

EXHIBIT A

STANDARD FINDINGS FOR SAN FRANCISCO PLUMBING CODE AMENDMENTS:

1. Certain buildings/occupancies in San Francisco are at increased risk for earthquake-induced structural failure and consequent fire due to local hazardous microzones, slide areas, and local liquefaction hazards. (Geology)
2. Certain buildings/occupancies in San Francisco are at increased risk of fire due to high density of buildings on very small lots, with many buildings built up to the property lines. (Topography)
3. Topography of San Francisco has led to development of a high density of buildings on small lots, necessitating special provisions for exiting, fire separation, or fire-resistive construction. (Topography)
4. Many buildings are built on steep hills and narrow streets, requiring special safety considerations. (Topography)
5. Additional fire, structural and other protection is required due to high building density and crowded occupancy. (Topography)
6. San Francisco has narrow, crowded sidewalks due to building and population density and unusual Topography. (Topography)
7. All rain water in San Francisco drains to the building drains and sewer; unusual geology, occasional extremely high local rainfall amounts, and the configuration of the City as a peninsula restrict the installation of separate storm water and sewer systems. (Topography, Climate, Geology)
8. Moist, corrosive atmosphere of salt-laden fog in San Francisco necessitates additional requirements. (Climate)
9. Not a building standard; no local findings required.
10. Soils conditions in this region induce adverse reactions with some materials, leading to premature failures and subsequent unsanitary conditions. (Climate)
11. The region is subject to fluctuating rainfall due to changes in climatic conditions.

(Climate)

2001 San Francisco Plumbing Code Findings

Section #	Findings #	Section #	Findings #	Section #	Findings #
Chapter 1		Chapter 2		Chapter 7	
101.1.a	9	201.0	9	701.1.1	5, 10
101.2.2	9	203.0	9	701.1.3	1
101.4.1	9	204.0	9	701.1.4	5, 10
102.1	9	204.1	9	701.2	5, 10
102.2.1	9	205.0	9	701.1.6	5
102.2.2	9	206.0	9	706.4	5, 7
102.2.4	9	208.0	9	710.9	5, 7
102.2.7	9	216.0	9	710.14	5, 7
102.2.8	9	218.0	9		
102.2.9	9	219.0	9		
102.3.2	9	221.0	9	Chapter 9	
103.1.1	9	224.0	9	903.1.1	5, 10
103.1.2	9			904.1	5
103.1.4	9			907.1	5
103.1.5	9	Chapter 3		907.3	5, 9
103.2.1	9	306.2	4, 5, 7		
103.3.1	9	314.9	1		
103.3.4.1	9	320.0	9	Chapter 10	
103.3.4.2	9	320.1	7	1008.0	5
103.3.4.3	9	320.2	5, 7	1014.1	9
103.4.1	9	320.3	4, 5, 7	1101.0	9
103.4.1.1.1	9			1101.1.2	9
103.4.1.1.2	9			1101.1.3	9
103.4.1.1.3	9	Chapter 4		1101.1.4	9
103.4.4.2	9	413.1	9		
103.4.5	9				
103.5.6	9			Appendix J	
104.0	9	Chapter 6		APP."J"	9
105.0	9	603.4.6.4	9		
106.1	9	604.1	5		
106.2	9	605.9	5, 7		
106.3	9	608.5	9		
106.4	9	609.10.1	4		
		609.10.2	9		

CHAPTER 1

ADMINISTRATION

101.0 Title, Scope and General

101.1.a Revise this section as follows:

101.1.a This document shall be known as the ~~A1998~~ 2001 San Francisco Plumbing Code” , may be cited as such and will be referred to hereafter as “this code.”

101.2.2 Revise this section as follows:

101.2.2 The purpose of this Code is to provide minimum standards to safeguard life or limb, health, property and public welfare, and protect against hazards that may arise from the use of plumbing piping and systems by establishing minimum requirements and standards for the design, construction, installation, maintenance, extension, repair, alteration, quality of materials, location and operation of all plumbing piping systems within the City and County of San Francisco.

101.4.1 Add the following to the end of this section:

All plumbing installations and all materials, fixtures, appliances and appurtenances furnished for installation on or in any building, structure, property or portion thereof within the City and County of San Francisco shall conform to the requirements of this Code. Water lines under the jurisdiction of the San Francisco Water Department for purposes of water treatment, pumping, storage, transmission or distribution are exempt from the provisions of this Code.

New buildings or structures hereafter erected in the City and County of San Francisco and buildings or structures moved into or within the City and County of San Francisco shall conform to the requirements of this Code.

102.0 Organization and Enforcement

102.1 Revise this section as follows:

102.1 Administrative Authority. The Administrative Authority is the Director of the Department of Building Inspection or the Director=s duly authorized representative. The Director is the authorized representative of the Building Inspection Commission charged with the administration and enforcement of this code.

102.2.1 Add the following to the end of this section:

The Director, when necessary, may call upon the Police Department and other City and County of San Francisco agencies for aid or assistance in carrying out or enforcing any of the provisions of this code.

102.2.2 Revise the first paragraph of this section as follows:

102.2.2 Right of Entry. Whenever it is necessary to make an inspection to enforce the provisions of this Code or other codes or ordinances, or whenever the Administrative Authority has reasonable cause to believe that there exists in a building or upon a premises a conditions that is contrary to or in violation of this Code or other codes or ordinances that makes the building or premises unsafe, dangerous or hazardous, the Administrative Authority may enter the building or premises at reasonable times to inspect or to perform the duties imposed by this Code or other codes or ordinances, provided that if such building or premises be occupied that credentials be presented to the occupant and entry requested. If such building or premises be unoccupied, the Administrative Authority shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. If entry is refused, the Administrative Authority shall have recourse to the remedies provided by law to secure entry.

102.2.4 Revise this section as follows:

102.2.4 Disconnection of Utilities Due to Serious and Imminent Hazards. The Director shall have the authority to disconnect a plumbing system to a building, structure or property or equipment regulated by this Code when it is necessary to abate a serious and imminent hazard to the life, health or safety

of the occupants or other persons, or to such building, structure, or property. See Section 102.16 of the Building Code. Persons shall not reconnect such disconnected utilities until authorized in writing by the Director.

