

Water Meter Notes: Flood Zone Properties

New York City
Department of Environmental Protection

Bureau of Customer Services



January 28, 2015

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Definitions and Abbreviations

AMR – Automated Meter Reading. The use of radio transmitters wired to water meters to read the meter and transmit readings to a central location.

BFP Backflow Preventer

DCV Double Check Valve

DFE Design Flood Elevation

Heat Tracing A generic term for a low-power wire or cable system wrapped around piping with insulation to prevent pipes from freezing, usually powered through a standard electrical receptacle

LMP refers to Licensed Master Plumber, in this case licensed by the New York City Department of Buildings.

Meter Setting Refers to a water meter, inlet and outlet isolation valves, a test port or test tee connection and associated pipe and fittings.

MTU – Meter Transmission Unit: a DEP-supplied electronics box that is wired to the meter, which then reads the meter and transmits the readings. The MTU is mounted on the exterior surface of the building, in this case above a projected flood level.

RPZ Refers to a Reduced Pressure Zone backflow prevention device.

Executive Summary

1. With the rare exception of properties that are required to have an RPZ-type BFP device, buildings in flood zones are not required to elevate water meters and BFP's. This is because water meters are constructed in a manner that prevents water from entering or accumulating when submerged.
2. All buildings constructed in flood zones must follow two specific construction precautions:
 - a. All exposed piping must be heat traced and insulated.
 - b. The water meter's remote communication wire must be located on an exterior wall and vertically elevated either at least six feet above the ground or above the DFE specified in Appendix G of the New York City Building Code, whichever is higher. If a building is close to the shoreline

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remote communication wiring shall be mounted with an orientation so as to not face the water. Water meters are generally supplied with a “remote pad.” The LMP mounts the remote pad on the exterior wall and DEP will replace the pad with an MTU when it performs its inspection of the meter installation. As an alternative, water meter distributors may be able to supply an inexpensive MTU mounting bracket.

General Requirements for all Meter Installations 5/8” Through 2”

- Attached Schematic Plans 7, 7A, 7B and 9 provide general layout and equipment placement.

Meter Location

- Indoor meters must be located within view of the point of entry; positive displacement meters within three feet of the point of entry
- Meters located in outdoor pits/vaults or above-ground enclosures need to be located as close to the building as possible.
- Meters shall be installed between 18” and 48” above a finished floor or the ground.

Meter Settings: General

- For all meters except for positive displacement and single-jet types, straight pipe equal to five pipe diameters must be provided before the meter and equal to three pipe diameters must be provided after the meter. Straight pipe length includes any strainer and any normally-open valve. The water meters used in most small residential and commercial properties are positive displacement or single-jet types that do not require straight pipe, but the requirement does apply to 1½” and 2” electromagnetic meters that some plumbers might wish to use on properties with full fire sprinkler installations.
- A meter manufacturer strainer must be installed for all turbine type meters.
- Unmetered bypasses are not permitted

Valves

- Meter inlet and outlet valves must be provided, in addition to the house control valve
- Meter inlet and outlet valves shall be full-port ball valves up through 2” and epoxy-coated resilient-seated standard gate valves for larger sizes (not OS&Y, unless the water service supplies fire protection sprinklers)
- A line-sized plain tip test tee must be located before the outlet valve up through 1.5” meters and either 1.5” or 2” test tees for sizes 2” and larger
- If a BFP is present the outlet valve may be located after the BFP to serve both the meter and the BFP but if the BFP and meter are on different floors each set shall have its own outlet valve

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Connections

- For 1½” and larger meters, connections from the outlet of the house valve through the outlet side of the meter must be flanged. All mechanical connections from the house valve through the outlet valve must be drilled with holes of at least 3/23” for seal wire. This must be included as a note on the drawings.
- Bolts shall be stainless steel or a bronze alloy of at least 57% copper. Galvanized bolts are not permitted.

MTU Location

Remote communication wire (22 gauge, single-stranded three-conductor solid copper wire, red, green, black) shall be run to a location on the exterior wall above the projected flood line. The MTU shall be furnished and installed by DEP upon inspection of the meter installation work. The MTU location shall face inland.

METERS FOR SERVICES 2” AND SMALLER WITHOUT FIRE PROTECTION SPRINKLERS		
Meter Model	Register Model	Sizes
Badger Recordall - EnviroBrass II or Bialloy version (Displacement)	ADE or HRE	5/8” - 2”
Elster evoQ4 Electronic	Scancoder emulation	1½” and 2”
Hersey (Mueller) IIS, EnviroBrass II Models 430, 442, 452, 562 and 572 (Displacement)	Translator Encoder	5/8” - 2”
Metron-Farnier Spectrum (Single-Jet)	Innov8	5/8” - 2”
Neptune T10 (Displacement)	E-Coder	5/8” - 1½”
Sensus SR11-BA (BiAlloy only)(Displacement)	Electronic	5/8” - 1”
Sensus Accustream (Displacement)	Electronic	5/8” - 1”
Sensus Omni C2 (Turbine)	Full electronic register	1½” and 2”

METERS FOR SMALLER DOMESTIC SERVICES <u>WITH</u> FIRE PROTECTION SPRINKLERS		
Meter Model	Register Model	Sizes
Elster evoQ4 Electronic	Scancoder emulation	1½” and 2”
Metron-Farnier Spectrum	Innov8	1½” and 2”
Sensus OMNI C2 or T2	Full electronic register	1½” and 2”

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Special Requirements for Buildings Located in a Flood Zone

Pipe Insulation and Heat Tracing

All exposed piping shall be heat traced and insulated.

