



2022 CHANGES TO MECHANICAL, FUEL GAS, & PLUMBING CODES

build safe | live safe

presented by
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PRESENTATION DESCRIPTION

In this presentation, participants will review the changes to the 2022 Mechanical, Fuel Gas, and Plumbing Codes, thereby protecting the health, safety and welfare of building occupants. Examples of new and revised items include changes to key definitions, new requirements for structural safety, and the new requirements for the alterations of chimneys and vents.

2022 NEW YORK CITY MECHANICAL CODE

MC SECTION 107 – CONSTRUCTION DOCUMENTS

■ 107.8 Air-conditioning and ventilating systems.

Construction documents for air-conditioning and ventilating systems shall contain plans that include the following data and information:

1. The location and sizes of all ducts; the location of all fire and smoke dampers, motors, fans, and filters; the type, air capacity, and size of all equipment; and...the operating weight and manner of support of equipment.
2. The locations of smoke detecting devices.
3. The location and size of the fresh air intake, the design population, and the required ventilation for each... space.
4. The amount of air to be exhausted or supplied from each outlet for each room or space.
5. In the case of ventilating or exhaust systems for ranges, fryers, ovens, and other similar types of restaurant or bakery equipment, for which a hood is required, the plans shall also show the type of extinguishing system, the location of heat detection devices, nozzles, piping, gas controls, manual and automatic control valves, method of joining ducts, method and location of discharging exhaust from building, the location of break-glass controls, and the quantity in cfm designed for each hood.
6. The safety group classification of refrigerant utilized, if any.
7. The refrigerant concentration limit calculations and routing of all refrigerant piping for any air-conditioning system that contains more than 6.6 pounds (3.0 kg) of refrigerant. Refer to Chapter 11 for refrigerant piping requirements.

MC SECTION 301.3 – IDENTIFICATION

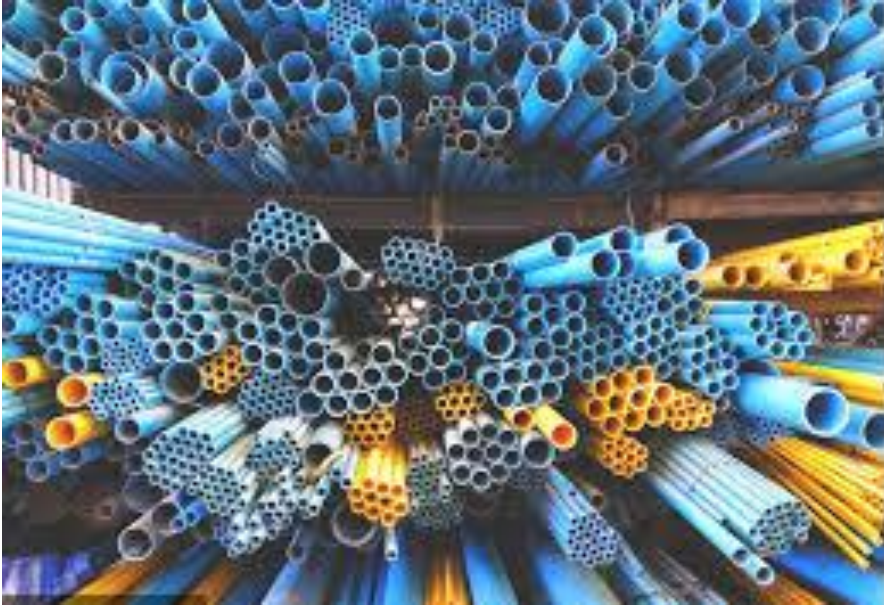


■ 301.3 Identification.

All pipe and tubing and each pipe fitting utilized in a mechanical system shall bear the identification of the manufacturer.

- **Analysis:** New section. Manufacturer has the option of determining the type of marking for the material. If there is no applicable standard or the applicable standard does not require that a material be identified, identification of the manufacturer is still required by the code.

MC SECTION 301.4 – PLASTIC PIPE



Source: <http://www.homestratosphere.com/pvc-pipe-and-fittings-sizes/>

- **301.4 Plastic pipe, fittings and components.**
Plastic pipe, fittings and components shall be third-party certified.

- ***Analysis:*** *New section. Plastic piping, fittings and plastic pipe-related components, including solvent cements, primers, tapes, lubricants and seals used in mechanical systems, must be tested and certified.*
- *This includes all piping and fittings and plastic piping system components, including but not limited to pipes, fittings, valves, joining materials, gaskets and appurtenances.*

MC SECTION 301.5 – TESTING & CERTIFICATION



Source: <https://www.opss.org/article/third-party-certification-why-its-important/>

■ 301.5 Third-party testing and certification.

Piping, tubing and fittings shall comply with the applicable referenced standards, specifications and performance criteria of this code and shall be identified in accordance with Section 301.3. Piping, tubing and fittings shall either be tested by an approved third-party testing agency or certified by an approved third-party certification agency.

- **Analysis:** New section. The term “third party” refers to an outside organization with no financial or other interest in the outcome.
- The term “tested” means that the product or material was initially tested, a report or documentation was developed, but retesting at a later date is not performed.
- The term “certified” means that the product or material was initially tested, and a program of periodic testing ensures that the product or material continues to meet the specified requirements.

MC SECTION 302.3 – STRUCTURAL

■ 302.3 Cutting, notching and boring in wood members.

The cutting, notching and boring of wood members shall comply with Sections 302.3.1 through 302.3.5.

MC Chapter 3	FGC Chapter 3	BC Chapter 23
MC 302.3.1 Solid non-engineered joist notches and holes.	FGC 302.3.1 Solid non-engineered joist notches and holes.	BC 2308.5.8 Pipes in walls
MC 302.3.2 Stud cutting and notching.	FGC 302.3.2 Stud cutting and notching.	BC 2308.5.9 Cutting and notching.
MC 302.3.3 Bored holes in studs.	FGC 302.3.3 Bored holes in studs.	BC 2308.5.10 Bored holes.
MC 302.3.4 Engineered wood products.	FGC 302.3.4 Engineered wood products.	BC 2308.4.3 Engineered wood products.
MC 302.3.5 Drilling and notching of top plate.	FGC 302.3.5 Drilling and notching of top plate.	BC 2308.5.8 Pipes in walls

- **Analysis:** *This MC section introduces the subsections which duplicate and align with the structural wood requirements that were in the 2014 BC and are now also in BC 2308 and FGC 302.*

MC SECTION 401.2 – MECHANICAL VENTILATION

■ 401.2 Ventilation required.

Habitable and occupiable spaces shall be provided with ventilation in accordance with this section.

1. Every occupiable space shall be:

1.1 Naturally ventilated in accordance with Section 402 and mechanically exhausted in accordance with Table 403.3.1.1; or

1.2 Mechanically ventilated in accordance with Section 403.

2. All habitable spaces and occupiable spaces provided with air conditioning shall be mechanically ventilated in accordance with Section 403.

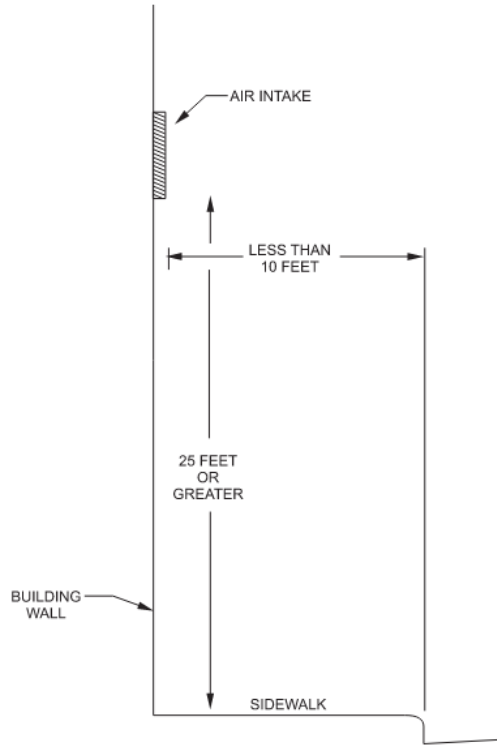
3. Every habitable space shall be naturally ventilated in accordance with Section 402.