102.2.7 Add the following new section:

102.2.7 Rules and Regulations. The Director shall have the power to render interpretations of this code and to adopt and enforce rules and supplemental regulations to clarify the application of its provisions. Such interpretations, rules and regulations shall be in conformance with the intent and purpose of this code. Such rules and regulations, commonly referred to as [Code Rulings](#) and [Administrative Bulletins](#) supplemental to this code, shall not take effect until approved by the Building Inspection Commission and signed by the Director except in unusual circumstances where the Director has determined that there is an immediate need to protect the public health and safety. When the Director finds that such circumstances exist, the Director may order immediate enforcement of a particular rule or regulation. The Director shall arrange for a subscription service to such rules and regulations, the entire cost of which is to be borne by the subscribers.

102.2.8 Add the following new section:

102.2.8 Code Revisions. The Director shall transmit to the Building Inspection Commission, at intervals not exceeding three years, recommendations for changes to this code, based on studies of the following:

1. Requests of the Board of Examiners for variances from this code, and for approval of alternate materials, alternate designs and methods of construction.
2. Code changes recommended by the Board of Examiners.
3. Code changes recommended by the Code Advisory Committee or other bodies subordinate to the Building Inspection Commission.
4. Results obtained and problems encountered in legal actions taken to correct code violations.
5. Changes or improvements in materials, methods of construction or design, and change proposed by interested persons.
6. Investigations of fire and structural damage to buildings, and of determination of unsatisfactory building performance.
7. Periodic changes to the California Plumbing Code and other State regulations which may affect this code.

8. Administrative Bulletins and Code Rulings currently in effect.
9. Violations of the code found on inspections or investigations.

102.2.9 Add the following new section:

102.2.9 Modifications. When there are practical difficulties involved in carrying out the provisions of this code, the Director may grant modifications for individual cases. The Director shall first find that a special individual reason makes the strict letter of this code impractical and that the modification is in conformance with the intent and purpose of this code and that such modification does not lessen the standard of this code to safeguard life or limb, health, property, or public welfare. The details of any action granting modifications shall be recorded and entered in the files of the Department of Building Inspection.

102.3.2 Replace this section as follows:

102.3.2 Penalties. Any person, the owner or the owner's authorized agent, who violates, disobeys, omits, neglects, or refuses to comply with, or resists or opposes the execution of any of the provisions of this code, shall be liable for a civil penalty, not to exceed \$500 for each day such violation is committed or permitted to continue, which penalty shall be assessed and recovered in a civil action brought in the name of the people of the City and County of San Francisco by the City Attorney in any court of competent jurisdiction. Any penalty assessed and recovered in an action brought pursuant to this paragraph shall be paid to the City Treasurer and credited to the Department of Building Inspection's Special Fund.

Any person, the owner or the owner's authorized agent, who violates, disobeys, omits, neglects, or refuses to comply with, or who resists or opposes the execution of any of the provisions of this code, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding \$500, or by imprisonment not exceeding six months, or by both such fine and imprisonment, unless otherwise provided in this code, and shall be deemed guilty of a separate offense for every day such violation, disobedience, omission, neglect or refusal shall continue. Any person who shall do any work in violation of any of the provisions of this code, and any person having charge of such work who shall permit it to be done, shall be liable for the penalty provided.

It shall be unlawful for any person to interfere with the posting of any notice provided for in this code, or to tear down or mutilate any such notice posted by the Department of Building Inspection.

103.0 Permits and Inspections

103.1.1 Revise this section as follows:

103.1.1 Permits Required. It shall be unlawful for any person, firm or corporation to install, repair, construct, alter, move, remove, or replace any plumbing system regulated by this Code except where exempted in Section 103.1.2, or to cause the same to be done without first obtaining a separate plumbing permit for each separate building, structure, or property.

103.1.1 Add the following as the second paragraph of this section:

103.1.1 Emergency work for the protection of life or limb, health, property and public welfare shall have a permit obtained within one day of commencing such work, excluding Saturdays, Sundays and legal holidays.

103.1.2 Revise this section as follows:

103.1.2 Work Exempt From Permits. Permits shall not be required for the following:

- (1) Repair of leaks not requiring cutting into or removing piping.
- (2) Unstopping of traps, sewers, vents or waste pipes not requiring cutting into or removal of traps or piping.
- (3) Replacement, repair or maintenance of faucets, valves, hose bibbs or roof drain not requiring cutting into or removal of piping.
- (4) Replacement of toilets with 1.6 gallon per flush toilet fixtures.
- (5) Replacement of furnace filters.
- (6) Removal of drainage, water or gas piping from a building when the water supply, gas and drainage lines have been disconnected in an approved manner under a permit.
- (7) Work involved in setting up for display of plumbing fixtures or appliances, when not connected to any supply or drainage lines, in a sales establishment.

(8) Installation of plumbing systems installed by a utility company in the operation of their utility business.

(9) Replacement of water conservation devices not requiring cutting into or removal of piping.

(10) Work performed in buildings or structures owned and occupied by the State and Federal governments.

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 the City and County of San Francisco.

103.1.4 Add the following new section:

103.1.4 Homeowner's Permit. A permit for plumbing work in, on or about a single family dwelling may be issued by the Director provided said work is done by the owner or a family member, who has demonstrated, to the satisfaction of the Administrative Authority, his or her qualifications to satisfactorily perform the plumbing work in the dwelling which is, or is intended to be, occupied by the owner. If the plumbing work performed under the homeowner's permit does not comply with the requirements of this ~~C~~code and if the corrections are not made as required by the Department of Building Inspection, then the work shall be corrected by a State licensed plumbing contractor under a separate permit.

