



MEMORANDUM

LEGISLATIVE REFERENCE BUREAU

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To: Ald. James A. Bohl, Jr.
From: Tea Norfolk, Legislative Fiscal Analyst – Lead
Date: February 16, 2017
Subject: Legislation regarding lead pipes

This memo is in response to your request to verify the accuracy of the Common Council action of 1921 mandating the use of “extra strong” lead pipes for all water pipes laid underground that are less than 2 inches in diameter, as well as information regarding when the code changed with respect to the use of brass in indoor water pipe installations.

The attached document, Common Council File No. 18790, making certain rules and regulations governing the introduction, supply, and consumption of water and the installation of plumbing connected therewith, was effective January 1, 1921. The specific provision in question states as follows:

Sec. 23. All water pipes laid underground whether outside or inside the building and of a diameter less than two (2) inches shall be “extra strong” lead pipe. When the pipe is of 2” diameter it may be, and when of greater diameter than two (2) inches, it shall be cast iron “bell and spigot” pipe and what is termed as “Class C” pipe.

When installed inside the building—above ground, or in a tunnel or pipe conduit, after passing the meter, the pipe may be lead, cast iron, galvanized iron or brass with corresponding fittings.

Provided—that nothing contained in this section shall be construed to prohibit the use of wrought iron black pipe for fire service systems above ground, or of wrought iron black pipe under ground for grass plot or lawn sprinklers only, the depth of which piping must not exceed two (2) feet and must be provided with stop cock and drains for winter protection.

1921 is the first time there was a provision regarding inside pipes, and that was the first time brass was listed as an optional material. The 1922 edition is largely the same and also attached for your reference. The next significant change to the Rules and Regulations was in 1957; in this edition, brass is no longer specified as a material to use for internal pipes. Copper and lead are specified as material for pipes, and brass is only mentioned as a material for fittings; this edition is also attached for your reference.

LRB 167715

RULES AND REGULATIONS
Governing
WATER SERVICE
By The
MILWAUKEE WATER WORKS

The Rules and Regulations set forth herein are prescribed and established pursuant to the authority and power granted by the —

Wisconsin Statutes and enactments of the
State Legislature

Milwaukee City Charter

Milwaukee Code of Ordinances

Resolutions of the Milwaukee Common Council

Public Service Commission of Wisconsin

and supersede all previously established Rules and Regulations governing water service by the Milwaukee Water Works.

Adopted by the Common Council of
the City of Milwaukee. on September 17,
1957. Resolution File No. 57-1602.

Filed with the Public Service Commission
of Wisconsin, on October 21, 1957.

1.1.9 Water Service Piping

Water service piping is the piping installed from the water mains to and including the valve and/or bypass tee and valve on the discharge side of the meter. Water service piping is further defined, depending on size and arrangement, as either Tap service piping or Branch service piping. The components of Tap service piping are a corporation stop, with or without a clamp, copper tubing or lead pipe, a curb stop, a service box, a meter stop, a meter with or without a meter horn, and a meter outlet valve. The components of Branch service piping are a tapping sleeve and valve, or a branch 3-way and a gate valve, a valve box, cast iron pipe, special castings, a meter, a meter inlet valve and outlet valve, and test connections, complete with valves. Branch service piping may be for regular water service, or private fire protection service. Branch service piping may have a single or battery meter settings.

1.1.10 Building Piping

Building piping is the piping from the valve, on the discharge side of the water meter, to its terminus at the point of consumption, or outlet. The City Plumbing Code is to be referred to for building piping. Applicable codes of the National Board of Fire Underwriters are to be referred to for building piping to be used for fire protection purposes.

1.1.11 Meter Setting

An installation of piping which includes a meter, or meters, complete with all valves and fittings necessary for normal operation of the meter, or meters.

1.1.12 Battery

Battery meter settings have two, or more, meters in parallel.

1.1.13 Rules and Regulations

A prescribed guide for conduct, action, and usage in relationship between the Utility and the Customer.

PART 3.00 — WATER SERVICE PIPING

Chapter 3.1.0 New Water Service Piping

3.1.1 General

Each Customer shall be served through water service piping which serves that Customer only.

3.1.2 Installation

New water service piping shall meet the requirements of the "Water Service Piping Specifications".

Chapter 3.2.0 Existing Water Service Piping

3.2.1 Protection Against Water Hammer

Where water hammer occurs in the house piping, a shock absorber should be installed as close to the fixture causing the hammer as possible, in order to protect the water service piping from damage.

3.2.2 Use of Existing Water Service Piping for New Structure

When a building has been razed, and plans have been filed with the Department of Building Inspection for a new structure on the premises, and water can be supplied through the existing water service piping, such water service piping may remain in service, upon owner's application; provided, that the installation conforms to the specifications for water service piping.

3.2.3 Unused Service Piping to be Capped

Existing unused service piping, found in an excavation near a main, is to be capped at the corporation stop by the Utility. Existing unused service piping, to an abandoned or demolished building, is to be capped between the lot line and the curb-stop, by the Customer's plumber.

SPECIFICATIONS
FOR
WATER SERVICE PIPING

The Specifications for Water Service Piping set forth herein are prescribed and established pursuant to the authority and power granted by the —

Wisconsin Statutes and enactments of the State Legislature

Milwaukee City Charter

Milwaukee Code of Ordinances

Resolutions of the Milwaukee Common Council

Public Service Commission of Wisconsin

and supersede all previously established Specifications for Water Service Piping.

Adopted by the Common Council of the City of Milwaukee, September 17, 1957. Resolution File No. 57-1603.

Filed with the Public Service Commission of Wisconsin, on October 21, 1957.

PART 2. MATERIALS

CHAPTER 2.1.0 MATERIALS

2.1.1 General — Material specifications have been prepared on the basis that the materials specified will be available when required. If any material specified is not available when required, the Commissioner of Public Works shall be contacted for written permission to substitute specific items for those specified and to vary the procedure of installation as the substitute material requires.

Page 8, Section 2.1.2 The coded figures after each item (for example: A-4-4a) identify specifications which are on file at the Milwaukee Water Works in the City Hall.

- A — Cast Iron Pipe
Bell and Spigot Pipe A-4-4a
- B — Fittings
Bell and Spigot Fitting A-4-4d
- *C — Gate Valves A-4-2a
- *D — Tapping Valves A-4-3a
- *E — Tapping Valve Sleeves A-4-3b
- F — Valve Boxes
Buffalo Type (Cast Iron) A-4-7a
- G — Service Boxes
Buffalo Type A-4-7b
Shockproof Type (Hollow Walk Only) A-4-7d
- *H — Curb Stops
Copper A-4-9a
Lead A-4-9b
- *I — Corporation Stops
Copper A-4-9a
Lead A-4-9b

- J — Meter Stops
 - Copper A-4-9a
 - Lead A-4-9b
- K — Angle Stops
 - Copper Service Piping A-4-9a
- L — Disc
 - Lead Disc for future extensions and abandonments
- M — Meter Horn A-4-11d
- N — Meter Well Cover — See Drawing 26.
- O — Meter Pit — Double Trap Door —
See Drawing 43.
- P — Meter Pit — Ladders — See Drawing 45.
- Q — Meter Pit — Manhole Frame & Lid — A-4-6a.
- R — Metal Strapping — Tie rods, bolts, bands, nuts, washers and paint to suit.
- S — Meters — A-4-11a or approved type.
- T — Bronze Check Valves
- U — Bronze Gate Valves
- V — Clamp

2.1.3 Flanged Cast Iron Piping Materials — Cast Iron Pipe and Fittings — All cast iron pipe and fittings not furnished by the City shall be 125 pound Standard.

Gate Valves — All gate valves, three inches and larger shall be flanged and shall conform to AWWA specifications, 100 pound WOG. ~~All gate valves two inches and smaller shall be 150 pound brass gate valves — wedge disc serewed ends.~~

Check Valves — All check valves, three inches and larger shall be flanged and shall be "Underwriters Approved."