4. Every habitable space shall be mechanically ventilated if required by Section 403.

Ambulatory care facilities (Group B) and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.

- **HABITABLE SPACE.** All rooms and spaces within a dwelling unit in Group R or I-1, including bedrooms, living rooms, studies, recreation rooms, kitchens, dining rooms and other similar spaces.

MC SECTION 401.4 – INTAKE LOCATION



■ 401.4 Intake opening location.

Ventilation air intake openings shall comply with all of the following:

...

3. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, exhausts (including but not limited to exhaust from dry cleaning establishments, spray booths, and cooling towers), streets, alleys, parking lots and loading docks, except as specified in Item 3 of Section 501.3.1.

Outdoor air intake openings shall be permitted to be located less than 10 feet (3048 mm) horizontally from streets, alleys, parking lots and loading docks provided that the openings are located not less than 25 feet (7620 mm) vertically above such locations. Where openings front on a street or public way, the distance shall be measured from the closest edge of the street or public way.

■ **Analysis:** New allowance

MC SECTION 403 – OUTDOOR AIR

- 403 Mechanical ventilation.
- 403.2 Outdoor air required.

The minimum outdoor airflow rate shall be determined in accordance with Section 403.3.1.1.



Exception: The minimum required rate of outdoor air may be reduced where the registered design professional demonstrates that an engineered ventilation system is designed in accordance with ASHRAE 62.1 Indoor Air Quality Procedure.

- **Analysis:** New as-of-right alternative compliance path for minimum outdoor air.

MC SECTION 403.3 – OUTDOOR AIR

- **403.3 Outdoor air and local exhaust airflow rates.**

Buildings that are not more than three stories in height above grade plane, and that

- (i) are within Occupancy Group R-2 or Occupancy Group R-3,
- (ii) are adult homes or enriched living housing as described in Section 308.3.1 of the New York City Building Code, within Occupancy Group I-1 and have 16 occupants or fewer, or
- (iii) are community residences or intermediate-care facilities as described in Section 308.3.2 of the New York City Building Code,

shall be provided with outdoor air and local exhaust in accordance with Section 403.3.1.1.2.

All other buildings intended to be occupied shall be provided with outdoor air and local exhaust in accordance with Sections 403.3.1.1 through 403.3.1.6.

- ***Analysis:*** *New section segregates mechanical ventilation provisions into three residential categories; consistent with the Division of Coverage in 2016 ASHRAE 62.1 and 62.2.*

MC SECTION 403.3.1.1 – VENTILATION RATES

- **Table 403.3.1.1 Minimum Ventilation Rates.**

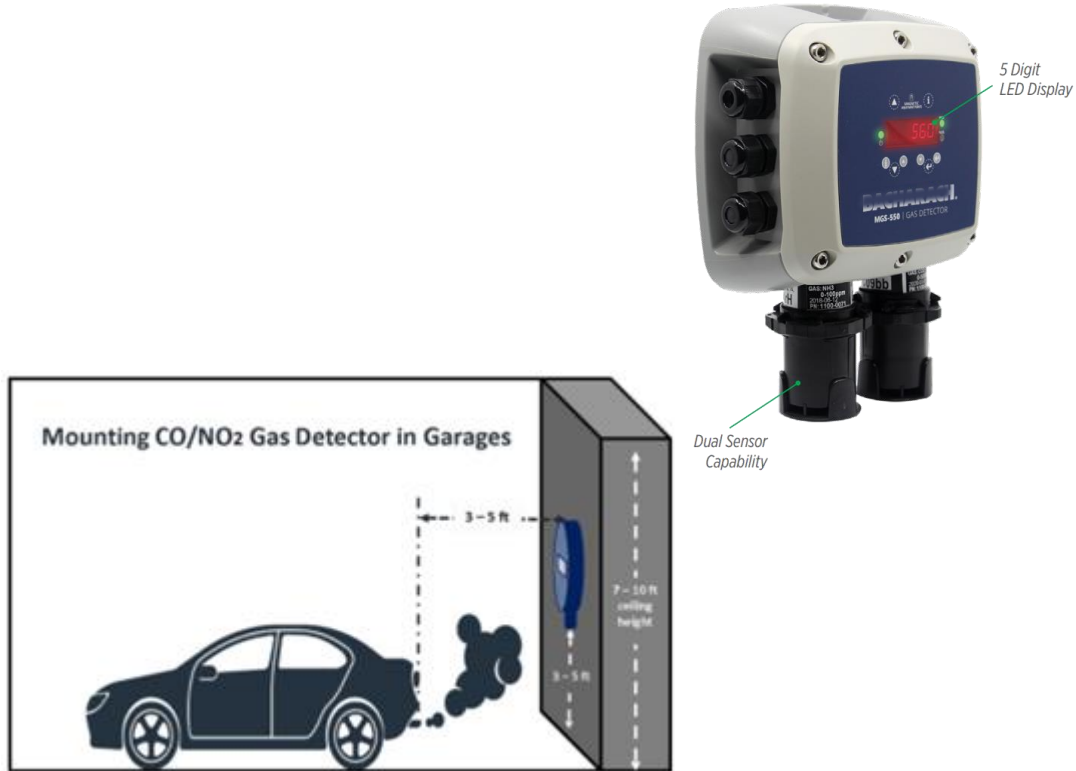
Footnotes

(i) For each dwelling unit within R-2 occupancies, outdoor ventilation air shall be provided by mechanical means **when the sum of all exhaust air flow rates**, whether continuous or intermittent, is designed to **exceed 75 cfm**. When provided, mechanical ventilation air flow rate shall be approximately **equal to the exhaust air flow rate** in accordance with Section 403.1 and shall not be less than that required by the air flow rates prescribed in Table 403.3.1.1. **For such dwelling units, manually operated openable exterior wall openings shall not be used to provide required mechanical ventilation air.**

(m) Exception: kitchens and kitchenettes in dwelling units of R-2 occupancy may be naturally ventilated in accordance with Section 402.

- **Analysis:** Table is reorganized significantly. New and revised footnotes address mechanical kitchen ventilation in R-2 (residential buildings more than 2 dwellings)

MC SECTION 404.1 – ENCLOSED PARKING



- **404.1 Enclosed parking garages.** Where mechanical ventilation systems for enclosed parking garages **operate intermittently**, such operation shall be automatic by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be installed in accordance with their manufacturers' instructions. Such systems shall **operate automatically upon detection of a concentration of carbon monoxide of 25 parts per million (ppm) or nitrogen dioxide of 500 parts per billion (ppb).**

- **Analysis:** Does not address repair garages. Exhaust system shall intermittently operate automatically when excess levels of CO and NO2 are present. Note, CO & NO2 levels are NYC specific.

MC SECTION 502.4 – SSBS SUPERVISION



- **502.4 Stationary storage battery systems.**

Stationary storage battery systems, as regulated by Section 608 of the New York City Fire Code, shall be provided with ventilation in accordance with this chapter, Section 502.4.3 and either Section 502.4.1 or 502.4.2.

Exception: Lithium-ion batteries shall not require ventilation.