Such State licensed plumbing contractor shall be required to pay only the Permit Issuance Fee as set forth in Section 110, Table 1-C -- Plumbing Permit Fees -- of the Building Code. If additional inspection is required, the appropriate fees as set forth in Section 110, Table 1-C -- Plumbing Permit Fees and Table 1-G -- Inspection, Surveys and Reports -- of the Building Code shall apply.

103.1.5 Add the following new section:

103.1.5 Amending Applications. After a permit has been issued and an inspection of the work has been made, the scope of the permit may be altered by filing an amended permit application and paying fees for any additional work as set forth in Table 1-C -- Plumbing Permit Fees and Table 1-G -- Inspections, Survey, and Reports of Section 110 of the Building Code.

103.2.1 Replace this section as follows:

103.2.1 Application. Permit applicants shall file with the Department of Building Inspection an application on a form furnished for that purpose.

A permit for inspection of the proposed plumbing work set forth in the application will be issued to State licensed contractors or to homeowners subject to the requirements of Section 103.1.4. A separate permit shall be obtained for each separate building, structure or property.

103.3.1 Replace this section as follows:

103.3.1 Issuance. An issued permit entitles the permittee to proceed with the work described therein. The issuance of a permit does not constitute approval of any work done under that permit. Permits shall not be transferable.

103.3.4 Replace this section as follows:

103.3.4 Expiration of Permit

103.3.4.1 Failure to Commence or Abandonment of Work. Plumbing permits expire by limitation and become null and void if the work authorized by such permit is not commenced within ninety (90) days from the date of permit issuance or if such work is suspended or abandoned at any time after the work is commenced for a period of ninety (90) days, unless an extension of time has been granted by the Director. Only one (1) extension of time for a period not exceeding ninety (90) days shall be granted. Permit fees may be refunded if a written cancellation request is made to the Director prior to commencement of the permitted work and within 90 days of the date of permit issuance. See Section 110, Table 1-R -- Refunds -- of the Building Code for refunds.

103.3.4.2 Add the following new section:

103.3.4.2 Commencement of Work on Permit Expired Due to Work Not Started. A new permit shall be obtained to undertake the work described on an expired permit on which no work was performed. If not more than one (1) year has

elapsed since the expiration of the original permit, the applicant is eligible for reduced fees. See Section 110, Table 1-B -- Permit Application and Plan Review Fees -- of the Building Code for applicable fees.

If a refund has been granted per Section 103.3.4.1, the applicant shall not be eligible for the reduced fees as set forth in Section 110, Table 1-B -- Permit Application and Plan Review Fees -- of the Building Code.

103.3.4.3 Add the following new section:

103.3.4.3 Recommencement of Work on Permit Expired Due to Work Not Completed. The applicant shall obtain a new permit for the work not completed. The permit fee shall be based on work remaining to be done. Fees shall be as set forth in Section 110, Table 1-C B Plumbing Permit Fees B of the Building Code.

103.4.1 Replace this section as follows:

103.4.1. Permit Fees. Before any permit is issued, the applicant shall pay to the Central Permit Bureau the fees as set forth in Section 110, Table 1-C -- Plumbing Permit Fees -- of the Building Code. The replacement of a plumbing fixture or a gas appliance without a change in drainage, piping or venting shall not require the payment of Permit Issuance Fee. A separate Permit Issuance Fee shall be paid for each class of work, i.e., sewers and drainage, gas and water.

Final inspection will not be made unless all outstanding fees related to the permit work have been paid.

103.4.1.1 Add the following new section:

103.4.1.1 Inspections Not Covered by Permit Fees.

103.4.1.1.1 Off hours of inspection. Off-hour inspection may be performed outside normal inspection hours by prior arrangement and prepayment of fees as set for in Section 110, Table 1-G -- Inspections, Surveys and Reports -- of the Building Code.

103.4.1.1.2 Reinspections. A reinspection fee shall be assessed for each inspection or reinspection made necessary by any of the following conditions:

- (1) When the portion of the work for which the inspection is requested is

not complete or code complying.

(2) When previously identified deficiencies in the work are not properly corrected.

(3) When the approved construction documents are not available to the inspector.

(4) When access is not provided on the date and time of the inspection appointment.

(5) When work deviates from the approved construction documents.

The first reinspection for failure to comply with code requirements shall not be assessed a reinspection fee. All subsequent reinspections for the same or subsequent errors or omissions shall be charged a reinspection fee.

Subsequent to inspector determination of reinspection fee requirements, no required or requested inspections shall be made nor shall the job be given a Certificate of Final Completion and Occupancy or final approval until the required reinspection fees are paid. See Section 110, Table 1-G -- Inspections, Surveys and Reports -- of the Building Code for applicable fees.

103.4.1.1.3. Add the following new section:

103.4.1.1.3. Survey. A plumbing survey may be requested when a plumbing inspector=s assistance is desired to establish code compliance of existing or proposed plumbing system requirements. See Section 110, Table 1-G of the Building Code for applicable fees.

103.4.4.2 Revise this section as follows:

103.4.4.2 An investigation fee, in addition to the permit fee, shall be collected whether or not a permit is then or subsequently issued. _See Table 1-C -- Plumbing Permit Fees and Table 1-K -- Penalties, Hearing, Code Enforcement Assessments -- of the Building Code for applicable fees. The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this Code, nor from any penalty prescribed by law.

The Director may reduce the investigation fee to two times the amount of the permit fee as called for in Section 110, Table 1-C -- Plumbing Permit Fees -- of the Building Code for work that was constructed prior to the current building ownership or for work without permit was done prior to January 1,

1967, if the owner files with the Director a notarized affidavit together with documents substantiating such dates of work.

Appeals of investigation fees may be filed with the Board of Appeals in the manner provided in Part III of the San Francisco Municipal Code. Such filing shall be subject to the fees and rules of the Board of Appeals. The Board of Appeals, in reviewing the appeal may reduce the appealed amount to not less than two times (2x) the permit fee as set forth in Section 110, Table 1-C -- Plumbing Permit Fees -- of the Building Code.