2.1.4 Copper Piping Materials — Tubing — Copper tubing shall conform to the standards prescribed in Federal Specifications WW-T-799 for “Seamless Copper Tubing for use with Flared Fittings” (Fed. Specification Board, October 18, 1932) and to the Specifications of the American Society for Testing Materials B88 and revisions thereof. Such tubing shall be free from grooving, cracks, indentations, flaws or other defects. The name or trade-mark of the manufacturer and a mark indicative of the type shall be permanently and plainly marked on the tubing at intervals not greater than one and one-half ($1\frac{1}{2}$) feet.

For underground installations from the street main to the water meter, copper services shall be “soft annealed” and shall be only of the type designated in the aforesaid Federal Specifications as “Type K”, the dimensions and weights, for the various sizes of which are herein set forth:

Nom. I. D.	O. D.	Wall Thickness	Gage B. W. G.	Theoretical Lb./Ft.
$\frac{3}{4}$	0.875	.065	16	0.641
1	1.125	.065	16	0.839
$1\frac{1}{4}$	1.375	.065	16	1.04
$1\frac{1}{2}$	1.625	.072	15	1.36
2	2.125	.083	14	2.06

Dimensions-Inches

Copper tubing in $\frac{3}{4}$ "", 1", and $1\frac{1}{4}$ " size may be furnished in coils or straight lengths, and copper tubing in $1\frac{1}{2}$ " and 2" sizes shall be furnished in straight lengths only. See Section 3.3.5.

Fittings — Fittings for copper tubing shall be of cast brass having an alloy of 85% copper, 5% tin, 5% zinc, and 5% lead. They shall be well made to assure uniformity in wall thickness and strength and shall be free from any defect which may affect their serviceability.

Each fitting shall be permanently and plainly marked with the name or trademark of the manufacturer.

Fittings shall be of the “flared” or “compression” type only. Unions shall be extra heavy 3-part unions only.

Meter Horns — Meter horns shall conform to City of Milwaukee specification A-4-11d.

2.1.5 Lead Piping Material — Lead Pipe — Lead pipe shall be made from virgin refined pig lead and shall conform to the U.S. Department of Commerce Commercial Standard for Lead Pipe, CS-95-41 and revisions thereof. It shall be of the dimensions, weight and classifications set forth herein, except as indicated in the note immediately following the table:

Nom. I. D.	Class	O. D.	Min. O. S. Cir.	Wall Thick.	Nom. Lb./Ft.
3/4	XS	1.212	3 1/16	.231	3.50
	XXS	1.336	4 1/16	.293	4.75
1	XS	1.492	4 9/16	.246	4.75
	XXS	1.596	4 7/8	.298	6.00
1 1/4	XS	1.765	5 3/8	.258	6.00
	XXS	1.889	5 1/2	.320	7.75

Dimensions — Inches

Max. Working Pressure (psi) XS = 75 XXS = 100

If the pressure in the main exceeds 100 psi and lead pipe is desired by the customer, special written permission designating the class of pipe to be used shall be obtained from the General Office.

Solder — Solder use for making “wiped joints” shall conform to the standards specified by the American Society for Testing Materials for “Soft Solder Metal” A.S.T.M. Designation B32 and revisions thereof, and shall be of the chemical composition prescribed therein for Alloy Grade 40A, namely 40 percent tin and 60 percent (Nominal) lead.

2.1.6 Steel and Wrought Iron Pipe Materials — Pipe — Pipe shall be wrought iron or steel threaded pipe, thoroughly zinc coated (galvanized), and of no lesser weight than that known as “Standard” weight pipe, and shall conform to the standard specifications of the American Society for Testing Ma-

materials for "Welded Wrought Iron Pipe" — A.S.T.M. Designation A-72, and for "Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses" — A.S.T.M. Designation A-120, and revisions thereof, the dimensions and weights for the various sizes of which are herein set forth:

"STANDARD WEIGHT" PIPE

Size Nom. I. D.	O. D.	Threads per Inch	Thickness		Weight Lb./Lin. Ft. (Threaded w. Couplings)
			Stl.	W. I.	
3/4	1.050	14	0.113	0.115	1.13
1	1.315	1 1/2	0.133	0.136	1.68
1 1/4	1.660	1 1/2	0.140	0.143	2.28
1 1/2	1.900	1 1/2	0.145	0.148	2.73
2	2.375	1 1/2	0.154	0.158	3.68
3	3.500	8	0.216	0.221	7.62
4	4.500	8	0.237	0.242	10.89
6	6.625	8	0.280	0.286	19.18

Dimensions — Inches

Fittings — All fittings shall be 125 or more pound fittings. Fittings two (2) inches and smaller shall be cast or malleable iron with reinforced or "Beaded" ends and thoroughly galvanized.

Unions shall be equal to Crane Railroad.

Fittings three (3) inches and larger shall be flanged-black cast iron.

Flanges shall be cast iron equal to Crane Catalog No. 553.

Valves — Check valves up to and including two-inch (2) shall be brass with brass disc and shall withstand a working pressure of 150 psi. W.O.G.

Gate Valves up to and including two (2) inch shall be made entirely of bronze with stuffing box and handwheel. Gate valves shall be of the wedge type with non-rising stems and shall be

guaranteed to withstand a working pressure of 150 psi. W.O.G. Valves with drips shall be furnished where shown on drawings.

Gate Valves larger than the two (2) inch size shall be AWWA Iron Body Double Disc Gate Valves.

All gate valves shall open to the left.

2.1.7 Regular Water Meters — Water meters shall be of the size and type necessary to insure accurate registration of the water requirements of the premises. Meters shall be of the size shown on Drawings 20, 21 and other attached drawings unless special permission is obtained. Meters $\frac{5}{8}$ inch to 2 inches shall conform to specification A-4-11a. Meters 3 inches and larger for ordinary service shall be "compound" type with either bronze or iron case. Meters 3 inches and larger for large steady flows may be the "current" type.

2.1.8 Meters for Private Fire Protection Systems

Meters for private fire protection systems shall be either "Detector Check with By-Pass," "Compound-Proportional" or "Compound" depending on maximum flow through the meter and additional service required.

"Detector Check with By-Pass" meters will be approved by the Utility for installations within the City where the rate of flow due to leakage in the private fire protection system does not exceed 50 gpm. Hersey model DC "Detector Check with By-Pass" meter or equal are acceptable meters.

"Compound-Proportional" meters will be approved by the Utility for installations within the City where the rate of flow due to leakage in the private fire protection system exceeds 50 gpm. Hersey Model FM or Trident Protectus meters or equal are acceptable.

"Compound-Proportional" meters will be approved by the Utility for installations outside the City for private fire protection systems.

All meters for private fire protection systems are to be set by the customer's contractor and tested by the Utility.

WATER SERVICE.

Sec. 22. Water pipes shall be installed in a workmanlike manner, well supported and thoroughly protected against damage by settlement, frost, or other causes, and shall be so laid or installed as to be readily drained.

Water Pipe.

Protected and drained.

When laid in a street or alley, or in a lot outside of a building, the water pipe shall have not less than six (6) feet of earth covering. If the grade of the roadway is higher than the established or proposed grade, the pipe shall be so laid that it will not be less than six (6) feet below such established or proposed grade.

Depth.

Where present grade is higher than proposed or established grade.

Sec. 23. All water pipes laid underground, whether outside or inside the building and of a diameter less than two (2) inches, shall be "extra strong" lead pipe. When the pipe is of 2" diameter it may be, and when of greater diameter than two (2) inches, it shall be cast iron "bell and spigot" pipe and what is termed as "Class C" pipe.

Character of pipe and fittings.

Underground.

When installed inside the building, above ground, or in a tunnel or pipe conduit, after passing the meter, the pipe may be lead, cast iron, galvanized iron or brass with corresponding fittings.

Inside building—above ground.

Provided, that nothing contained in this section shall be construed to prohibit the use of wrought iron black pipe for fire service systems above ground, or of wrought iron black pipe under ground for grass plot or lawn sprinklers, only, the depth of which piping must not exceed two (2) feet and must be provided with stop-cock and drains for winter protection.

Exceptions:
Fire Service
Grass Plot
Sprinklers.