- **502.4.3 Supervision.**

Mechanical ventilation systems required by Section 502.4 shall be supervised with proof of airflow by a central, proprietary system or remote station service or shall initiate an audible and visual signal at a constantly attended on-site location.

- **Analysis:** Supervised system and/or Signal at a constantly attended location are required to reduce likelihood that the concentration of hydrogen will ever reach 1% limit, thereby being an explosion hazard (Reference: MC 502.4.1 - 502.4.3)

MC SECTION 502.7.3.3.1 – SPRAY BOOTHS (OPEN)



- **502.7.3.3.1 Open face or open front spray booth.**
For spray application operations conducted in an open face or open front spray booth, the ventilation system shall be designed, installed and maintained so that the average air velocity into the spray booth through all openings is not less than **100 feet per minute** (0.51 m/s).
Exception: For fixed or automated electrostatic spray application equipment, the average air velocity into the spray booth through all openings shall be **not less than 50 feet per minute** (0.25 m/s).

- **Analysis:** Ensures flammable vapors are kept within a designated spraying space to limit the amount of overspray. Exception allows for reduced velocity.

MC SECTION 502.7.3.3.1 – SPRAY BOOTHS (CLOSED)

- **502.7.3.3.2 Enclosed spray booth or spray room with openings for product conveyance.**

For spray application operations conducted in an enclosed spray booth or spray room with openings for product conveyance, the ventilation system shall be designed, installed and maintained so that the average air velocity into the spray booth through openings is not less than 100 feet per minute (0.51 m/s). For occupied spray booths and occupied spray rooms, the air velocity at the point of application shall not be less than 100 feet per minute (0.51 m/s).

Exceptions:

1. For fixed or automated electrostatic spray application equipment, the average air velocity into the spray booth through all openings shall be not less than 50 feet per minute (0.25 m/s).
2. Where methods are used to reduce cross drafts that can draw vapors and overspray through openings from the spray booth or spray room, the average air velocity into the spray booth or spray room shall be that necessary to capture and confine vapors and overspray to the spray booth or spray room.

- **Analysis:** *Exceptions allow reduced air velocity for enclosed spray spaces.*

MC SECTION 505.4 – DOMESTIC KITCHEN EXHAUST

■ 505.4 Other than Group R.

All domestic cooking appliances installed in cafeterias and in Group A-1, A-2, A-4, A-5, and M occupancies shall be provided with hoods and exhaust systems as required for the type of appliances and processes in accordance with Sections 506 and 507. In other than Group R occupancies, **domestic appliances may be provided with domestic kitchen exhaust systems** ducted to outdoors in accordance with this section provided that the installation complies with all of the following:

1. No more than two domestic cooking appliances are installed in each fire separated room or tenancy in other than Group E occupancies;
2. Each appliance shall have electric or gas connections and nameplate ratings not to exceed 10kW for electric appliances or 75,000 Btu/h for gas appliances. Branch gas connections shall not be larger than ¾ inch (19.1 mm) pipe;
3. The appliances shall not include open top broilers or fryers; and
4. The appliances are used for periodic, non-commercial, non-revenue generating purposes, except for in Group A-3 occupancies, where such appliances may be used a maximum of 8 hours per week to generate revenue.

MC SECTION 507.1 – COMMERCIAL KITCHENS

■ 507.1 General.

Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above all commercial cooking appliances in accordance with Section 507.2 and 507.3. Where any cooking appliance under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust equipment and makeup air system shall comply with the requirements of Sections 506, 507, 508 and 509. Where total kitchen hood exhaust airflow rate is greater than 5,000 cfm or as required by the New York City Energy Conservation Code, each hood shall be a factory-built commercial exhaust hood listed by a nationally recognized testing laboratory in compliance with UL 710.

Exceptions:

1. Factory-built commercial exhaust hoods that are listed and...
2. Hoods used...
3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.

MC SECTION 601.4 – POSITIVE PRESSURE

- **601.4 Contamination prevention.**

Exhaust ducts under positive pressure, chimneys and vents shall not extend into or pass through ducts or plenums.

Exceptions:

1. Exhaust systems conveying Class 1 or Class 2 air in accordance with ASHRAE 62.1, located in return air plenums and that have exhaust duct joints, seams and connections that comply with Section 603.9 without taking any exceptions. Such exhaust system and plenum shall be subject to **special inspection in accordance with Section 1705.39** of the New York City Building Code and ... **periodic inspection in accordance with Section 602.6** of this code.
2. This section shall not apply to chimneys and vents for appliances with a heat input not greater than 350,000 Btu/hr (103 kW) that pass through plenums provided that such venting systems are subject to **special inspection in accordance with Section 1705.39** of the New York City Building Code and shall be subject to **periodic inspection in accordance with Section 602.6** of this code and comply with one of the following requirements:
 - 2.1. The venting system shall be listed for positive pressure applications and shall be sealed in accordance with the vent manufacturer's instructions.
 - 2.2. The venting system shall be installed such that fittings and joints between sections are not installed in the above ceiling space.
 - 2.3. The venting system shall be installed in a conduit or enclosure with sealed joints separating the interior of the conduit or enclosure from the ceiling space.

MC SECTION 603.4 – METAL DUCTS IN DWELLINGS

TABLE 603.4
DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESS FOR SINGLE DWELLING UNITS^a

ROUND DUCT DIAMETER (inches)	STATIC PRESSURE			
	$\frac{1}{2}$ -inch water gage		1-inch water gage	
	Thickness (inches)		Thickness (inches)	
	Galvanized	Aluminum	Galvanized	Aluminum
< 12	0.013	0.018	0.013	0.018
12 to 14	0.013	0.018	0.016	0.023
15 to 17	0.016	0.023	0.019	0.027
18	0.016	0.023	0.024	0.034
19 to 20	0.019	0.027	0.024	0.034
RECTANGULAR DUCT DIMENSION (inches)	STATIC PRESSURE			
	$\frac{1}{2}$ -inch water gage		1-inch water gage	
	Thickness (inches)		Thickness (inches)	
	Galvanized	Aluminum	Galvanized	Aluminum
≤ 8	0.013	0.018	0.013	0.018
9 to 10	0.013	0.018	0.016	0.023
11 to 12	0.016	0.023	0.019	0.027
13 to 16	0.019	0.027	0.019	0.027
17 to 18	0.019	0.027	0.024	0.034
19 to 20	0.024	0.034	0.024	0.034

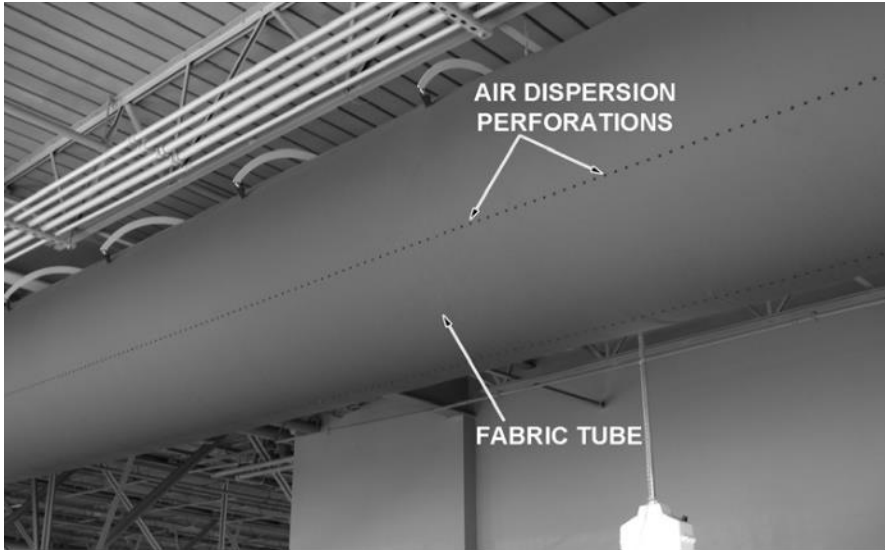
For SI: 1 inch = 25.4 mm, 1-inch water gage = 249 Pa.

a. Ductwork that exceeds 20 inches by dimension or exceeds a pressure of 1-inch water gage shall be constructed in accordance with SMACNA/ANSI HVAC Duct Construction Standards—Metal and Flexible.