103.4.5 Replace this section as follows:

103.4.5 Fee Refunds. For fee refunds see Section 107.6 of the Building Code.

103.5.6 Revise the fourth paragraph as follows:

103.5.6 To obtain reinspection, the applicant shall file an application therefore in writing upon a form furnished for that purpose and pay the reinspection fee in accordance with Section 110, Table 1-G-- Inspections, Surveys and Reports -- of the Building Code.

104.0 Add the following new section:

104.0 Abatement of Public Nuisance.

In order to abate a nuisance as defined in Section 216.0 of this Code, the inspection and abatement procedures as set forth in Section 102 of the Building Code shall apply.

105.0 Add the following new section:

105.0 BOARD OF EXAMINERS

Application may be made to the Board of Examiners for approval of alternate materials, methods and types of construction and for variances from the provisions of this Code. See Building Code, Section 105.1.

106 Add the following new section:

106 Repairs to Defective Building Sewers

106.1 General. Any defective building sewer found to be a nuisance or hazardous to the public shall be repaired at the owner=s expense by a licensed plumbing contractor in accordance with this Code. In the event the owner fails to repair the defective building sewer after written notice has been sent the owner by the Director, the Director shall abate the condition in accordance with Section 102 of the Building Code.

106.2 Cost of Repairs by City and County of San Francisco. Whenever the Director, pursuant to the authority conferred by this Code and the Building Code, shall cause a building sewer to be repaired or replaced, the cost thereof shall be paid from the “Plumbing Building Sewer Revolving Fund” and assessed against the property served by said building sewer.

106.3 Plumbing Building Sewer Revolving Fund. A special revolving fund, to be known as the “Plumbing Building Sewer Revolving Fund” is hereby created for the purpose of defraying the costs and expenses which may be incurred by the Department of Building Inspection in carrying out the authority conferred by this Code to repair or replace defective building sewers.

The Board of Supervisors shall transfer one half of the funds appropriated to the “Side Sewer Repair” fund of the Department of Building Inspection or shall appropriate, establish or increase the special revolving fund with such funds as it may deem necessary in order to expedite performance of the work of repairing or replacing defective building sewers. The special revolving fund shall be replenished with all funds collected under the proceeding hereinafter provided for, either upon voluntary payments or as a result of the sale of the property after delinquency, or otherwise. Balances remaining in the Plumbing Building Sewer Revolving Fund at the close of any fiscal year shall be carried forward in such fund.

106.4 Assessment for Costs. The Director shall take action to have the costs of all work done or caused to be done pursuant to this section assessed against the parcel or parcels of land upon which said building is served by the building sewer per Section 102 of the Building Code. Such costs shall include, in addition to all costs related to repairing or replacing the building sewer or demolishing and clearing the site, the City and County of

San Francisco' s costs in administering the required work. See Section 110, Table 1-K -- Penalties, Hearings, Code Enforcement Assessments -- of the Building Code for the applicable fee.

CHAPTER 2

DEFINITIONS

201.0 General. Add the following to the end of this section:

201.0 Where words, terms and phrases are not defined, they shall have their ordinary accepted meaning within the context with which they are used. Webster' s Third New International Dictionary of the English Language, Unabridged, copyright 1986, shall be considered as providing ordinarily accepted meanings.

203.0 Revise this definition as follows:

Administrative Authority -- See Section 102.1 for the definition of "Administrative Authority" .

204.0 Add the following new definition:

Building Code – The San Francisco Building Code.

204.1 Add the following new definition:

Boiler is a closed vessel used for heating water or liquid, or for generating steam or vapor by direct application of heat from combustible fuels or electricity.

Boiler, Low Pressure, is a boiler furnishing steam at pressure not exceeding 15 pounds per square inch (103kPa) or hot water at temperatures not exceeding 250 degrees F (121 degrees C) or at pressure not exceeding 160 pounds per square inch (1100kPa).

205.0 Add the following new definition:

Chief Plumbing Inspector c The authorized representative of the Director and is in charge of the Plumbing Inspection Division of the Department of Building Inspection.

Construction documents, approved -- Include construction documents, permit applications, other required documents and data which comprise the permit

approved by the Director.

206.0 Add the following new definition:

Director —The Director of the Department of Building Inspection and is the Building Official.

208.0 Add the following new definition:

Foot Vent — See “Relief Vent” , Section 220.

216.0 Add the following after item (3) under “Nuisance” definition:

(4) Open, unsecured, leaking, plugged, or otherwise defective sewer, gas, or water lines.

(5) Inadequate plumbing system maintenance, dilapidation, obsolescence, fire hazard, or damage.

(6) Plumbing or plumbing fixtures, gas appliances, or piping installed in violation of this Code or without permit.

(7) Where a change in occupancy classification is made without complying with the applicable provisions of this Code and the Building Code.

218.0 Revise this definition as follows:

Plumbing System ^B Includes all potable water building supply and distribution pipes, all plumbing fixtures and traps, all drainage and vent pipe(s), all building drains and building sewers, including their respective joints and connections, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, medical gas and medical vacuum systems, fuel gas piping, water heaters and vents for same, and fire sprinkler systems. Plumbing systems shall include all plumbing appliances, plumbing appurtenances, and plumbing fixtures.

219.0 Add the following new definition:

Quick-Acting Valve - See valve under section 224.0

220.0 Add the following new definitions:

Reclaimed Water System c See Ordinance No. 391-91.

Reclaimed Water Use Area c See Ordinance No. 391-91.

221.0 Add the following new definition:

Story is that portion of a building included between the upper surface of any floor and the upper surface of the floor next above. Balcony, loft and mezzanine levels that contain plumbing outlets are also to be considered as stories.

224.0 Add the following new definition:

224.0 QUICK-ACTING VALVES. The following valves shall be considered quick-acting: flushometers, single handle faucets, single handle tub and tub/shower combination control valves, single handle shower control valves, rapid response electric solenoid valves (such as used on ice-makers, clothes washers, etc.) And any other appliance or fixture that dispenses water in a quick open and close method in its operation.