Sec. 24. All corporation cocks, curb and meter cocks, and meter couplings shall be of the pattern adopted by the Milwaukee Water Works and shall be furnished by the Milwau-

Corporation
cocks.
Curb and
meter cocks
and meter
couplings.

kee Water Works only, on presentation of the receipted "tap" permit or the material bill.

Curb box.

Sec. 25. Curb boxes shall be cast iron "extensible pattern" two and one-half ($2\frac{1}{2}$) inches in diameter and seven feet in length with cover fastened to the box with a brass pentagon head screw bolt. The cover shall have the word "WATER" cast in raised letters across the face.

Tapping of mains.

Sec. 26. No street main of a greater internal diameter than twenty-four (24) inches shall be tapped for the distribution of water supply to any premise, nor shall a main be tapped at a distance of less than six (6) feet from the side line of the building to be supplied, nor within one (1) foot of another ferrule, or the bell end, or any sleeve connection on the main.

Request for tap or branch connection.

Sec. 27. Requests for the insertion of any corporation cock or branch connection in the City mains shall be made the day previous to the time desired for such connection. All lead services shall be in a position in the trench, from the main to the curb box, at the time of such insertion.

Service pipe diameter.

Sec. 28. Where "Street Improvement" or "Curb Services" are installed under private contract by the owner of any lot or parcel of land, such installations shall be of the same diameter as prescribed by the Commissioner of Public Works for similar installations under City Contract.

The minimum diameter of service pipes other than those installed to the curb for "future use" ("Curb Service") shall be three-fourths ($\frac{3}{4}$ ") inch. All service pipe shall be full size from the street main to the meter. (For size of building service and size of meters see Sections 29-32, inclusive.) Service pipes shall be laid at the depth heretofore

provided and shall have sufficient extra length to provide for unforeseen settlement. All service pipes shall be laid on a shelf of solid ground and not nearer than eight inches to any sewer trench or conduit. No pipe shall be laid through or across the interior of any sewer or any conduit carrying electric or telephone wires or cables, nor shall any pipe be imbedded in or pass through cinders, concrete or masonry, unless such pipe is thoroughly protected against damage by same.

Services one diameter larger than tap.

Curb cock and box in excavated walks.

Lead service pipes shall be one lead pipe diameter larger than the corporation cock connection with the main, and shall have a brass stop-cock encased in a cast iron extensible box placed not more than two (2) feet inside the line of the street curb and on a line at right angle with the corporation cock connection. If the space inside the curb line is excavated the stop-cock and box shall be enclosed in concrete or masonry in such manner as to prevent the operation of the curb cock except from the street walk.

One and one-half and two inches.

Lead services one and one-half (1½) and two (2) inches in diameter shall be connected to the street main by means of a two inch "branch connection" having a gate valve at the street main. The connection between the lead service and the gate valve shall be made with not less than twelve (12) inches of heavy brass pipe with a half coupling caulked into the gate valve and joined to the lead pipe by a wiped joint. No curb cock or box will be required for this installation.

Replacing old services.

When an old service pipe is to be replaced by another service, the new service shall, when possible, be laid in proximity to the old, and if not used in connection with the new service, the old corporation cock shall be uncovered and turned off at the main by the master plumber and a report of the turning off made to the Milwaukee Water Works.

Ald. Carney moved that the rules and regulations governing the introduction, supply and consumption of water and the installation of plumbing connected therewith and schedules of rates for water furnished by the Milwaukee Water Works accompanying the

foregoing matter and submitted to the Common Council on October 18, 1920, be printed in full in the Proceedings and further action thereon be deferred until the next regular meeting.

The motion prevailed.

THE CHAIR thereupon presented the following:

FILE NUMBER 18790

RULES AND REGULATIONS GOVERNING THE INTRODUCTION, SUPPLY AND CONSUMPTION OF WATER AND THE INSTALLATION OF PLUMBING CONNECTED THEREWITH, AND SCHEDULE FOR THE PAYMENT OF RATES FOR WATER FURNISHED BY THE MILWAUKEE WATER WORKS.

The Commissioner of Public Works of the City of Milwaukee, under and by virtue of the authority vested in him by the Charter and Ordinances of the City of Milwaukee, hereby makes and establishes, subject to the approval of the Common Council, the following water rates, rules and regulations governing the introduction, supply and consumption of water furnished by the Milwaukee Water Works, and the installation and inspection of all plumbing connected therewith.

Made and established by the Commissioner of Public Works and approved by the Common Council of the City of Milwaukee , 192 , and effective January 1, 1921.

Consumers' Agreement

Section 1. It is hereby expressly stipulated as a condition of the grant of water service by the City of Milwaukee, that all persons now under grant of such service, or who may hereafter make application therefor, shall be considered as having agreed to be bounden by, all and singular, the rules and regulations as are herein, or as may hereafter be prescribed.

Shall be bounden by all rules

Shall enter no claim for damage

And it is further stipulated that no claim for damage shall be entered against the City of Milwaukee or any officer thereof, for damage caused by water leakage, or for damage to any pipe or appurtenance by reason of interrupted supply or variation in pressure, or for any damage of any nature whatsoever, caused by the turning off, or on, partially or wholly, of the water supply for the extension, alteration or repair of any water main, or the discontinuance of the water service for violation of any rule.

Grant of water service to premises annexed subsequent to laying of mains

Sec. 2. No permit for water service shall be granted for any property annexed to the City of Milwaukee subsequent to the laying of the water main in any thoroughfare abutting such property, until a water pipe assessment, based upon the frontage of the property and at a rate prescribed by the Superintendent of Water Works and Water Purification, has been paid.

Automatic Sprinkler Systems in City Bond

Sec. 3. Applications for connection of automatic sprinkler systems to the city mains, for premises within the city, must be accompanied by a bond to the City of Milwaukee in the sum of one thousand (\$1,000.00) dollars, the form and security of which bond shall be approved by the Superintendent of Water Works and Water Purification, setting forth that the applicant or his successors, shall, at all times, be governed by the rules of the Milwaukee Water Works, as herein are, or as may hereafter be, prescribed, and further that the applicant will pay to the City of Milwaukee, on filing the application for the turning on of the water service, and annually thereafter, between the first and twentieth days of January, while said service is in use, the fee established for each branch connection with the city main. (See schedule of rates.) The applicant shall also file, with said application, an accurate plan of the system to be installed.

Service Fee

Shall file plan

Systems outside city

No annual fee

Must provide meter

Applications for connection of automatic sprinkler systems to the city mains, for premises beyond the limits of the city, shall conform with the requirements set forth above, except that the applicant shall not be required to pay the moneys named on the filing of the application and annually thereafter, but shall be required to provide a suitable meter for the entire system and to pay the established rates for metered service for such system.

System to be sealed

On placing in service, those automatic sprinkler systems on the unmetered basis, all valves, hydrants and drain cocks, will be sealed by the Milwaukee Water Works, and it

Destruction of seals prohibited**Penalty**

shall be the duty of the owner or occupant of the premise served, to prevent the destruction of these seals (except in case of water damage arising from the operation of a sprinkler head or breakage of a pipe) without the sanction of the Superintendent of Water Works and Water Purification. For any infraction of the provision of this section, the Superintendent of Water Works and Water Purification may cause the discontinuance of the service.

Installation and Maintenance of pipes, meters, etc.**Exempt from meterage****Penalty**

Sec. 4. The applicant for water service connection shall install, under the supervision of the Milwaukee Water Works, all piping, curb cocks and boxes, meters, meter cocks and valves, and other appurtenances, for the introduction and control of the water service, and shall maintain same in a manner free from leakage, inaccessibility or dangerous condition: Provided that the meterage of services for fountains, watering troughs and bubblers on public thoroughfares, sprinklers in center plots of boulevards, and automatic sprinkler systems may not be required.

If the owner or occupant of any premise neglects or refuses to repair any defective service pipe or remedy any inaccessible or dangerous condition of any curb cock or curb box within forty-eight (48) hours of the written notification of the Milwaukee Water Works, it shall be optional with the Superintendent of Water Works and Water Purification to cause repairs made by the city at the expense of the premise, or to cause the discontinuance of the water service thereto.