- 603.4 Metallic ducts.**
Metallic ducts shall be constructed as specified in the SMACNA /ANSI HVAC Duct Construction Standards—Metal and Flexible.
Exception:
Ducts installed within single dwelling units shall have a minimum thickness as specified in Table 603.4.

- Analysis:** New allowance for 30 gage sheet metal, recognizing lower volume, pressure, and velocity within dwellings

MC SECTION 603.17 – AIR DISPERSION



- **603.17 Air dispersion systems.**

Air dispersion systems shall:

1. Be installed entirely in exposed locations or in underfloor air supply plenums.
2. Be utilized in systems under positive pressure.
3. Not pass through or penetrate fire-resistant-rated construction.
4. Be listed and labeled in compliance with UL 2518.

- **Analysis:** *New allowance air dispersion systems as an acceptable method to provide supply air if exposed, or if provided in underfloor plenums. Systems are NOT ducts.*

MC SECTION 701.2 – COMBUSTION/VENT/DILUTION

- **701.2 Combustion, ventilation, and dilution air required.**

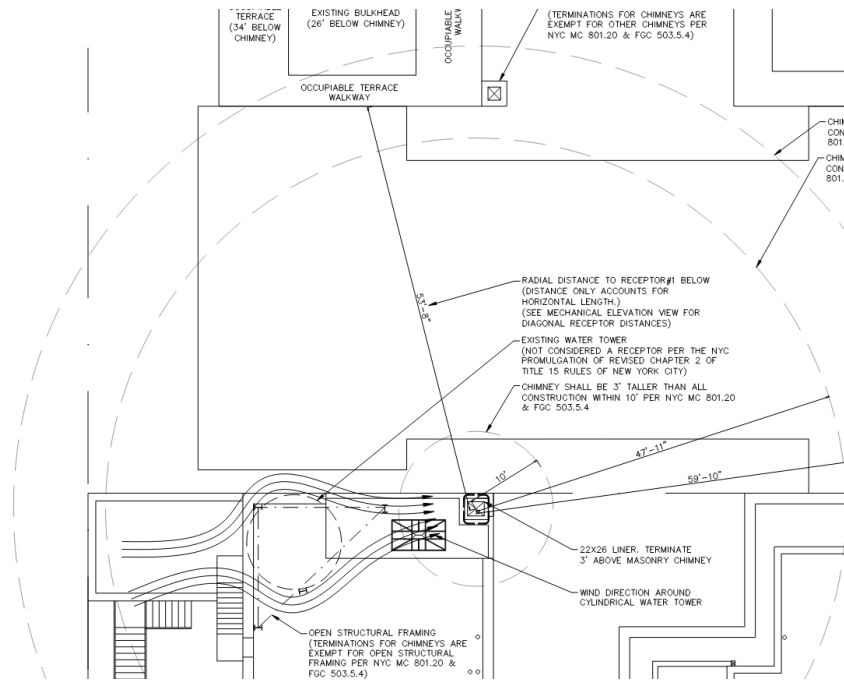
...The room or space containing fuel-burning appliances shall comply with the requirements of Sections C402.5.3 and R402.4.4, as applicable, of the New York City Energy Conservation Code and Section 1012 of this code.



Source: [ontario.ca/fire-prevention-and-protection](https://www.ontario.ca/fire-prevention-and-protection)

- **Analysis:** *Coordinate requirements for rooms containing fuel-burning appliances with the design requirements in NYC ECC and maximum temperature requirements in MC 1012*

MC SECTION 801.1.1 – EXISTING CHIMNEYS/VENTS



■ 801.1.1 Existing chimneys and vents.

Existing chimneys and vents shall comply with the requirements of **Section 28-104.13** of the New York City Administrative Code and **Sections 801.1.1.1 through 801.1.1.8** of this code.

■ 801.1.1.1.1 Chimney and vent plan.

Applications for a new or altered building shall include a chimney and vent plan submitted pursuant to Section 107.18 of the New York City Building Code.

- **Analysis:** Cross references to newly added administrative and administrative building code provisions, regarding construction documents for extension, alteration or relocation of existing chimneys and vents

MC SECTION 801.16.1 – CHIMNEY FLUE LINING



Source: ecogrizzly.com

- **801.16.1 Residential and low-heat appliances (general).** Flue lining systems for use with residential-type and low-heat appliances shall be limited to the following:

...

4. Existing firebrick chimneys may be used to vent appliances if the firebrick is **acid resistant and lab tested**. The brick and mortar must be **inspected in accordance with Section 1705.32** of the New York City Building Code.

- **Analysis:** Item #4 was added, allowing existing firebrick chimneys to vent appliances, pending special Inspection

MC SECTION 801.21 – CHIMNEY TERMINATIONS



Source: chimneysaversolutions.com

- **801.21 Termination requirements.**

Terminations shall comply with the appliance listing and manufacturer's instructions, and the following:

...

4. Termination caps shall not be permitted. A drain shall be installed in accordance with Section 801.22. A positive means shall be provided to prevent water from entering the appliance.

Exception: Termination caps shall be permitted on listed factory-built chimneys unless otherwise prohibited by the New York City Air Pollution Control Code.

5. Decorative shrouds shall not be installed at the termination of factory-built chimneys except where...listed and labeled for use with the specific factory-built chimney system and are installed in accordance with the manufacturers' instructions...

- **Analysis:** Prohibits termination caps and decorative shrouds for chimney and vent terminations, unless they are listed factory-built chimneys

MC SECTION 803 – CHIMNEY CONNECTORS

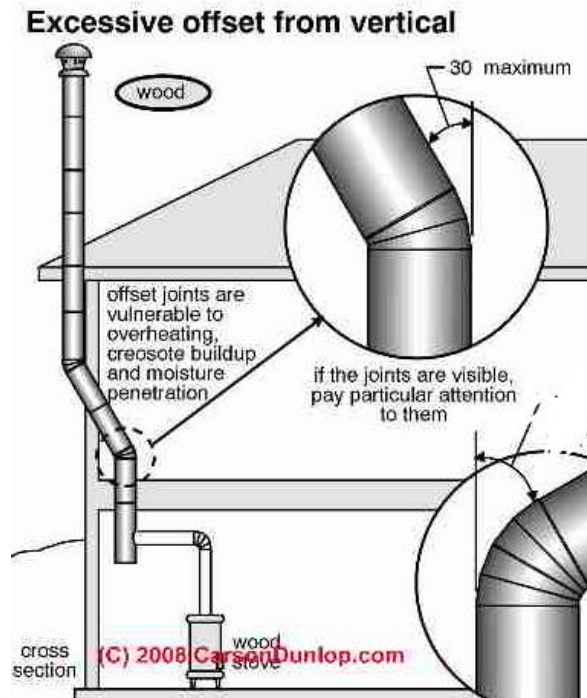
- **803.10.4.2 Field-applied insulation for chimney connectors.**

Chimney connectors of appliances with flue gas temperatures less than 500°F (260°C) that pass through walls or partitions of combustible construction shall be insulated with a field-applied flexible wrap assembly tested in accordance with either ASTM E2816 or ASTM E2336. The connector shall comply with all of the following:

1. The insulated vent connectors... and through penetration assemblies shall be tested for F and T ratings in accordance with ASTM E 814. The F and T rating of the assembly shall be equal to or exceed the fire-resistance rating of the mechanical/boiler room.
2. Bracing and supports shall be of noncombustible material securely attached to the structure and designed to carry gravity and seismic loads... Bolts, screws, rivets and other mechanical fasteners shall not penetrate connector walls.
3. ...assemblies shall not pass through ceilings or floors.
4. ...assemblies shall not run through occupied spaces, corridors, sleeping rooms and spaces with hazardous materials.
5. ...assemblies material shall meet the requirements for minimum chimney connector thicknesses for medium and high-heat appliances in accordance with Table 803.9(2).
6. ...assemblies fittings shall be welded or shall be factory fabricated UL listed construction suitable for external flexible wrap insulation.
7. The draft calculations shall account for the insulating value of the field-applied flexible wrap insulation.