CHAPTER 3

GENERAL REGULATIONS

306.0 Damage to Drainage Systems or Public Sewer

306.2 Revise this section as follows:

306.2 Roofs, inner courts, vent shafts, light wells or similar areas having rain water drain, shall discharge directly into a building drain or building sewer.

314.0 Hangers and Supports

314.9 Add the following new sections:

314.9 Materials

314.9.1 Plumber's tape hanger iron may be used to secure pipe not greater than two (2) inches (50.8 mm) in diameter.

314.9.2 Hanger iron shall be galvanized and not thinner than 22 gauge, one

thirty-second (1/32) inch thick (.8 mm) and three quarter (3/4) inch (19.05mm) wide, securely nailed or screwed to the structure. When the strap-iron is formed around the pipe, it shall be secured with a one quarter (3/8) inch (6.35 mm) stove bolt.

314.9.3 For the support of pipes larger than four (4) inches (101.6mm), hangers shall be used, with rod sizes conforming to the following:

	Single Rod Support	Double Rod Support (U-hook)
5" diameter pipe (127 mm)	5/8" rod (16 mm)	1/2" rod (12.7 mm)
6" diameter pipe (152.4 mm)	3/4" rod (19.1 mm)	5/8" rod (16 mm)
8" diameter pipe (203.2 mm)	7/8" rod (22.4 mm)	3/4" rod (19.1 mm)

320.0 Add the following new section:

The City and County of San Francisco adopts Appendix J of the 2001 California Plumbing Code for the purpose of regulating reclaimed water systems for non-residential buildings.

Appendix J

RECLAIMED WATER SYSTEMS
FOR NON-RESIDENTIAL BUILDINGS

**J 1 Reclaimed Water System—
General**

(a) The provisions of this appendix shall apply to the installation, construction, alteration and repair of reclaimed water system intended to supply water closets, urinals, and trap primers for floor drains and floor sinks. Use

is limited to these fixtures that are located in non-residential buildings. Fixtures within residential buildings are excluded from the list of approved uses. The reclaimed water system shall have no connection to any potable water system, with or without mechanical backflow prevention

devices. If reclaimed water is utilized on the premises, all potable water supplies shall be provide with appropriate backflow protection, as required by the authority having jurisdiction. Except as otherwise provided for in this appendix, the provisions of this Code shall be applicable to reclaimed water system installation.

- (b) No permit for any reclaimed water system shall be issued until complete plumbing plans, with appropriate date satisfactory to the Administrative Authority, have been submitted and approved. No changes or connections shall be made to either the reclaimed water system or the potable water system within any site containing a reclaimed water system, without approval by the Administrative Authority.
- (c) Before the building may be occupied, the installer perform the initial cross-connection test in the presence of the Administrative Authority and other authorities having jurisdiction, and the test shall be ruled successful by the Administrative Authority before final approval is granted.

J 2 Definitions

Reclaimed water is water which, as a result of territory treatment of domestic wastewater by a public

agency, is suitable for a direct beneficial use or a controlled use that would not otherwise occur. The level of treatment and quality of the reclaimed water shall be approved by the public health authority having jurisdiction.

For the purpose of this appendix tertiary treatment shall result in water which is adequately oxidized, clarified, coagulated, filtered and disinfected, so that at some location in the treatment process the seven – (7) day median number of total coliform bacteria in daily samples does not exceed two and two tenths (2.2) per one hundred (100) milliliters, and the number of total coliform bacteria does not exceed twenty-three (23) per one hundred (100) milliliters in any sample. The water shall be filtered so that the daily average turbidity does not exceed two (2) turbidity units upstream from the disinfection process.

Specifically excluded from this definition is “graywater,” which is defined in Appendix G of this Code.

J 3 Permit

It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any reclaimed water system within a building or on a premise without first obtaining a permit to do such work from the Administrative Authority.

J 4 Drawings and Specifications

The Administrative Authority may require any or all of the following information to be included with or in the plot plan before a permit is issued for a reclaimed water system.

- (a) A plot plan drawn to scale: completely dimensioned; showing lot lines; structures; location of all present and proposed potable water supply and meters, water wells, streams, auxiliary water supply and system, reclaimed water supply and meters; drain lines; and location of private sewage disposal systems and one hundred (100) percent expansion areas, or building sewer connected to the public sewer.
- (b) Detail of construction, including riser diagrams or isometrics, and a full description of the complete installation, including installation method, construction and materials as required by the Administrative Authority. To the extent permitted by structural conditions, all reclaimed water risers within the toilet room, including appurtenances such as air/vacuum relief valves, pressures reducing valves, etc., shall be installed in the opposite end of the room containing the served fixtures from the potable water risers, or opposite walls as applicable. To the extent permitted by the structural

conditions, reclaimed water headers and branches off riser shall not be run in the same wall or ceiling cavity of the toilet room where potable water piping is run.

- (c) Detailed initial and annual testing requirements as outlined elsewhere in the appendix.

J 5 Pipe Material/Pipe Identification

Reclaimed water piping and fitting shall be as required in this Code for potable water piping and fittings. All reclaimed water pipe and fittings shall be continuously wrapped with purple-colored Mylar tape. The wrapping tape shall have a minimum nominal thickness of five ten-thousands (0.0005) inch (0.127 mm) and minimum width of two (2) inches (51 mm). Tape shall be fabricated of polyvinyl chloride with a synthetic rubber adhesive and a clear polypropylene protective coating or approved equal. The tape shall be purple in color (Pantone color #512) and shall be imprinted in nominal one-half (1/2) inch (12.7 mm) high black, uppercase letters, with the words 'CAUTIONS: RECLAIMED WATER, DO NOT DRINK'. The lettering shall be imprinted in two (2) parallel line of text shall be visible. Wrapping tape is not required for buried PVC pipe manufactured with purple color integral to the plastic and marked one opposite sides to read "CAUTION: RECLAIMED WATER,

DO NOT DRINK” in intervals not to exceed three (3) feet (914 mm).

All valves, except fixture supply control valves, shall be equipped with a locking feature. All mechanical equipment which is appurtenant to the reclaimed water system shall be painted purple to match the Mylar wrapping tape.