Defective or unsuitable meters and indicators**Shall repair or replace within 5 days****Repairs of Indicators****Replacement by indicators prohibited****Penalty**

Sec. 5. Whenever a water meter or an indicator for a hydraulic elevator shall be found defective, or unsuitable for the proper control of the service, the Superintendent of Water Works and Water Purification shall cause notification of such condition, addressed to the "Owner or Occupant" delivered to the premises in which such water meter or elevator indicator has been in service. Said owner or occupant shall, within five (5) days from date of such notification, authorize the Superintendent of Water Works and Water Purification to repair said water meter or elevator indicator at his expense, or shall signify his intention to have the water meter repaired elsewhere, or that he will have the water meter or indicator replaced by an approved meter. It is expressly provided, however, that defective elevator indicators shall be repaired by the Milwaukee Water Works only and further provided that no defective indicator shall be replaced by another of a similar device.

Failure to comply with the provisions of this section shall be punishable by the discontinuance of the water service.

Meter location and connection maintenance**Remedial measures within 5 days****Penalty**

Sec. 6. The location of every meter shall at all times be maintained in a safe, clean, and sanitary condition and shall have unobstructed passage way thereto, and all connections for the meter shall be of the standard as hereinafter provided and shall be maintained free from defect or obstruction of any nature whatsoever.

Whenever such meter location or meter connection shall be found in a condition contrary to this section, the owner or occupant shall, within five (5) days from date of notification thereof, cause the condition remedied in all respects as set forth in such notification.

Non-compliance with the provisions of this section shall constitute sufficient cause for the discontinuance of further water service to the premise.

Connections with water supply from other source prohibited**Existing connections to be removed****Consumers' request for meter test**

Sec. 7. No connection of any nature shall be made, either directly or indirectly, with the piping for the city water supply and that of the supply from any other source, and existing installations of this nature shall be removed upon five (5) days' notification by the Superintendent of Water Works and Water Purification, if in his judgment such installation is dangerous to the public supply, failing in which removal the premise shall be deprived of further city water service.

Sec. 8. Consumers may have their meters tested on filing an application for such meter test, agreeing to pay the test charge herein set forth for the size of the meter tested. If the meter does not test within the accuracy limitations, such charge shall be cancelled, and for any over-registration shown, a credit shall be entered for such rate of over-registration for a period not exceeding three (3) months previous to the test

of the meter. In all cases the test report of the Milwaukee Water Works shall be accepted as final.

METER TEST CHARGE.

Test Charge	5/8 in. to 1 1/4 in. meters (inclusive).....	\$1.00
	1 1/2 in. and 2 in. meters.....	2.50
	3 inch and larger.....	7.50

Meter removal for building operations

Sec. 9. The removal of meters on account of the remodeling, reconstruction or removal of the building shall be made by the MILWAUKEE WATER WORKS only. Such removal will be made upon request of the owner or agent of the premise, or if advisable the MILWAUKEE WATER WORKS may make the meter removal without such request. On removal of the meter the water shall be turned off and the meter placed in storage subject to the owners' notification of disposal—unless the meter is in such condition that repairs cannot be made, in which case the meter may, after obtaining the registration reading thereof, be left on the premise. In the absence of specific directions, the meter may be returned to the premise at the expiration of six (6) months and the signature of the occupant of the building on the premise formerly served by the meter shall be considered sufficient for the delivery receipt.

Temporary Service Service basis optional with Superintendent

Sec. 10. It shall be optional with the Superintendent of Water Works and Water Purification to grant water service for temporary use (building construction, public improvement or special service) upon an unmetered basis at the rates herein established, or to place such service upon a metered basis at the established meter rates.

Unmetered temporary service from tap connection Method of control

If such service is on the unmetered basis and is supplied from a service tap, the consumer shall prepay the water rate therefor, and provide a hose cock or valve to be screwed into the connection furnished by the plumber for the control of such service.

From fire hydrant Wrench deposit

If such unmetered service is from a fire hydrant the consumer shall, in addition to the prepayment of the water rate, deposit the sum of three (\$3.00) dollars as security for a hydrant wrench.

Method of control

The connection to the hydrant shall be made by a brass reducing hydrant coupling and a valve. In the use of the hydrant, the hydrant valve shall be turned full open with the official hydrant wrench only and regulation of flow shall be by means of the valve on the service line.

Confiscation of Unofficial Wrenches

The use or possession of any hydrant wrench other than the official hydrant wrench of the Milwaukee Water Works, or of any gate valve key, at any place where water is used for purpose set forth in this section, is strictly prohibited. And any such unofficial wrench or such gate valve key so found may be confiscated by the Milwaukee Water Works. If the temporary service is to be on the metered basis, the applicant shall deposit, with the Milwaukee Water Works, a sum of money not less than twenty-five (\$25.00) dollars for each meter used, as guarantee of payment for the water rates, or other accounts accruing from use of such service, and the further sum of three (\$3.00) dollars as security for hydrant wrench if the service is to be taken from a fire hydrant.

Metered temporary service Deposits

Shall provide Meter Fire hydrant connections

The applicant shall provide a suitable meter and connections therefor and shall pay all charges for the test and installation of the meter by the Milwaukee Water Works. All connections with, and the control of water from fire hydrants shall be as hereinbefore provided.

Refund of deposits

All moneys deposited as security for payment of metered service and hydrant wrenches will be refunded upon payment of accounts accruing for such service and upon return of the hydrant wrench.

Water on or off

Sec. 11. Water service will be turned on or off by the Milwaukee Water Works only upon written request.

MASTER PLUMBERS' BOND.

Who may do plumbing work

Section 12. No person shall make any connection or attachment whatsoever with the mains furnishing water supply from the Milwaukee Water Works, or shall do any plumbing work, or prepare such work for the introduction, extension or alteration of any pipe for such water supply, unless such person shall have secured a permit therefor from the Milwaukee Water Works as hereinafter provided.

Master plumbers' license and bond

Sec. 13. No permit shall be granted to any person to do any plumbing work as provided in section 12 of these rules, unless such person shall have been licensed by the State Board of Health as a Master Plumber in accordance with Chapter 383, Laws of 1919, and shall have executed, to the City of Milwaukee, a bond in the sum of one thousand (\$1,000.00) dollars, the security of which shall be approved by the Superintendent of Water Works and Water Purification and of a form as herein provided.

Bond Security

Condition of bond

The condition of such bond shall be that, in consideration of the grant of the permit to do plumbing work as herein before provided, the applicant therefor shall agree to be bounden by any and all rules or regulations as are now, or as may hereafter be enacted by the Commissioner of Public Works, by and with the approval of the Common Council, and that said applicant, shall indemnify and save harmless the City of Milwaukee, or any officer thereof, of and from any accident or damage arising from any negligence, unfaithful, imperfect or inadequate work by virtue of his license and permit as master plumber, and that he will replace, restore and maintain, for a period of six (6) months next thereafter, any excavation or any pavement over any opening he may make in any thoroughfare, and that he will pay all fines imposed on him for violation of any rule or regulation of the Milwaukee Water Works.

There shall be set forth in said bond the business address of the applicant, and the name of the firm or corporation, if any, which he represents, and it shall be a condition of said bond that immediate notification shall be given by the applicant, to the Superintendent of Water Works and Water Purification of any change of the business address of said applicant. Such bond shall have full force and effect only during the limitation of the master plumbers' license and shall be considered sufficient for all permits issued during such limitation of the master plumbers' license.

No fee

No fee shall be required by the Milwaukee Water Works for the filing of the master plumbers' bond.

Exception

Nothing contained in this section shall apply to any person, firm or corporation engaged in the laying of water mains under the jurisdiction of the Milwaukee Water Works, in any street, alley, or any thoroughfare designed for public use.

Unlawful grant or use of name

Sec. 14. No master plumber shall grant or allow the use of his name by any other person for the purpose of obtaining permits or doing work under his license.

Penalty

Sec. 15. Any master plumber who shall violate any rule or regulation of the MILWAUKEE WATER WORKS, or who shall make any misrepresentation of his work to any person acting under the authority of the MILWAUKEE WATER WORKS, or who shall neglect or refuse to make a return for any work performed under his permit, or shall turn on, or leave turned on, any water not officially turned by the Milwaukee Water Works, may, in the discretion of the Commissioner of Public Works, after review of testimony or evidence of such violation or misrepresentation, be suspended from any act or power arising from any permits, for a period not exceeding sixty (60) days.