- **Analysis:** *New requirements for field-applied insulation at chimney connectors*

MC SECTION 805.3 – CHIMNEY OFFSETS



Source: inspectapedia.com

■ 805.3 Factory-built chimney offsets.

Where a factory-built chimney serving a solid fuel-burning appliance or fireplace incorporates offsets, no part of the chimney shall be at an angle of more than 30 degrees (0.52 rad) from vertical at any point in the assembly and the chimney assembly shall not include more than four elbows.

Exception: Factory-built chimneys listed to UL103 Type HT serving a solid fuel-burning appliance or fireplace may offset at angles greater than 30 degrees from vertical if listed for such angles and installed in accordance with manufacturer's instructions. Cleanouts shall be installed in accordance with Section 801.13.

- **Analysis:** New requirements for factory-built chimney offsets. Clarifies such chimney offset limitations with respect to gas-fired appliances. New limitation of 4 elbows in chimney assembly increases safety

MC SECTION 810.1 – CHIMNEY TESTING



Source: homeguide.com

- **810.1 Test run.**

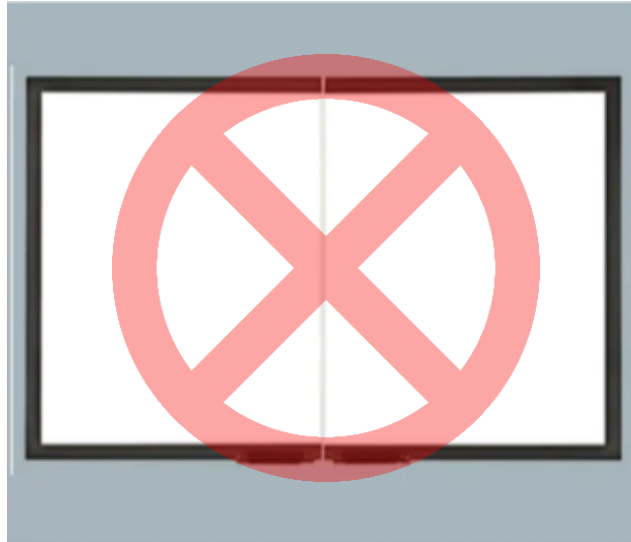
All new and altered chimneys, and chimneys to which a new appliance has been connected, shall be test run under operating conditions to demonstrate fire safety and the complete exhausting of smoke and the products of combustion to the outer air. The test run shall be conducted by a registered design professional or special inspector responsible for the test, and the results of such test run shall be certified as correct by such professional or special inspector and submitted in writing to the department. Refer to Section 1705.32 of the New York City Building Code for additional requirements.

- **Analysis:** *New increase in safety by requiring test runs of modified chimneys and existing chimneys with newly connected appliances.*

MC SECTION 903.4 – FIREPLACE DOORS

- **903.4 Gasketed fireplace doors.**

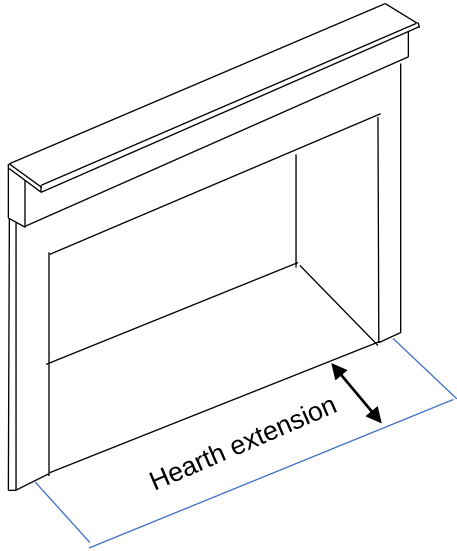
A gasketed fireplace door shall not be installed on a factory-built fireplace except where the fireplace system has been specifically tested, listed and labeled for such use in accordance with UL 127.



Source: usfireplacestore.com

- **Analysis:** New section adds requirement for fireplace doors.

MC SECTION 905.3 – HEARTH EXTENSIONS



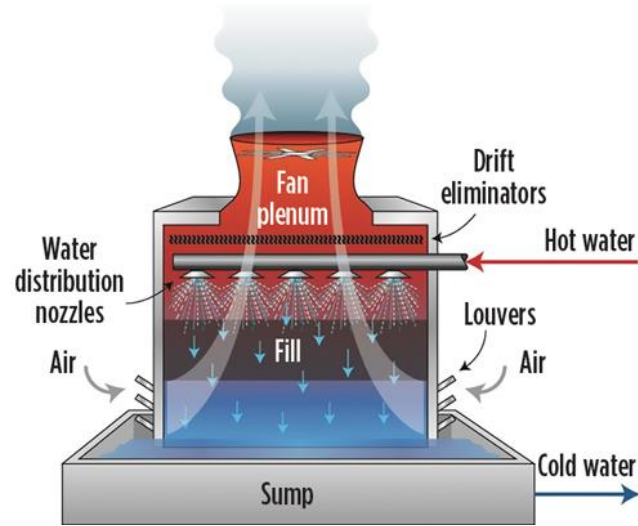
Source: kumastoves.com

- 905 Fireplace stoves and room heaters.
 - 905.3 Hearth extensions.

Hearth extensions for fireplace stoves shall be installed in accordance with the listing of the fireplace stove. The hearth extension shall be readily distinguishable from the surrounding floor area. Listed and labeled hearth extensions shall comply with UL 1618.

- **Analysis:** New section adds requirement for fireplace stoves.

MC SECTION 908.8 – COOLING TOWERS



Source: hydrocarbonprocessing.com

■ 908.8 Cooling towers.

Cooling towers, both open circuit and closed circuit type, and evaporative condensers shall comply with Sections 908.8.1 and 908.8.2.

- **908.8.1 Conductivity or flow-based control of cycles of concentration.** Cooling towers and evaporative condensers shall include **controls that automate system bleed** based on conductivity, fraction of metered makeup volume, metered bleed volume, recirculating pump run time or bleed time.

- **908.8.2 Drift eliminators.**

Cooling towers and evaporative condensers shall be equipped with drift eliminators that have a **maximum drift rate of 0.005 percent** of the circulated water flow rate as established in the equipment's design specifications.

- **Analysis:** *New requirements increase water efficiency; controls and drift eliminators for cooling towers & evaporative condensers.*

MC SECTION 1006.9 – CARBON MONOXIDE

- **1006.9 Carbon monoxide detectors.**

Carbon monoxide detectors shall be provided in all fuel-fired appliance rooms to detect the level of carbon monoxide in the room and signal an alarm. Such detectors shall be listed and installed in accordance with Chapter 9 of the New York City Building Code.



