate.

(I) Minimum field size -600 lineal feet for a 3 bedroom house.

(J) A minimum of 12 inches of soil between the bottom of trench and a restrictive horizon. e.g bedrock, hardpan, seasonal high water table.

(K) If lateral lines are lower than the dosing tank, a 1/3" deep hole will be required in the pump line.

(L) If effluent will run back down from the manifold, a check valve will be required.

(M) The manifold pipe should be trenched one foot below the lateral lines (24-30 inch depth). Manifold pipe must be backfilled with tightly tamped soil.

(N) Ball valves will be required.

(O) Laterals should be longer than 80' due to friction loss.

(P) Pumps:

(1) Must be NEMA approved.

(2) Must have reliable high water alarm system. Alarm must be on separate circuit from the pump and be

audible.

(3) A test switch is needed for the alarm.

(4) Mercury float switches are required.

(5) Pump must be non-corrosive and have a double seal.

(6) Pump should be situated on top of two concrete blocks.

(7) Controls should be attached to outlet pipe.

(8) High water float must be mounted 2 feet above upper "Pump On" control.

(9) Pump outlet pipe should be connected to supply manifold with threaded PVC union.

(10) Wiring must be maintained watertight.

(11) Junction boxes** will be required for high water alarm and pump wiring. It is preferable to mount junction box on wood outside dosing tank.

Model #10-0086 "J-pak" 4 hole with 6 liquid tight non-corrosive connections. Each box contains four (4) cable connectors for 16 AWG or 18 AWG 3 conductor SO jacketed cable and one (1) connector for 12 AWG or 14 AWG 3 conductor UF type cable and one (1) connector or 18 AWG 2 conductor S.O. jacketed cable suitable for mercury float switch.

4. *Additional Information on Laterals:*

(A) Lateral lines should be 1-¼ inch PVC (160 psi) or (Sch.40).

(B) End of each lateral is capped and turned up to provide access. Use 90 degree elbows, bury cap 2 inches below ground.

(C) Laterals should not slope away from manifold.

(D) Each lateral must be 12 inches higher than supply manifold to prevent backflow.

(E) Small earthen dams are placed at the beginning of each

trench and at twenty (20”)inch intervals.

(F) The first hole should be thirty (30”) inches from the manifold, and the last hole should be thirty (30”) inches from the end of the lateral pipe.

APPENDICES ST.LOUIS COUNTY ORDINANCE

APPENDIX A

1103.418A Amendments to the Uniform Plumbing Code – Appendix A Recommended Rules for Sizing the Water Supply System.

Appendix A of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

APPENDIX B

1103.418B Amendments to the Uniform Plumbing Code – Appendix B – Explanatory Notes on Combination Waste and Vent.

Appendix B of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

Appendix C Alternate Plumbing Systems.

Appendix C of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

APPENDIX D

Appendix D—Sizing Storm Water Drainage Systems.

Appendix D of the 2015 Uniform Plumbing Code ™ is amended by the following provisions.

Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

Appendix D – Sizing Storm Water Drainage Systems

Appendix D of the 2015 Uniform Plumbing Code ™ is amended and included in the Plumbing Code with the following change:

1. In Table D-1 the Maximum Rates of Rainfall for St. Louis Missouri shall be 6.0 inches per hour and 0.063 GPM/Square Foot in lieu of the values listed.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

APPENDIX E

Appendix E - Manufactured/Mobile Home Parks and Recreation Vehicle Parks

Appendix E of the 2015 Uniform Plumbing Code ™ is amended by the following provisions.

Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

Appendix E is included in the Plumbing Code with the following changes:

The St. Louis County Mechanical Code shall govern installation of Part D FUEL SUPPLY.

APPENDIX G

Appendix G Sizing of Venting Systems

Appendix G of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

APPENDIX I

Appendix I Installation Standard for PEX Tubing Systems for Hot- and Cold-Water Distribution

Appendix I of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

APPENDIX J

Appendix J Combination of Indoor and Outdoor Combustion and Ventilation Opening Design

Appendix J of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

APPENDIX K

Appendix K Potable Rainwater Catchment Systems

Appendix K of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply.

1103.418L Amendments to the Uniform Plumbing Code ™ - APPENDIX L – Alternate Plumbing Systems.

Appendix L of the 2015 Uniform Plumbing Code ™ is amended by the following provisions. Each section in the UPC that corresponds to one of the following provisions is hereby deleted where so noted or amended to read as set forth below. Each section set forth below without a corresponding provision in the UPC is added thereto.

Appendix L is accepted by the Plumbing Code as a reference only and may be used as an engineered system if approved by the Authority Having Jurisdiction.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent shall apply.

APPENDIX L

Appendix L Sustainable Practices

Appendix L of the 2015 Uniform Plumbing Code is included in the Plumbing Code with no changes.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent requirement shall apply

1103.418M Amendments To The Uniform Plumbing Code ™ -APPENDIX M – Code Illustrations.

Appendix M, A copy of which is maintained on the St. Louis County internet under Public Works, is hereby enacted and added as an additional appendix to the 2015 Uniform Plumbing Code ™

The drawings contained in Appendix M are intended to aid in the clarification of various methods, installation practices and piping configurations, which conform to the requirements of this Code.

If any conflict of interpretations, requirements, or Ordinance sections of this Chapter occur between other similar Code provisions and other St. Louis County Ordinances the more stringent shall apply.

SECTION 2. The provisions of this Ordinance shall become effective on 1st day of the next month following ninety (90) calendar days after its adoption by the County Council and approval of the County Executive.

ADOPTED: June 4, 2019 ERNEST TRAKAS
PRESIDING OFFICER, COUNTY COUNCIL

APPROVED: June 5, 2019 SAM PAGE
COUNTY EXECUTIVE

ATTEST: GENEVIEVE M. FRANK
ADMINISTRATIVE DIRECTOR

APPROVED AS TO LEGAL FORM:

MICKI WOCHNER
ACTING COUNTY COUNSELOR