APPLICATIONS AND RETURNS.

Forms

Sec. 16. All applications for permits and meter installations, and all returns of the work performed under such permit shall be on forms prescribed and furnished by the City of Milwaukee; and all information required therein, or any additional information necessary for a full knowledge of the work to be, or which has been performed, shall be fully and truthfully furnished by the master plumber making such application or return.

Applications by Master Plumbers only

Sec. 17. Application for a permit to do any plumbing connected or designed to be connected with the water supply furnished by the MILWAUKEE WATER WORKS, shall be made by a licensed and bonded master plumber only.

- Applications not required for certain work** Such application shall be signed by the owner or authorized agent of the owner of the premise for which the work is to be done. *Provided*—that no application for a permit shall be required for the installation of water mains, under the jurisdiction of the MILWAUKEE WATER WORKS in any street or alley or in any thoroughfare designed for public use, or for the repair or the replacement of defective pipes, valves or cocks.
- Returns** Sec. 18. Every master plumber shall make a full return of the work performed under his permits, within forty-eight (48) hours after the completion thereof; and any omission or misrepresentation in the return or any violation of these rules, in the installation of the work shall be rectified within forty-eight (48) hours after notification thereof.
- Must not turn on water** Sec. 19. No master plumber shall turn on, or leave turned on, any water service after the completion and trial of his work, whether installed, under his permit, from the street main or curb service, or in the extension or repair of any water supply, which for any reason has been turned off by the Milwaukee Water Works.
- Water service "on" order** No water service will be turned on by the Milwaukee Water Works until the master plumber's return has been approved and an order signed for such service.

STREET EXCAVATION.

- Street permit** Sec. 20. No person shall open or excavate any street or alley unless he has secured a permit therefor from the Commissioner of Public Works. All such openings or excavations shall be made in a manner to cause the least possible inconvenience to public travel, and shall provide for the passage of water along the gutter of the street or alley.
- Precautionary measures** Such openings or excavations shall be provided with sufficient night lamps, barriers, sheeting, bracing and other precautions to guard against accidents to persons or property of any kind.
- The person to whom such permit is granted shall relay or repair any water pipe, conduit or sewer damaged. He shall do the excavation and refilling of the trenches and the restoration of the pavement or the surface of the street, alley or walk in a workman-like manner as expeditiously as possible. He shall remove all surplus material and maintain the trench filling in a perfect condition for a period of six (6) months next thereafter.
- Liability** For any damages resulting from negligence, to provide reasonable precaution against accident to person or property, the person to whom such permit has been issued shall be held liable.
- Street Pavements** Sec. 21. No permit shall be granted for opening any street or alley having a permanent pavement on a concrete foundation, unless satisfactory evidence is presented that the foundation and pavement shall be restored in a manner satisfactory to the Commissioner of Public Works.
- Where period of guarantee has not expired** If the paving contractor's guarantee period has not expired, the applicant shall obtain and file with his application, a written statement from the paving contractor that the applicant has made satisfactory arrangements for the restoration of the foundation and pavement and that the grant of such permit shall in no way affect the terms of the guarantee.
- Where period of guarantee has expired** If the guarantee period has expired, the applicant shall deposit the fee established by the Commissioner of Public Works for the repair of the pavement.

TRENCH CUTS Unpaved or Macadamized roadways

Trench cuts in the surface of unpaved or of macadamized streets or alleys may be of the same width as the trench.

Trench cuts Concrete base

For streets or alleys having a "permanent" pavement on a concrete base, the pavement and concrete foundation must be cut eight (8) inches beyond each wall of the trench to allow an eight (8) inch solid earth shoulder on each of the four sides of the trench for the new concrete foundation. Should the sides of the trench cave during the progress of the work, an additional amount of the pavement and concrete must be removed to maintain the ground shoulder of eight (8) inches. All pipes or conduit,

encountered during the excavation, shall be protected against damage by the provision of vertical props, not less than 2" x 3" in cross section, securely blocked on solid bottom.

These props shall not be disturbed during the refilling of the trench.

**Refilling
trenches**

In refilling trenches the material shall be replaced in the same relative manner in which it was found. Stones, hard lumps of clay, or other material of a diameter exceeding five (5) inches shall not be used, but shall be replaced by fine filling, sand, or gravel.

Flooding

The filling shall be thoroughly puddled with water to a point within eighteen (18) inches of the finished surface of the street or alley. When filled to this point the trench shall be allowed to remain open for a period not less than three (3) days to thoroughly dry out and settle.

**Finish for
unpaved and
macadamized
roadways**

For unpaved and macadamized streets or alleys, the upper eighteen (18) inches shall be thoroughly tamped in layers of not more than six (6) inches in depth and crowned not to exceed two (2) inches above the surface of the roadway.

**Finish for
permanent
paved road-
ways**

For paved streets or alleys, the succeeding twelve (12) inches shall be tamped in layers not to exceed six (6) inches in depth and the top six (6) inches shall be of concrete and surface paving material.

Penalty

Failure through neglect or refusal to properly restore or repair the pavement within three (3) days after notification thereof by the Commissioner of Public Works, shall be sufficient cause for the Commissioner of Public Works to cause such repairs made at the expense of the holder of the permit and the grant of further permits shall be refused until such repair charge has been paid.

WATER SERVICE.

**Water Pipe
Protected
and drained**

Sec. 22. Water pipes shall be installed in a workmanlike manner, well supported and thoroughly protected against damage by settlement, frost, or other causes, and shall be so laid or installed as to be readily drained.

Depth

**Where present
grade is higher
than proposed
or established
grade**

When laid in a street or alley, or in a lot outside of a building, the water pipe shall have not less than six (6) feet of earth covering. If the grade of the roadway is higher than the established, or proposed grade, the pipe shall be so laid that it will not be less than six (6) feet below such established or proposed grade.

**Character of
pipe and
fittings
Underground**

Sec. 23. All water pipes laid underground whether outside or inside the building and of a diameter less than two (2) inches shall be "extra strong" lead pipe. When the pipe is of 2" diameter it may be, and when of greater diameter than two (2) inches, it shall be cast iron "bell and spigot" pipe and what is termed as "Class C" pipe.

**Inside building
—above ground**

When installed inside the building—above ground, or in a tunnel or pipe conduit, after passing the meter, the pipe may be lead, cast iron, galvanized iron or brass with corresponding fittings.

**Exceptions:
Fire Service
Grass Plot
Sprinklers**

Provided—that nothing contained in this section shall be construed to prohibit the use of wrought iron black pipe for fire service systems above ground, or of wrought iron black pipe under ground for grass plot or lawn sprinklers only, the depth of which piping must not exceed two (2) feet and must be provided with stop cock and drains for winter protection.

**Corporation
cocks
Curb and meter
cocks and
meter
couplings
Curb Box**

Sec. 24. All corporation cocks, curb and meter cocks, and meter couplings shall be of the pattern adopted by the MILWAUKEE WATER WORKS and shall be furnished by the Milwaukee Water Works only, on presentation of the receipted "tap" permit or the material bill.

Sec. 25. Curb boxes shall be cast iron "extensible pattern" two and one-half (2½) inches in diameter and seven feet in length with cover fastened to the box with a brass pentagon head screw bolt. The cover shall have the word "WATER" cast in raised letters across the face.

Tapping of mains

Sec. 26. No street main of a greater internal diameter than twenty-four (24) inches shall be tapped for the distribution of water supply to any premise, nor shall a main be tapped at a distance less than six (6) feet from the side line of the building to be supplied, nor within one (1) foot of another ferrule, or the bell end, or any sleeve connection on the main.

Request for tap or branch connection

Sec. 27. Requests for the insertion of any corporation cock or branch connection in the city mains, shall be made the day previous to the time desired for such connection. All lead services shall be in a position in the trench, from the main to the curb box, at the time of such insertion.