J 6 Installation

- (a) Hose bibs shall not be allowed on reclaimed water piping systems.
- (b) The reclaimed water system and the potable water system within the building appurtenances (valves, air/vacuum relief drainage as may be required by J 8 of this appendix.
- (c) Reclaimed water pipes shall not be run or laid in the same trench as potable water pipes. A ten (10) foot (3048 mm) horizontal separation shall be maintained between pressurized buried reclaimed and potable water piping. Buried potable water pipes shall be laid a minimum of twelve (12) inches (305 mm) above the reclaimed water pipes. Reclaimed water pipes laid in the same trench or crossing building sewer or compliance with Section 609.0 and 720.0 of this Code. Reclaimed water pipes shall be protected similar to potable water pipes.

J 7 Signs

- (a) **Room Entrance Signs.** All installation using reclaimed water for closets and/or urinals shall be identified with signs. Each signs shall contain one-half (1/2) inch (12.7 mm) letters of highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The number and location of the signs shall approved by the Administrative Authority and shall contain the following text:

TO CONSERVE WATER, THIS BUILDING USES RECLAIMED WATER TO FLUSH TOILETS AND URINALS.

- (b) **Equipment Room Signs.** Each equipment room containing reclaimed water equipment shall have a sign posted with the following wording in one (1) inch (25.4 mm) letters on a purple background:

CAUTION
RECLAIMED WATER, DO NOT DRINK.
DO NOT CONNECT TO DRINKING WATER SYSTEM

NOTICE
CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

This sign shall be posted in a location that is visible to anyone working on or near reclaimed water equipment.

- (c) Where tank-type water closets are flushed with reclaimed water, the tank shall be labeled:

RELCAIMED WATER – DO NOT
DRINK

- (d) **Valve Access Door Signs.**

Each reclaimed water valve within a wall shall have its access door into the wall equipped with a warning sign approximately six (6) inches by (6) inches (152 mm x 152 mm) with wording in one halve (1/2) inch (12.7 mm) letter on a purple background. The size, shape and format of the sign shall be substantially the same as the specified in subsection (b) above. The signs shall be attached inside the access door frame and shall hang in the center of the access door frame. This sign requirement shall be applicable to any and all access doors, hatches, etc. leading to reclaimed water piping and appurtenances.

- (e) **Valve Seals.** Each valve or appurtenance shall be sealed in a manner approved by the Administrative Authority after the reclaimed system has been approved, and placed into operation. These seals shall either be a crimped lead wire

seal, or a plastic break-away seal which, if broken after system approval, shall be deemed conclusive evidence that the reclaimed water system has been accessed. The seals shall be purple with the words “RECLAIMED WATER”, and shall be supplied by the reclaimed water purveyor, or by other arrangements acceptable to the Administrative Authority.

J 8 Inspection and Testing

- (a) Reclaimed water piping shall be tested as outlined in this Code for testing or potable water piping.
- (b) An initial and subsequent annual cross-connection inspection and test shall be performed on both the potable and reclaimed water system as follows:

(1) Visual Dual System Inspection.

Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Administrative Authority and other authorities having jurisdiction.

- (i) Meter locations of the reclaimed water and potable water lines shall be checked to

verify that no modification were made, or cross-connections are visible.

(ii) All pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.

(iii) All valves shall be checked to insure that valves lock seals are still in place and intact. All valve control door signs shall be checked to verify that no signs have been removed.

(2) Cross-Connection Test.
The following procedure shall be followed by the applicant in the presence of the Administrative Authority and other authorities having jurisdiction to determine if a cross-connection occurred.

(i) The potable water system shall be activated and pressurized. The

reclaimed water system shall be shut down and completely drained.

(ii) The potable water system shall remain pressurized for a minimum period of time specified by the Administrative Authority while the reclaimed water system is empty. The minimum period the reclaimed water system is to remain depressurized shall be determined on a case by case basis, taking into account the size and complexity of the potable and reclaimed water distribution systems, but in no case shall that period be less than one (1) hour.

(iii) All fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any reclaimed water system outlet shall indicate a cross-connection. No flow from a potable water outlet would indicate that it may be connected to the reclaimed water system.

(iv) The drain on the reclaimed water system shall be checked for low during the test and at the end of the period.

(v) The potable water system

- shall then be completely drained.
- (vi) The reclaimed water system shall then be activated and pressurized.
- (vii) The reclaimed water system shall remain pressurized for a minimum period of time specified by the Administrative Authority while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case by case basis, by in no case shall that period be less than one (1) hour.
- (viii) All fixtures, potable and reclaimed shall be tested and inspected for flow. Flow from any potable water system outlet shall indicate a cross-connection. No flow from a reclaimed water outlet would indicate that it may be connected to the potable water system.
- (ix) The drain on the potable water system shall be checked for flow during the test and at the end of the period.
- (x) If there is no flow detected in any of the fixtures
- which would have indicated a cross-connection, the potable water system shall be repressurized.
- (3) In the event that a cross-connection is discovered, the following procedure, in the presence of the Administrative Authority, shall be activate immediately.
- (i) Reclaimed water piping to the building shall be down at the meter, and the reclaimed water riser shall be drained.
- (ii) Potable water piping to the building shall be shut down at the meter.
- (iii) The cross-connection shall be uncovered and disconnected.
- (iv) The building shall be retested following procedures listed in subsection (b)(1) and (b)(2) above.
- (v) The potable water system shall be chlorinated with fifty (50) ppm chlorine for twenty-four (24) hours.
- (vi) The potable water system shall be flushed after twenty-four (24) hours, and a standard bacteriological test shall be performed. If test

results are acceptable, the potable water system may be recharged.

(c) An annual inspection of the reclaimed water system, following the procedures listed in subsection J 8 (b)(1), shall be required. Annual cross-connection testing, following the procedure listed in subsection J 8 (b)(2), shall be required by the Administrative Authority, unless site conditions do not require it. In no event shall the test occur less often than once in four (4) years. Alternate testing requirements may be allowed by the Administrative Authority for institutional buildings.