Source: [vivint.com](https://www.vivint.com)

- **Analysis:** *New requirement that all fuel-fired appliance rooms have listed carbon monoxide (“CO”) detectors which signal an alarm upon detection of CO, in accordance with 2022 BC Chapter 9 provisions.*

MC SECTION 1007.1 – BOILER LOW-WATER CUTOFF

- **1007.1 General.**

Steam and hot water boilers shall be protected with dual low-water cutoff control, with **each control independently piped** to the pressure vessel in accordance with ASME CSD-1. For hydronic boilers, the low-water cut out may be located in the supply piping above the boiler before any intervening valve. **A flow-sensing control installed in accordance with ASME CSD-1 shall be considered a low-water cutoff** for the purposes of this section.

...

- **1007.3 Low-water cut out maintenance and testing.**

Low-water cut outs shall be maintained in accordance with ASME CSD-1 and the manufacturer's specifications. **An operator shall test low-water cut outs as follows:** (1) high pressure steam boilers **every shift**, (2) low pressure steam boilers **daily** and (3) hot water boilers **monthly**. Slow drain tests shall be conducted for steam boilers **every six months**. **Every year**, low-water cut outs and associated piping for steam boilers shall be opened, cleaned and inspected. Records of all testing, cleaning, and inspection required by this section shall be **maintained, and made available to the department** upon request.

- ***Analysis:*** *New requirements for cutoff piping and periodic testing and inspections.*

MC SECTION 1011.3 – PERIODIC BOILER INSPECTION

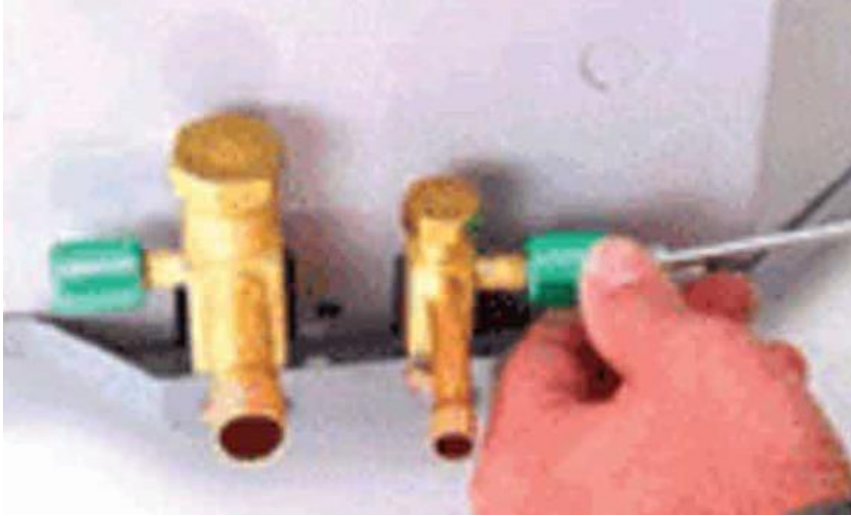
- **1011.3 Periodic boiler inspections.**

Periodic boiler inspections shall be performed in accordance with Article 303 of Chapter 3 of the Administrative Code and Section 1007.3 of this code. In addition, boiler inspections shall:

1. Be completed in accordance with the **National Board Inspection Code**.
2. Include the review of testing documentation for all controls and safety devices.
3. Verify that the flue connection from the boiler to the chimney is properly sealed and in good working condition.
4. Verify that the combustion air system **as originally designed** is operational.
5. Verify that the High Pressure Operators' licenses are current and that Low Pressure Operators are qualified per New York State requirements.
6. Include a permanent record of the visit.
7. Be subject to the quality control measures of the department.

- **Analysis:** *New detail for specific requirements of periodic boiler inspections.*

MC SECTION 1102.3 – REFRIGERANT ACCESS PORTS



- **1102.3 Access port protection.**
Refrigerant access ports shall be protected in accordance with Section 1101.12 whenever refrigerant is added to or recovered from refrigeration or air-conditioning systems.

- ***Analysis:*** New requirement for tamper-proof caps to address concerns on intentional inhalation, “huffing”, by people which causes a health hazard.

MC SECTION 1105.6.3 – MACHINE ROOM VENT



- **1105.6.3 Ventilation rate.**

For other than ammonia systems, the mechanical ventilation systems shall be capable of exhausting the minimum quantity of air both at normal operating and emergency conditions, as required by Sections 1105.6.3.1 and 1105.6.3.2. The minimum required ventilation rate for ammonia shall be 30 air changes per hour in accordance with IIAR2. Multiple fans or multispeed fans shall be allowed to produce the emergency ventilation rate and to obtain a reduced airflow for normal ventilation.

- **Analysis:** New reference to IIAR2, the standard used to ensure a safe closed-circuit ammonia refrigeration system design.

MC SECTION 1106.5.1 – REFRIGERATION SYSTEM



- **1106.5.1 Refrigeration system emergency shutoff.**
A clearly identified switch of the break-glass type or an approved tamper-resistant switch shall provide off-only control of refrigerant compressors, refrigerant pumps, and normally closed, automatic refrigerant valves located in the machinery room. Additionally, this equipment shall be automatically shut off whenever the refrigerant vapor concentration in the machinery room exceeds the vapor detector's upper detection limit or 25 percent of the LEL, whichever is lower.
 - **1106.5.2 Ventilation system.**
A clearly identified switch of the break-glass type or an approved tamper-resistant switch shall provide on-only control of the machinery room ventilation fans.
- **Analysis:** *New break-glass shut-off requirements for emergency shutoff of refringent compressors, pumps and other components of such systems. New req't that a high refrigerant vapor concentration automatically activates shutoff*

MC SECTION 1107.2.1 – REFRIGERANT PIPING

- **1107.2.1 Piping in public corridors.**

Refrigerant piping shall not be installed in public corridors.

Exception: Refrigerant piping in public corridors that complies with either of the following conditions:

1. Piping containing Group A1 refrigerant may be located in public corridors provided that the complete discharge of any one refrigerant system into the public corridor will not result in a refrigerant density equal to or greater than 50 percent of the allowable density set forth in Table 1103.1; and...
 - 1.1 ...not more than one refrigerant system's piping per tenant
 - 1.2 ...concealed or otherwise protected from mechanical damage...
 - 1.3 ...Refrigerant piping and fittings are installed with brazed joints; or
 - 1.4 ...pre-charged tubing systems installed in accordance with ...manufacturer's instructions.
2. Piping containing Group A1 refrigerant may be located in public corridors provided that the complete discharge of any one refrigerant system into the public corridor will not result in a refrigerant density of 100 percent of the allowable refrigerant density set forth in Table 1103.1; and...

- **Analysis:** 2014 MC previously listed three conditions to allow the exception. 2022 MC was reorganized to now list 2 possible alternates

2022 NEW YORK CITY FUEL GAS CODE

FGC SECTION 301.7 – FUEL



- **301.7.1 Appliance fuel conversion.**

Appliances shall not be converted to utilize a different fuel gas except where complete instructions for such conversion are provided by the serving gas supplier, the appliance manufacturer, the burner manufacturer or the boiler manufacturer. If a specific listing and labeling is available for the burner and boiler combination it shall be submitted to the department. If a specific listing for the combination is not available the listing for the burner and a letter confirming compatibility shall be submitted by the burner manufacturer. The completed installation shall be inspected and tested in the field by a representative of the appliance manufacturer, the burner manufacturer or the boiler manufacturer, and certified by a registered design professional. A certification of compliance by a registered design professional developed in accordance with the requirements of the New York City Department of Environmental Protection may be used to satisfy this certification requirement. The registered design professional need not be the engineer of record for the design.