Service pipe diameter

Sec. 28. Where "street improvement" or "curb services" are installed under private contract by the owner of any lot or parcel of land, such installations shall be of the same diameter as prescribed by the Commissioner of Public Works for similar installations under city contract.

The minimum diameter of service pipes other than those installed to the curb for "future use" ("curb service") shall be three-fourths ($\frac{3}{4}$) inch. All service pipe shall be full size from the street main to the meter. (For size of building service and size of meters—see sections 29-32, inclusive.) Service pipes shall be laid at the depth heretofore provided and shall have sufficient extra length to provide for unforeseen settlement. All service pipes shall be laid on a shelf of solid ground and not nearer than eight inches to any sewer trench or conduit. No pipe shall be laid through or across the interior of any sewer or any conduit carrying electric or telephone wires or cables, nor shall any pipe be imbedded in or pass through cinders, concrete or masonry, unless such pipe is thoroughly protected against damage by same.

Services one diameter larger than tap

Lead service pipes shall be one lead pipe diameter larger than the corporation cock connection with the main, and shall have a brass stop cock encased in a cast iron extensible box placed not more than two (2) feet inside the line of the street curb and on a line at right angle with the corporation cock connection. If the space inside the curb line is excavated, the stop cock and box shall be enclosed in concrete or masonry in such manner as to prevent the operation of the curb cock except from the street walk.

Curb cock and box in excavated walks**One and one-half and two inches**

Lead services one and one-half ($1\frac{1}{2}$) and two (2) inches in diameter shall be connected to the street main by means of a two inch "branch connection" having a gate valve at the street main. The connection between the lead service and the gate valve shall be made with not less than twelve (12) inches of heavy brass pipe with a half coupling caulked into the gate valve and joined to the lead pipe by a wiped joint. No curb cock or box will be required for this installation.

Replacing old services

When an old service pipe is to be replaced by another service, the new service shall, when possible, be laid in proximity to the old, and if not used in connection with the new service, the old corporation cock shall be uncovered and turned off at the main by the master plumber and a report of the turning off made to the Milwaukee Water Works.

No division of service pipe at curb

No division of any water service shall be made at the curb line for the supply of two or more buildings.

Building Supply

Sec. 29. Pipes for the supply of water to fixtures inside any building or lot, shall be of ample size to adequately serve the fixtures therein, but in no instance shall be of a diameter smaller than three-fourth ($\frac{3}{4}$) inch for iron pipe, or five-eighth ($\frac{5}{8}$) inch lead pipe to the first branch for fixtures other than lawn sprinklers. (For meter sizes, see "meters.")

Immediately upon the extension of the service into the building the master plumber shall attach thereto a suitable cock or valve for the use of water for building construction under the provision of section 10. When extended to a rear building, the diameter of the pipe shall not be less than five-eighth ($\frac{5}{8}$) inch.

Cross-connected supplies to have check valves

Sec. 30. Where services are installed from different street mains to connect to a single main within the premise or where an auxiliary supply is connected to the supply from the street main, such installation shall be provided with suitable check valves on each service line and near the outlet of the meter.

Minimum diameter for fixture supply

Sec. 31. No fixture supply pipe shall be of a smaller diameter than herein provided:

Water Closet, Lavatory, Urinal.....	5/8 inch
Sink, Bath, Shower.....	1/2 inch
Lawn Sprinklers, Boilers.....	5/8 inch
Laundry Trays (per set).....	5/8 inch
Flushometer Valves (Urinal).....	3/4 inch
Flushometer Valves (Water Closet).....	1 1/4 inch

Diameter of Risers and Branch lines

Sec. 32. Risers shall be amply sized to serve the fixtures thereon, but in no case shall be of a smaller diameter than one-half (1/2) inch for the supply of not more than two fixtures whose minimum diameter is three-eighth (3/8) inch, or smaller than five-eighth (5/8) inch for fixtures whose minimum diameter is one-half (1/2) inch or five-eighth (5/8) inch. No branch from a riser, or from a main line, for the supply of fixtures, shall be less than one-half (1/2) inch, unless such branch be for the supply of one lavatory, urinal or water closet only, and is less than five (5) feet in length, in which case three-eighth (3/8) inch pipe may be used.

Riser, Cocks and Drains

Sec. 33. Each rising pipe or drop pipe shall be provided with a suitable cock or valve at its base, or connection with the main line, and shall have facilities for drainage. The formation of traps in the piping installation shall be avoided as far as possible, but when unavoidable such traps shall have suitable drain cocks.

Stop cocks on fixture branches

In all buildings, residences excepted, a separate cock or valve shall be placed in an accessible location for the control of branch lines to the series of fixtures.

Boiler cocks or valves

Each hot water boiler shall be provided with a stop cock or valve for the control of the cold water supply thereto independently of other fixtures.

Boilers

All boilers (for the domestic hot water service) shall be connected in a manner to prevent siphonage of the boiler or the interruption of the circulation between the boiler and the heating agency.

WATER METERS.

Water Meters

Sec. 34. Water meters shall conform in every respect with the MILWAUKEE WATER WORKS specifications for water meters, and shall be provided by the owner or occupant of the premise supplied with water, and tested and installed by the MILWAUKEE WATER WORKS only, on connections provided by the master plumber.

Elevator Indicators prohibited

The installation, transfer or replacement of any device for the measurement of the travel of a hydraulic elevator, in lieu of the measurement by meter, of the water consumed in the operation of the elevator, is strictly prohibited.

Diameter of Meters

Sec. 35. All meters shall be of the same diameter as the corporation cock or the branch connection with the city water main; provided—that no meter shall be of a smaller size than five-eighths (5/8) inch and further provided that when a one and one-half (1 1/2) inch lead service is connected to the main by means of a two (2) inch branch connection, as provided in section 28, the diameter of the meter may be one and one-fourth (1 1/4) inches. Where meters are installed "battery" form, each meter may be one size less than the connection with the water main.

Meters for Changed Service Conditions

Whenever the service requirements of a premise has been changed, and the installation of a meter in conformity with the provisions of this section shall be deemed improper for the service under such changed conditions, the Superintendent of Water Works and Water Purification may authorize the use, on the old service, of a meter of the size and type he shall determine most suitable under the changed conditions.

Type of Meters

Sec. 36. Meters of the five-eighth (5/8) to two (2) inch sizes, inclusive, shall be bronzed cased meters of the disc type. Meters of a size larger than two (2) inches, shall be bronze or iron cased meters of the compound type.

Type of meters for "special service" and "transfer"

Iron cased disc type meters and meters of the piston or plunger type may be used for the following services only:

- (A) For the meterage of "temporary," "construction" or "special improvement" services.

- (B) For the meterage of a building formerly controlled by such meter, though the building be moved to another location.
- (C) For the meterage on the same lot as formerly controlled of a new building or a building moved thereon.

Transfer of Meters

Sec. 37. The transfer of meters from one service to another, whether under the same or a new ownership, or the transfer of the ownership of a meter discontinued from service, will be granted only upon the filing of an order from the owner of the meter authorizing such transfer.

Meter location

Sec. 38. Meters must be installed on or above the floor of the basement or ground floor of the building just inside the building wall line nearest the street in which the connection is made with the city main, except where the building is more than fifty (50) feet from the lot line of the street in which the water connection is made, or where the fixtures or appurtenances are in an unheated building or open space, then the meter shall be placed not more than ten (10) feet inside the lot line in a pit or frostproof well of the form and dimension hereinafter provided. The installation of a meter in a pit below any plumbing fixture is strictly prohibited.

Each meter independent of any other meter

Each meter shall receive the water for measurement independent of any other meter, and the supply thereto shall be separately controlled by a stop cock at the curb. No connection or fitting other than those hereinafter provided for the connection of the meter, shall be inserted between the curb cock and the meter or between the meter and the meter outlet coupling or valve—*provided*—that connections for the installation of meters in "battery" shall not be construed a violation of this provision.

Meter connections 5/8-in. to 1-in.

Sec. 39. Connections for meters from five-eighth (5/8) inch to one (1) inch in size, inclusive, shall be provided with a round way nut and washer bottom brass cock for lead and iron pipe, and two brass meter couplings of the diameter of the meter. The meter cock and meter couplings shall be of a type conforming with the specifications of the MILWAUKEE WATER WORKS.