The Health Officer or other designated appointee may substitute for the Administrative Authority in the above mentioned inspection and test.

J 9 Sizing

Reclaimed water piping shall be sized as outlined in this Code for sizing potable water piping.

J 10 Approved Uses of Reclaimed Water

Reclaimed water is allowed in all non-residential buildings to supply fixtures as specified in this appendix, except where prohibited by the statute, regulation, or ordinance.

CHAPTER 4

PLUMBING FIXTURES AND FIXTURE FITTINGS

413.0 Minimum Number of Required Fixtures

413.1 Revise this section as follows:

413.1 Fixture Count. Plumbing fixtures shall be provided in accordance with Section 2903 of the Building Code.

CHAPTER 5
WATER HEATERS

No San Francisco Plumbing Code Amendments.

CHAPTER 6

WATER SUPPLY AND DISTRIBUTION

603.0 Cross-Connection Control

603.4.6.4 Add the following sentence to the end of this section:

603.4.6.4 All such installations shall be approved in writing by the San Francisco Water Department prior to installation.

604.0 Materials

604.1 Add the following sentence to the end of this section:

604.1 Connections between copper water piping and ferrous materials must be made with dielectric or insulated fittings or brass nipples of six (6) inch (152.4 mm) minimum length.

605.0 Valves

605.9 Add the following new section:

605.9 All buildings four (4) stories or more in height shall have an approved backflow assembly installed as near as possible to the water meter and before the first fitting or branch line. The backflow assembly installed shall be in accordance to the degree of hazard within the building, but in no case less than an approved double check assembly. See Table 6-2.

608.0 Water Pressure, Pressure Regulations, Pressure Relief Valves, and Vacuum Relief Valves

608.5 Add the following sentence to the end of this section:

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

609.10.1 Add the following as the second paragraph of this section:

609.10.1 AIR CHAMBERS. *Air chambers shall be installed on all hot and cold water outlets supplying quick-acting valves to provide water hammer relief. The size of each air chamber shall be 24 times the diameter of the fixture supply.*

609.10.3 Add new section:

609.10.3 QUICK-ACTING VALVES. *The following valves shall be considered quick-acting: flushometers, single handle faucets, single handle tub and tub/shower combination control valves, single handle shower control valves, rapid response electric solenoid valves (such as used on ice-makers, clothes washers, etc.) And any other appliance or fixture that dispenses water in a quick open and close method in its operation.*

CHAPTER 7

SANITARY DRAINAGE

701.0 Materials

701.1.1 Revise this section as follows:

701.1.1 No galvanized wrought iron, galvanized steel pipe or copper or brass pipe shall be used underground and shall be kept at least six (6) inches (152.4 mm) above ground.

701.1.4 Revise this section as follows:

701.1.4 Copper tube for underground drainage and vent piping shall not be permitted.

701.2 Revise this section as follows:

701.2 Drainage fittings shall be of cast iron, malleable iron, lead, brass, copper, ABS, PVC, vitrified clay or other approved materials having a smooth interior waterway of the same diameter as the piping served and all such fittings shall be compatible with the type of pipe used. No galvanized wrought iron, galvanized steel, copper or brass fittings shall be used underground and shall be kept at least six (6) inches (152.4 mm) above ground.

701.1.3 Add the following as the second paragraph of this section:

701.1.3 No vitrified clay pipe or fittings shall be allowed above ground or underground within the foundation line of the building.

701.1.6 Add the following new section:

701.1.6 Copper tubing shall not be used for urinal drainage.

706.0 Changes in Direction of Drainage Flow

706.4 Revise this section as follows:

706.4 Vertical to Horizontal Change. Vertical drainage lines connecting with horizontal drainage lines shall enter through forty-five (45) degree ΔY branches, combination ΔY and one-eighth (1/8) bend branches, or other approved fittings of equivalent sweep. Sixty (60) degree (1.05 rad) branches or offsets may be used only when installed in a true vertical position. In buildings more than three (3) stories in height, any fixture within ten feet of the connection of the vertical to horizontal change shall enter the horizontal drainage line at least ten (10) feet (304mm) downstream from the change or may connect into the next vertical downstream line.

710.0 Drainage of Fixtures Located Below the Next Upstream Manhole or Below the Main Sewer Level

710.9 Add the following exception to this section:

Exception: A single pump or ejector may be used in private use buildings, structures, properties or portions thereof, as defined in Section 218. No more than eight (8) fixture units shall be permitted to be served by such a pump or ejector

710.14 Add the following new section:

710.14 When drains are provided for planter boxes such drains shall enter into the sanitary or storm drainage plumbing system by discharging into an approved sump, receiving tank, or sand settling tank. No trap shall be installed between the planter box and any approved receptor. Sizes of drains shall conform to Table 7-5.

Catch basins or sumps to drain surface water or collect subsoil drainage shall meet the following requirements:

- (1) Each catch basin or sump subject to vehicular traffic shall be a minimum of eighteen (18) inches square (11613.6 mm²) eighteen (18) inches (457.2 mm) deep and constructed of three (3) inch (76.2 mm) reinforced concrete walls.
- (2) The catch basin or sump shall be poured in place and all sides and bottom shall be water tight.
- (3) A removable metal grill shall be placed on top.

(4) Each catch basin shall be served with its own trap and cleanout, and shall connect to the storm or sanitary system independently.

(5) If inlet is located below the building sewer or drain, a sump pump minimum of 1-1/2" outlet may be used. The bottom of sump shall maintain a 1'-0" distance from the inlet, creating a 1'-0" sand trap.

(6) If the depth of the sump is over 5'-0" a larger catch basin shall be required with a permanent ladder securely bolted to the interior to provide access for maintenance. A minimum clear space of 30"x 30" shall be provided.

(7) A listed and approved plastic catch basin may be installed in areas of residential buildings that are not subjected to any vehicular traffic and shall be installed on a concrete base to prevent settling provided all other code requirements of this section and the listing and installation requirements of such catch basin are met.