Source: <https://www.viessmann-us.com/en/guide/converting-from-oil-to-gas.html>

FGC SECTION 302.3 – STRUCTURAL

- **302.3 Cutting, notching and boring in wood members.**

The cutting, notching and boring of wood members shall comply with Sections 302.3.1 through 302.3.5.

MC Chapter 3	FGC Chapter 3	BC Chapter 23
MC 302.3.1 Solid non-engineered joist notches and holes.	FGC 302.3.1 Solid non-engineered joist notches and holes.	BC 2308.5.8 Pipes in walls
MC 302.3.2 Stud cutting and notching.	FGC 302.3.2 Stud cutting and notching.	BC 2308.5.9 Cutting and notching.
MC 302.3.3 Bored holes in studs.	FGC 302.3.3 Bored holes in studs.	BC 2308.5.10 Bored holes.
MC 302.3.4 Engineered wood products.	FGC 302.3.4 Engineered wood products.	BC 2308.4.3 Engineered wood products.
MC 302.3.5 Drilling and notching of top plate.	FGC 302.3.5 Drilling and notching of top plate.	BC 2308.5.8 Pipes in walls

- **Analysis:** *This FGC section introduces the subsections which duplicate and align with the structural wood requirements that were in the 2014 BC and are now also in BC 2308 and MC 302.*

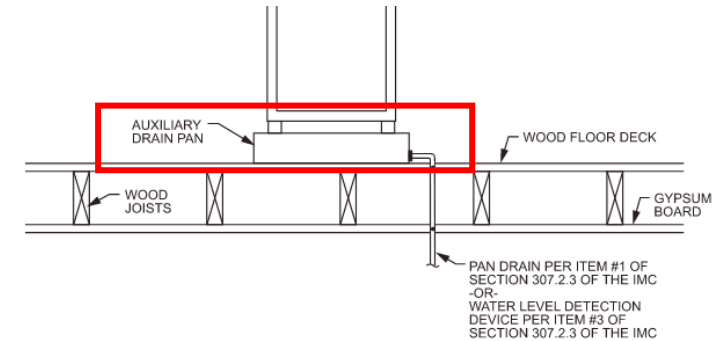
FGC SECTION 307.5 – CONDENSATE DISPOSAL

■ 307.5 Auxiliary drain pan.

Category II or Category IV condensing appliances shall be provided with an auxiliary drain pan where damage to any building component will occur as a result of stoppage in the condensate drainage system. Such pan shall be installed in accordance with the applicable provisions of Section 307 of the New York City Mechanical Code and provided with a local alarm to indicate the collection of water.

Exceptions:

1. An auxiliary drain pan shall not be required for appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.
2. **An auxiliary drain pan shall not be required where a suitably sized and located floor drain is provided.**



- **Analysis:** New requirement for Category II.
- Similar to cooling equipment and evaporators, condensing appliances produce condensate, which can cause structural damage to a building if not properly disposed.
- Exception #2 is NEW and applicable if floor drain is adequately sized to prevent any damage to building components.

FGC SECTION 307.6 – CONDENSATE PUMPS

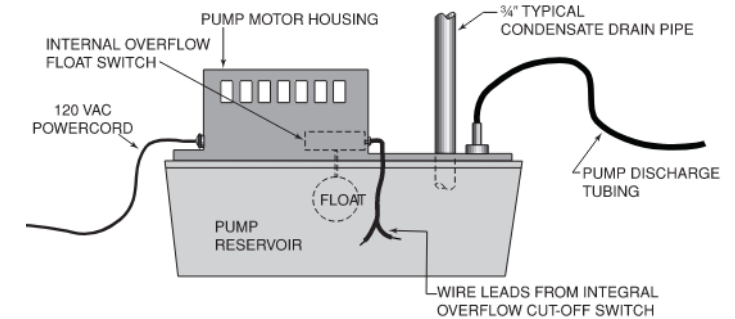
■ 307.6 Condensate pumps.

Condensate pumps located in uninhabitable spaces, such as attics and crawl spaces, shall be connected to the appliance or equipment served such that when the pump fails, the appliance or equipment will be prevented from operating.

Pumps shall be installed in accordance with the manufacturer's instructions.

Exceptions:

1. Equipment shutdown shall not be required when the condensate pump resides within the auxiliary drain pan provided under Section 307.5 and an alternate means for unit shutdown due to condensate overflow or leakage, such as a leak detector, is provided.
2. Equipment shutdown shall not be required when the potential for freezing of interior piping systems exists and the auxiliary drain pan provided under Section 307.5 is equipped with a secondary overflow drain that shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain.



- **Analysis:** New requirement for appliance shut-down at pump failure. Only applicable for uninhabitable spaces.
- Condensate pumps are often located where they are not readily observable (attics, crawl spaces). If they fail, the condensate overflow can cause damage to the building, especially where the overflow will not be noticed immediately.

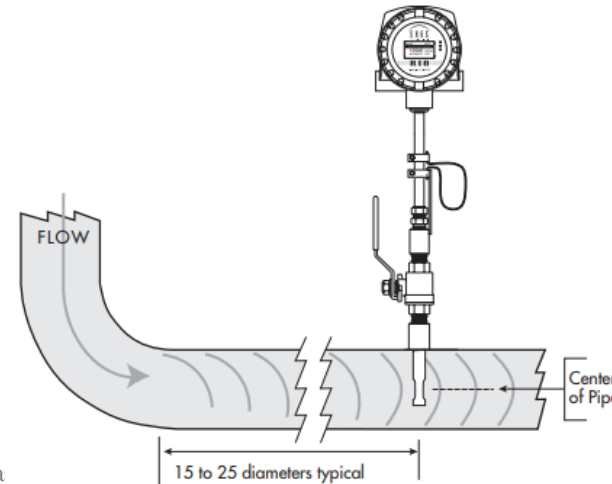
FGC SECTION 401.1.2 – SUBMETERS

- **401.1.2 Meters for gas consumption monitoring.**

Approved gas meters shall be permitted to be installed for gas consumption monitoring, energy measurement, verification and analysis. Gas meters shall be listed in accordance with ANSI B109.1, ANSI B109.2, or ANSI B109.3 and installed in accordance with the manufacturer's instructions. A full size valve bypass shall be provided around gas meters for maintenance and repair.



Source: <https://sagemetering.com/applications/industrial/natural-ga>



- **Analysis:** *Previously not addressed, the FGC now contains explicit allowance and compliance criteria for non-service meters, used for energy monitoring, installed on distribution piping. This text aligns with the new exception in Section 404.19.*

FGC SECTION 401.9 – REQUIRED IDENTIFICATION



- **401.9 Identification.**
Each length of pipe and each pipe fitting, utilized in a fuel gas system, shall bear the identification of the manufacturer.
- **Analysis:** Clarifies that all components be appropriately marked by the manufacturer.

Source: <https://www.directmaterial.com/what-does-a-ul-listing-mean-csa-certification-upc>

FGC SECTION 401.10 – REQUIRED CERTIFICATION



- **401.10 Third-party testing and certification.**
Piping, tubing and fittings shall comply with the applicable referenced standards, specifications and performance criteria of this code and shall be identified in accordance with Section 401.9. Piping, tubing and fittings shall either be tested by an approved third-party testing agency or certified by an approved third-party certification agency.
- ***Analysis:*** All materials must be third-party tested or certified. Manufacturers are no longer permitted to state compliance with referenced requirements.

Source: <https://www.directmaterial.com/what-does-a-ul-listing-mean-csa-certification-upc>

FGC SECTION 404.2 – MOVEMENT

■ 404.2 Pipe movement.

Flammable or combustible gas piping systems shall be designed to account for pipe movement resulting from **thermal changes** or seismic forces.