Connections for 1 1/4, 1 1/2, 2-in. meters

There shall be a space of not less than six (6) inches between the end of the meter outlet coupling and the turn of house pipe, to permit the installation of the meter box.

Connections for meters of the one and one-fourth (1 1/4), one and one-half (1 1/2) and two (2) inch sizes shall be provided with two brass body gate valves and galvanized iron unions. The gate valves shall be placed within one foot of the inlet and outlet of the meter, and each connection for these meters shall be provided with "swing joints" made up with nipples and elbows.

Connections for 3-in and larger meters

Connections for meters of a greater size than two (2) inches, shall be provided with iron body gate valves placed within two (2) feet of each side of the meter, and a T fitting having a two (2) inch side outlet, into which shall be screwed a two inch brass body gate valve. This T fitting shall be placed between the outlet side of the meter and the outlet valve and shall be for the exclusive use of the Milwaukee Works for meter test purposes. Each meter connection shall be provided with "swing joints" of nipples and elbows. The use of any flange union not of the standard of the meter is strictly prohibited.

Meter connection length

The diameter and length of connection pipe and the type of connection fittings for the various meter sizes shall be as follows:

Meter Size	Connection Length	Fittings
5/8 inch	3/4 inch iron pipe 7 1/2 inches long	meter cock and couplings
3/4 inch	1 inch iron pipe 9 inches long	meter cock and couplings
1 inch	1 1/4 inch iron pipe 10 1/2 inches long	meter cock and couplings
1 1/4 inch	1 1/4 inch iron pipe 22 1/2 inches long	two gate valves and unions
1 1/2 inch	1 1/2 inch iron pipe 22 1/2 inches long	two gate valves and unions
2 inch	2 inch iron pipe 23 inches long	two gate valves and unions
3 inch-12 inch	connection pipes and flanges furnished on installation of meter.	filing application for test and

Old connections

Sec. 40. In the repair, or change of connections, or the replacement of meters, the connections shall be made to conform with the standards above specified, and in the repair of connections for Worthington Piston meters the connections shall be of the standard as follows:

Meter Size	Connection Length	Fittings
5/8 inch	1 inch iron pipe 16 1/2 inches long	cock and brass couplings
3/4 inch	1 inch iron pipe 17 1/2 inches long	cock and brass couplings
1 inch	1 1/4 inch iron pipe 22 1/2 inches long	cock and brass couplings
1 1/2 inch	1 1/2 inch iron pipe 22 1/2 inches long	two gate valves and unions
2 inch	2 inch iron pipe 23 inches long	two gate valves and unions

3 inch to 6 inch connection standards on request.

Meter Wells

Sec. 41. Meter pits or frostproof wells for five-eighth (5/8) inch and three-quarter (3/4) inch meters shall be constructed of three full lengths (six feet) of salt glazed vitrified clay pipe of an internal diameter of twenty (20) inches, set hub end upward and provided with a special iron cover furnished by the MILWAUKEE WATER WORKS, the top of which cover shall finish flush with, or slightly above, the surface of the ground.

The bottom of the pit or well shall be free from any cement, brick, plank or other material, and the joints between the pipe and between the pipe and the cover shall be carefully cemented. The meter connection shall be twenty-two (22) inches from the top of the iron cover to the center of the connection and provided with brass meter couplings and two (2) brass body gate valves connected to the under ground lead service by galvanized iron pipe and brass soldering nipples.

Concrete Pits

Sec. 42. Pits for meters of greater size than three-quarter (3/4) inch, shall be constructed of concrete, having concrete bottoms and reinforced concrete tops, and provided with an iron or steel cover frame and cover. The cover shall be not less than 28 inches in diameter and provided with lifting ring. The cover frame shall be securely imbedded in the top slab and directly above three-quarter (3/4) inch round iron ladder rungs firmly anchored in the side wall of the pit.

The pit shall be drained to a sewer by a pipe not less than four (4) inches in diameter and having a deep seal trap. If no sewer is available the pit shall be provided with suitable facilities for the removal of water therein. The pit dimensions for the various meter sizes shall be as follows:

Pit Size	Meter Size	Length	Width	Depth
	1 inch to 2 inch (inclusive)	4 ft.	3 ft.	7 ft.
	3 inch to 6 inch (inclusive)	9 ft.	5 ft.	7 ft.
	8 inch	12 ft.	5 ft.	7 ft.

Pit sizes for "battery installation" and "fire service" meters on request.

AUTOMATIC SPRINKLER SYSTEMS.

Automatic Sprinkler Systems Applications

Sec. 43. No connection shall be made with the city main nor shall any pipe, the purpose of which is for Automatic Sprinkler Service, be installed in any premise until the provisions of section 3 have been complied with; provided that for the extension or alteration of any system no bond or fee shall be required.

Character of Pipe

How laid

Sec. 44. All underground fire service mains and fittings shall be cast iron bell and spigot Class "C" water pipe, and shall be laid on solid bottoms at a depth not less than six (6) feet from the surface, for outside installations, and not less than one (1) foot for inside installation. Pipes and fittings must be well braced or anchored to prevent damage by blow outs under pressure. Under no circumstances will the imbedding of mains in cinders or concrete be permitted.

Pipe in tunnels and above ground

Pipes above ground or in tunnels may be of wrought iron and fittings of cast iron screw joint. Where connection is made between a cast iron bell and spigot pipe, or fittings, and a threaded pipe or fitting, a special extension fitting of cast iron with spigot and threaded, or flanged, end must be used. The use of flanged gate or check valves in pits or above ground, or of flanged variable pressure valves shall not be construed contrary to this rule.

Connection with mains

Each Automatic Sprinkler Service main leading to the premise shall be connected to the city main by a single branch connection of a diameter no greater than six (6) inches.

No other supply connection

There shall be no connection on any part of the system for the purpose of receiving supply from any source other than the city service, nor shall there be any connection for the purpose of supplying water therefrom for any purpose other than fire protection.

Gate and Check Valves

The Automatic Sprinkler Service main shall be provided with an approved gate and check valve placed in a pit inside the building, or, if the building is more than twenty-five (25) feet from the lot line, in a concrete pit at the lot line. The check valve must be within two (2) feet of the inlet side of the gate valve and provided with a one-quarter, (1/4) inch brass gauge cock on each side of the check.

Fire Pump Suction and Primer

There shall be no direct connection of a suction pipe of a fire pump with the mains of the fire service or the city main. Such suction pipe must be connected with a reservoir or cistern supplied by city water only. Water for priming fire pumps or replenishing pressure tanks must be taken from the metered service of the building.

Test

All underground mains, inside the check valve of the fire service system, must be tested by the contractor in the presence of an inspector of the Milwaukee Water Works, who shall be notified twenty-four hours in advance of such test. The test shall be made by applying a water pressure of two hundred fifty (250) lbs. per square inch for at least fifteen (15) minutes. Any defective pipe or fitting shall be immediately removed.

SCHEDULE OF WATER RATES.

Class I—Meter Rates.

Water rates are made up of two items: first, a "service charge" against every meter to meet the cost of accounting, meter reading, delivery of bills, collection of accounts, etc.; second, a charge for water furnished to cover the cost of pumping and purifying the water, distribution, maintenance of plant, etc.

(a) Service Charge.

A uniform service charge of \$2.00 per annum shall be assessed against every meter, regardless of the size of meter, service pipe or the amount of water consumed. This charge to be billed quarterly in amounts of 50c per meter and shall be payable in the same manner and at the same time when water rates are due.

(b) Charge for Metered Water.

The charges for metered water for premises inside the city limits shall be uniform, to-wit: 7 cents per 100 cubic feet, equal to 9 1/3 cents per 1,000 gallons.

For water furnished for any purpose beyond the city limits, there shall be a uniform charge of 10 cents per 100 cubic feet, equal to 13 1/3 cents per 1,000 gallons.

No deductions to be made on account of any leakage or wastage.

Class II.

Unmetered service to private fire protection system (automatic sprinklers).