CHAPTER 8

INDIRECT WASTES

No San Francisco Plumbing Code Amendments.

CHAPTER 9

VENTS

903.0 Materials

903.1.1 Revise this section as follows:

903.1.1 No galvanized wrought iron, galvanized steel pipe, or copper or brass pipe shall be used underground and shall be kept at least six (6) inches (152. mm) above ground.

903.1.3 Materials

903.1.3 No vitrified clay pipe or fittings shall be allowed above ground or underground within the foundation line of the building.

903.3 Revise this section as follows:

903.3 Vent fittings shall be cast iron, galvanized malleable iron or galvanized steel, lead, copper, brass, ABS, PVC, or other approved materials, except that no galvanized malleable iron or galvanized steel, copper, or brass fittings shall be used underground and shall be kept at least six (6) inches (152.4 mm) above ground.

904.0 Size of Vents

904.1 Revise this section as follows:

904.1 The size of the vent piping including relief vents and foot vents shall be determined from its length and the total number of fixture units connected thereto as set forth in Table 7-5.

907.0 Vent Stacks and Relief Vents

907.1 Revise this section as follows:

907.1 Each drainage stack which extends six (6) or more stories above the

building drain or other horizontal drain, shall be served by a parallel vent stack which shall extend undiminished in size from its upper terminal and connect to the drainage stack at or immediately below the lowest fixture drain. Each such vent stack shall also be connected to the drainage stack at each fifth floor, counting down from the uppermost fixture drain by means of a yoke vent, the size of which shall be not less in diameter than either the drainage or the vent stack, whichever is smaller.

907.3 Add the following new section:

907.3 Vent stacks and relief vents. Every building in which plumbing is installed shall have at least one main stack which shall run undiminished in size and as directly as possible from ~~the~~ *each* building drain *servicing said building* through to the open air above the roof.

A vent stack shall be installed with a soil or waste stack whenever relief vents, or other branch vents are required in two (2) or more branch intervals.

A vent stack shall be installed in accordance with Section 706.1. The size of the soil stack shall be determined by the total fixture units on that stack as per Table 7-5.

CHAPTER 10

TRAPS AND INTERCEPTORS

1001.0 Traps – Required

1001.5 Add the following new section:

1001.5 The building sewer or building drain shall have a building trap placed as near as possible to the curb line or immediately inside any subsidewalk basement wall under the sidewalk. Trap size shall be a minimum of four (4) inches (101.6 mm).

1008.0 Revise this section as follows:

1008.0 Building Traps

Building traps shall not be installed except where required by the Administrative Authority. 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. Such trap shall have a fresh air inlet of not less than four (4) inch (101.6 mm) diameter pipe. The inlet shall be covered by an approved perforated plate not less than sixteen (16) square inches (10323 mm²). Perforations shall be not more than three-eighths (3/8) inch (9.6 mm) diameter and provide an aggregate open area of not less than one-half (1/2) the cross-sectional area of the sewer trap. The air inlet shall be connected to the building side of the trap and shall lead to the open air, terminating at a point not less than ten (10) feet (304 mm) from any window or door.

1014.0 Grease Traps and Grease Interceptors

1014.1 Revise this section as follows:

1014.1 When in the judgment of the Administrative Authority, and when required by the provisions of Article 4 of the San Francisco Public Works Code, waste pretreatment is required, an approved grease trap complying with the provisions of this section shall be installed in the waste line leading from sinks, drains, and other fixtures or equipment in establishments such as restaurants, cafes, lunch counters, cafeterias, bars and clubs, hotels, hospitals, sanitariums, factories or school kitchens, or other establishments where grease may be introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal. A grease trap is not required for individual dwelling units or for any private living quarters.

CHAPTER 11

STORM DRAINAGE

~~320.0 1101.0~~ *Revise and relocate this section as follows: Add the following new section*

~~320.0~~ 1101.0 Storm Water Regulations

~~320.1~~ 1101.1.3 **Temporary Provisions.** When the storm water sewer is not yet installed, the building storm water drainage system may discharge into the sewer on the street side of the main trap as near to the curb line as possible.

~~320.2~~ 1101.1.4 **Temporary Provisions Drain Trap.** When, under the provisions of Section 1101.1.3 ~~320.1~~, the building storm water drainage system discharges to the sewer, a trap shall be placed in that drain at a point near where it branches into the sewer. The trap shall be supplied with clean water by an approved means such as a hose bibb or trap primer.

~~320.3~~ 1101.1.2 **Leaders, Connection to Drain.** All storm or casual water from roof areas, lightwells, courtyards or similar areas which total more than 200 square feet (18.4 square meters) aggregate shall drain or be conveyed directly to the building drain ~~or storm drain~~. Such drainage shall not be directed to flow onto adjacent property or over public way including sidewalks. The opening of the leader shall meet the same requirements as Section 906.0 of the California Plumbing Code.

1101.3 Material Uses. Rainwater piping placed within the **foundation line of the building** or run within the vent or shaft shall be of cast iron, galvanized steel, wrought iron, brass, copper ~~Lead~~ schedule 40 ABS-DWV, schedule 40 PVC-DWV, or other approved materials and changes in direction shall conform to the requirements of section 706.0. **No vitrified clay pipe or fittings shall be allowed above ground or underground within the foundation line of the building.**

CHAPTER 12

FUEL PIPING

1210.0 Materials for Gas Piping

1210.6 Add the following new section:

1210.6 Gas piping in exterior locations, except as otherwise regulated by this Code, shall be of galvanized iron or steel, with galvanized fittings.

CHAPTER 13

MEDICAL GAS SYSTEMS

No San Francisco Plumbing Code Amendments.

CHAPTER 14

MANDATORY REFERENCED STANDARDS

No San Francisco Plumbing Code Amendments.

CHAPTER 15

PLUMBING REQUIREMENTS FOR DESIGN SAFETY FOR ACCESSIBILITY

No San Francisco Plumbing Code Amendments.