Equipment and Pipe Support

Meters and backflow preventers located at heights above four (4) feet must be supported by a platform, unless the equipment is placed inside the building (utility room or equivalent).

Meters and backflow preventers at standard heights (18" – 48") shall be supported by permanent supports anchored to the floor, wall or piling.

MTU Placement

DEP will install the MTU but the Licensed Master Plumber or designee needs to run remote communication wire from the three connections at the meter register to a location on the exterior where a meter manufacturer's "remote pad" may be placed. Meter distributors may be able to provide an MTU mounting bracket that will make it easier to provide a remote wire termination location. DEP will replace the remote pad with an MTU or install an MTU on the mounting bracket when they inspect the meter installation.

Plans and Details

- Submissions, when required, shall include both a plan and an elevation view.
- Schematic Plans 7, 7A, 7B and 9 provide general layout and equipment placement.

Acknowledgements

Thanks go to staff of the following organizations for their comments and guidance:

Mayor's Office of Housing Recovery Operations
New York City Department of Buildings
New York City Department of Housing Preservation and Development
New York City Department of Environmental Protection, Bureau of Water and Sewer Operations

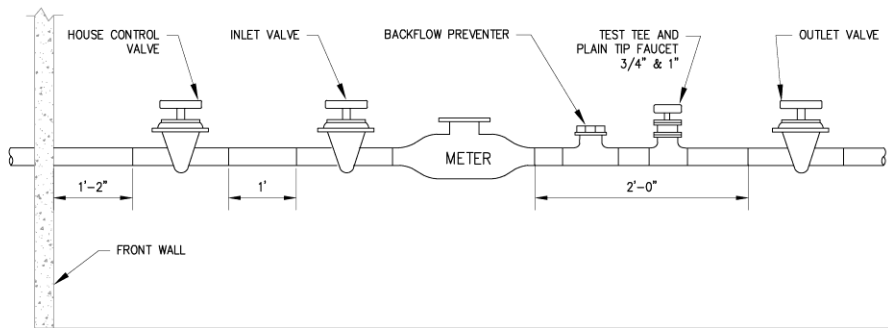
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NOTES:

1. METER SETTING TO BE PROPERLY SUPPORTED WITH PERMANENT SUPPORTS ANCHORED TO FLOOR OR WALL.
2. VALVES UP THROUGH 2" MAY BE FULL PORT BALL VALVES.
3. FOR 1.5" AND 2" DISPLACEMENT METERS THE TEST ASSEMBLY SHALL BE AS SHOWN IN FIGURE 9A.
4. WHERE A BACKFLOW PREVENTER IS REQUIRED, THE BACKFLOW PREVENTER SHALL BE INSTALLED BETWEEN THE METER AND THE TEST TEE.
5. SEE RCNY CHAPTER 20-05 FOR SPECS.



TYPICAL METER SETTING
NEW INSTALLATION WITH BACKFLOW PREVENTER
N.T.S.
FOR DISPLACEMENT METERS
FIGURE 7A



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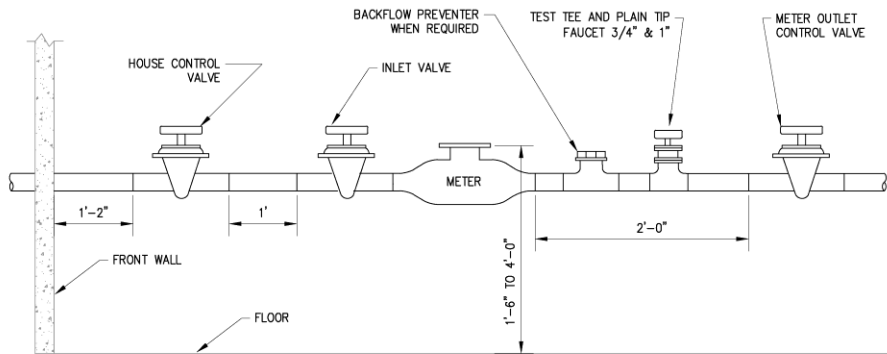
FIGURE 7A

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NOTES:

1. METER SETTING TO BE PROPERLY SUPPORTED WITH PERMANENT SUPPORTS ANCHORED TO FLOOR OR WALL
2. VALVES UP THROUGH 2" MAY BE FM/UL FULL PORT BALL VALVES.
3. FOR 1.5" AND 2" METERS THE TEST ASSEMBLY SHALL BE SHOWN IN FIG 9A.
4. WHERE A BACKFLOW PREVENTER IS REQUIRED, THE BACKFLOW PREVENTER SHALL BE INSTALLED BETWEEN THE METER AND THE TEST TEE.
5. IF SPACE PERMITS PROVIDE FIVE(5) PIPE DIAMETERS OF STRAIGHT PIPE BEFORE AND THREE(3) PIPE DIAMETERS OF STRAIGHT PIPE AFTER THE METER(RECOMMENDED, NOT REQUIRED) IF SPACE IS NOT AVAILABLE.
6. STRAINER(FLAT PLATE TYPE) OPTIONAL
7. SEE RCNY CHAPTER 20-05 FOR SPECS.



1"-2" DOMESTIC SERVICE WITH FIRE PROTECTION
SPRINKLERS FOR SINGLE-JET AND ELECTRONIC METER

FIGURE NO. 7B

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FIGURE 7B

Water Meter Notes: Flood Zone Properties

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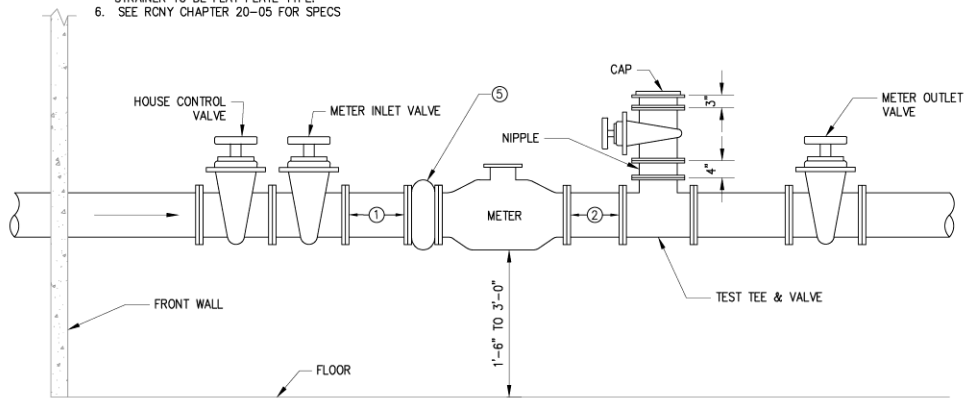
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NOTES:

1. 5 X PIPE DIAMETER(MINIMUM) WHEN REQUIRED
2. 3 X PIPE DIAMETER(MINIMUM) WHEN REQUIRED
3. METER SETTING TO BE PROPERLY SUPPORTED WITH PERMANENT SUPPORTS ANCHORED TO FLOOR OR WALL.
4. VALVES UP THROUGH 2" MAY BE FULL - PORT BALL VALVES.
5. STRAINER NOT REQUIRED FOR SINGLE-JET OR ELECTRONIC METERS. ANY STRAINER TO BE FLAT PLATE TYPE.
6. SEE RONY CHAPTER 20-05 FOR SPECS

GENERAL NOTE:

SEE TEXT OF RULE: COMPOUND METER STATUS.



TYPICAL FOR COMPOUND, TURBINE SINGLE-JET,
AND ELECTRONIC METERS WITHOUT BACKFLOW PREVENTER
FIGURE 9 (N.T.S)



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FIGURE 9

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Figure 1 Meter Remote Pads (No Longer Used by DEP)

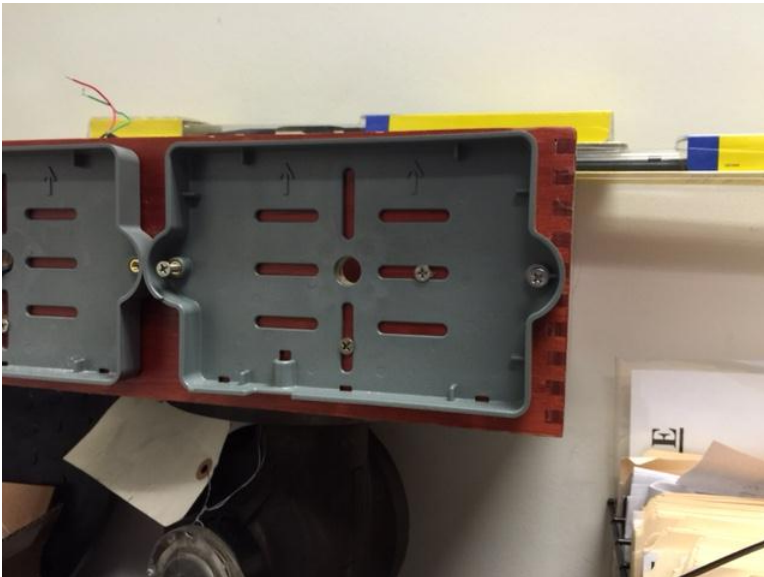


Figure 2 MTU Mounting Bracket