	Connection Size	
	4"	6"
For the whole or fractional part of each quarterly year's service—first year, per quarter.....	\$ 6.25	\$12.50
Annually thereafter	25.00	50.00

Where the private fire protection system (automatic sprinklers) is metered, the above connection charges shall be eliminated and in lieu thereof, an annual service charge of \$2.00 per meter in addition to the charge at the established rates for water consumed shall be made.

Class III.

Public Fire Hydrants, each.....	\$ 10.00
Public Drinking Troughs (large) each per annum.....	150.00
Public Drinking Troughs (small), each per annum.....	75.00
Public Bubblers, each per season (six months).....	50.00
Street Sprinkling and Flushing, per 1,000 gallons.....	.10
Flushing Sewers—	
For each 100 feet or less of 6" sewer.....	1.00
For each 100 feet or less of 8" sewer.....	1.20

For each 100 feet or less of 12" sewer.....	1.50
For each 100 feet or less of 15" sewer.....	1.75
For each 100 feet or less of 18" sewer.....	2.00
Settling Trenches—	
For each 100 feet or less of 2 feet wide trench.....	.50
For each 100 feet or less of 3 feet wide trench.....	.75
For each 100 feet or less of 4 feet wide trench.....	1.00
For each 100 feet or less of 5 feet wide trench.....	1.25
For each 100 feet or less of 6 feet wide trench.....	1.50
For each 100 feet of gas pipe trench.....	.50
Class IV—Construction Purposes.	
Brick, per 1,000.....	.05
Blocks—concrete, per 100 square feet.....	.10
Blocks—tile, per 100 square feet.....	.10
Cement—floor or walk, per 100 square feet.....	.10
Cement—curb and gutter, per 100 lin. feet.....	.15
Concrete, per cubic yard.....	.01
Grouting (pavement), per 1,000 square feet.....	.10
Plastering, per 100 square yards.....	.15
Concrete Mixers (steam), per week.....	1.00
Hoisting Engines (steam), small, per week.....	.50
Hoisting Engines (steam), large, per week.....	1.00
Pile Driver, per week.....	1.25
Street Rollers (steam), per week.....	1.00
Steam Shovel, per week.....	1.50
Trenching Machine, per week.....	1.50
Minimum charge for any permit.....	.50
Class V—Miscellaneous Purposes.	
Circuses and Exhibitions (small), per day.....	7.50
Circuses and Exhibitions (large), per day.....	15.00
Dog and Pony Show, per day.....	3.00
Filling cisterns per sprinkling tank (inside city), exclusive of cartage.....	.35
Filling cisterns per sprinkler tank (outside city), exclusive of cartage.....	.50
Filling steamship tanks, per tank.....	.50

Water required for purposes not specified in the foregoing schedule shall be at a rate fixed by the Commissioner of Public Works.

Milwaukee, Wis., October 18, 1920.

PERCY BRAMAN,
Deputy Commissioner of Public Works.

Laid over until the next regular meeting.

ALD. RADKE—

From the Committee on Water Works-Sewerage reported upon

FILE NUMBER 18734

Communication from His Honor the Mayor relative to making city party to action instituted by Mrs. John L. Mitchell to prevent the dumping of noxious industrial trade waste into the Kinnickinnic river.

(Printed in full in the Proceedings of October 4, 1920, at page 529.)

by recommending that it be indefinitely postponed.

Ald. Gauer moved separate action on the foregoing matter.

The motion prevailed.

Ald. Gauer moved that the foregoing matter be re-referred to the Committee on Water Works-Sewerage.

The motion prevailed.

ALD. RADKE—

From the Committee on Water Works-Sewerage reported upon

FILE NUMBER 17023

AN ORDINANCE

Ordering an extension to the Milwaukee Water Works in the shape of a filtration addition and providing for the issuance of mortgage certificates against the water works for the payment thereof. (Page 699.)

John L. Mitchell to prevent the dumping of noxious industrial trade waste into the Kinnickinnic river.

(Printed in full in the Proceedings of October 4, 1920, at page 529.)

reported thereon by recommending the adoption of the following resolution:

FILE NUMBER 18734

Whereas, Mrs. John L. Mitchell has instituted suit to prevent the dumping of noxious industrial waste into the Kinnickinnic river; and

Whereas, The City of Milwaukee is vitally interested in that the public health is constantly menaced by the conditions prevailing in the vicinity of the said Kinnickinnic river; therefore be it

Resolved, By the Common Council of the City of Milwaukee, that the City Attorney be and he hereby is directed to make the City of Milwaukee a party to that certain suit instituted by Mrs. John L. Mitchell to prevent the dumping of noxious industrial waste into the Kinnickinnic river toward the end that this nuisance be abated and the public health and welfare in that vicinity promoted.

Adopted.

ALD. JANICKI presented the following:

FILE NUMBER 18790

Milwaukee, December 13, 1920.

To the Honorable the Common Council:

Your Committee on Water Works-Sewerage, to which was re-referred

FILE NUMBER 18790

Communication from Percy Braman, Esq., Deputy Commissioner of Public Works, transmitting proposed rates, rules and regulations governing the introduction, supply and consumption of water furnished by the Water Works of the City of Milwaukee.

(Schedule printed in full in the Proceedings of November 15, 1920, at pages 667 to 678, inclusive.)

together with resolution relating thereto.

(As printed in full in the Proceedings of November 1, 1920, at page 630.)

reports thereon by the following substitute resolution and recommends its adoption.

FILE NUMBER 18790

Resolved, That the rates, rules and regulations governing the introduction, supply and consumption of water furnished by the Water Works of the City of Milwaukee, as prescribed, made and submitted to the Common Council by the Deputy Commissioner of Public Works on October 18, 1920, and printed in full in the Proceedings of November 15, 1920, be and the same are hereby amended as follows:

Amend Section 13 by striking out the following: "Chapter 383, Laws of 1919," where same appears in the ninth and tenth printed lines from the top of page 670 of the Proceedings of the regular meeting held November 15, 1920, and inserting in lieu thereof the

following: "Chapter 731, Laws of 1913, as amended by Chapter 383, Laws of 1919, Sections 959-53 to 959-58, inclusive, of the Statutes;" further, amend Section 44 under the side heading "Fire Pump Suction and Primer" by striking out the words "Suction and" where they appear in said side heading at page 677; further, amend by striking out the following: "There shall be no direct connection of a suction pipe of a fire pump with the mains of the fire service or the city main. Such suction pipe must be connected with a reservoir or cistern supplied by city water only" where same appears in the ninth, tenth and eleventh printed lines from the top of page 677; further amend by striking out the following: ".10" where same appears under the heading "Schedule of Water Rates, Class III" in the fourth printed line from the bottom of page 677, after the words and figures "Street Sprinkling and Flushing, per 1,000 gallons," and inserting in lieu thereof the following: ".09 1/2;" and be it further

Resolved, That the aforesaid rates, rules and regulations, as amended, be and the same hereby are accepted and approved by the Common Council.

HENRY BULDER,
ALBERT JANICKI,
HERMAN O. KENT,
ARTHUR SHUTKIN.

Substitute accepted and substitute resolution adopted.

ALD. GROGAN IN THE CHAIR.

PRESIDENT CORCORAN IN THE CHAIR.

ALD. RADKE—

From the Committee on Water Works-Sewerage reported upon the following matters, viz.:

FILE NUMBER 18946

Communication from Percy Braman, Esq., Deputy Commissioner of Public Works, transmitting resolution authorizing the sale of two vertical automatic engines and dynamos at North Point Pumping Station.

(As printed in full in the Proceedings of November 29, 1920, at page 750.)

by recommending the adoption of the said resolution.

Adopted.

FILE NUMBER 18948

Communication from Percy Braman, Esq., Deputy Commissioner of Public Works, transmitting resolution for construction of sections of sewers in Grove street and Pease street.

(As printed in full in the Proceedings of November 29, 1920, at page 750.)

by recommending the adoption of the said resolution.

Adopted.

FILE NUMBER 18949

Communication from Percy Braman, Esq., Deputy Commissioner of Public Works, transmitting resolution providing for cancellation of contract number 174, awarded to J. B. Forrestal Co., for laying pipe.