404.2.1 Seismic requirements. Gas piping shall be designed and installed to withstand seismic forces in accordance with Section 1613 of the New York City Building Code.

404.2.1.1 Stainless steel flexible multiple leg hose assemblies. Stainless steel flexible multiple leg hose assemblies may be installed where pipe movement resulting from seismic forces may occur. Such assemblies shall be listed and labeled in accordance with UL 536 and shall be installed in accordance with the manufacturer's instructions.

404.2.1.2 Inspection. The installation of stainless steel flexible multiple leg hose assemblies shall be subject to special inspections in accordance with Chapter 17 of the New York City Building Code.



Source: <https://www.metalraflex.com/products/metalraflex-expansion-joint/>

FGC SECTION 404.3 – PIPING IN CORRIDORS

- **404.3 Prohibited locations.**

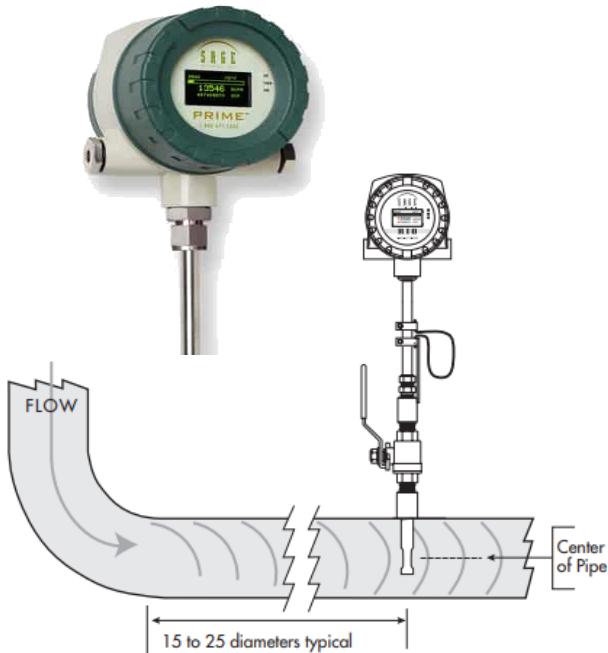
5. Public corridor. Gas piping shall not be installed in public corridors and exit enclosures.

Exceptions:

1. Gas piping may be installed in public corridors or exit enclosures where separated by a fire-resistance-rated assembly meeting the hour rating and, if applicable, the impact resistance rating required for the corridor or exit enclosure. Such assembly shall be rated for exposure to fire from both sides.
2. In residential buildings that do not have floors below grade, or in multi-use buildings that have a residential occupancy, gas piping may be installed in public corridors in accordance with the following:
 - 2.1. Gas piping shall be permitted to be installed within a public corridor at the lowest level of the building or the lowest residential level of the building.
 - 2.2. All gas valves located within the public corridor shall be accessible for maintenance and inspection.
 - 2.3. Gas pressure within the public corridor piping shall not exceed ½ psi (14 in w.c.).
 - 2.4. The public corridor shall be ventilated in accordance with the New York City Mechanical Code. The pipe shall not be installed in a return air plenum.
 - 2.5. Pipes must be welded.

- **Analysis:** Clarifies allowance for piping in corridors of all buildings; specific criteria for residential buildings.

FGC SECTION 404.19 – SUBMETERS



Source: <https://sagemetering.com/applications/industrial/natural-gas-sub-metering/>

■ 404.19 Prohibited devices.

A device shall not be placed inside the piping or fittings that will reduce the cross-sectional area or otherwise obstruct the free flow of gas.

Exceptions:

1. Approved gas filters.
2. An approved fitting or device where the gas piping system has been sized to accommodate the pressure drop of the fitting or device.
3. Approved gas meters for monitoring and analysis of gas usage.

- **Analysis:** Aligning with Section 401.1.2, the added exception codifies the use of gas meter devices on distribution piping for consumption monitoring & energy analysis.

FGC SECTION 406.1.1 – WELDING OF GAS PIPE



Source: <https://www.martinandwhite.com/pipe-welding-services>

- **406.1.1 Inspections.**
Inspection shall consist of visual examination during or after manufacture, fabrication, assembly, or pressure tests as appropriate.
- **406.1.1.1 Welding inspection and testing.**
Welded gas piping shall be subject to special inspection in accordance with Chapter 17 of the New York City Building Code. Radiographic testing shall be performed on all butt welds in gas meter and gas distribution piping operating at pressures exceeding 5 psig (34.5 kPa gauge) within buildings, in accordance with ASME Boiler and Pressure Vessel Code, Section IX.

- **Analysis:** Expands the special inspection requirement for welded gas piping (no longer based on operating pressure).

FGC SECTION 406.4.6 – TESTING GAS PIPING



DIY Pressure Test Natural Gas Lines Cheaply w/ Tire Inflator

540 **DISLIKE** SHARE DOWNLOAD CLIP SAVE DESCRIBE

- **406.4.6 Conducting tests of gas piping systems.** Tests of gas piping systems in accordance with this code shall be conducted by an individual with not less than five years' experience in gas work.

- **Analysis:** Clarifies that testing must be performed by an individual with sufficient experience, aligning with §28-423.1 and the scoping provisions of FGC Section 101.2.2.

FGC SECTION 406.6.2 – GAS AUTHORIZATION

- **406.6.2.1 Gas authorization required.**

A gas piping system shall not be energized prior to authorization. Such authorization is demonstrated by issuance of a certificate of approval of gas installation by the department. The certificate shall not be issued prior to the completion of the required inspections and tests. The certificate shall not expire.

Exception: Gas authorization shall not be required when gas is reestablished by a utility company as permitted under Section 28-105.4.3 of Chapter 1 of Title 28 of the Administrative Code.

406.6.2.1.1 Existing gas piping. Any gas piping system or part thereof that has been previously energized and has been shut down shall be required to obtain a certificate of approval of gas installation for all appliances served by the affected gas meter(s) prior to the reestablishment of gas into such system.

Exception: When an existing gas appliance is replaced and no gas piping is replaced upstream of the existing appliance shutoff valve and not more than 6 feet of pipe is installed or replaced downstream of the existing appliance shutoff valve, a certificate of approval of gas installation shall not be required to energize such pipe or replacement appliance.

406.6.2.1.2 Partial gas authorization. A certificate of approval of gas installation may be issued for a portion of a gas piping system provided the remainder of the system is locked-off by the gas service provider.

FGC SECTION 501.1.1.3 – CHIMNEY/ VENT NOTICE

- **501.1.1.3 Written notification, plans and required documents.**

The owner of the new or altered building shall notify the owner of any building that may require a chimney or vent to be altered. Notification, plans and required documents shall comply with the requirements of Sections 501.1.1.3.1 through 501.1.1.3.3.

501.1.1.3.1 First notice. Written notice in a form acceptable to the department shall be provided to the building owner not less than 60 days prior to a request for permit for construction on the new or altered building. Such notice shall include a request for access to determine the need to alter the existing chimney or vent and a description of such work. Notice shall be sent by regular mail and certified mail, return receipt requested. A copy of such return receipt shall be filed with the department.

501.1.1.3.2 Second notice. Written notice in a form acceptable to the department shall be provided to the building owner not more than 45 days following commencement of work after a permit has been issued for the new or altered building. Such notice shall include a request for access to determine the need to alter the existing chimney or vent and a description of such work. Notice shall be sent by regular mail and certified mail, return receipt requested. The second notice shall also be posted by a licensed process server at the public entrance of the building requiring a chimney or vent to be altered. A copy of such return receipt and proof of service by the licensed process server shall be filed with the department.

FGC SECTION 501.1.1.3 – CHIMNEY/ VENT NOTICE

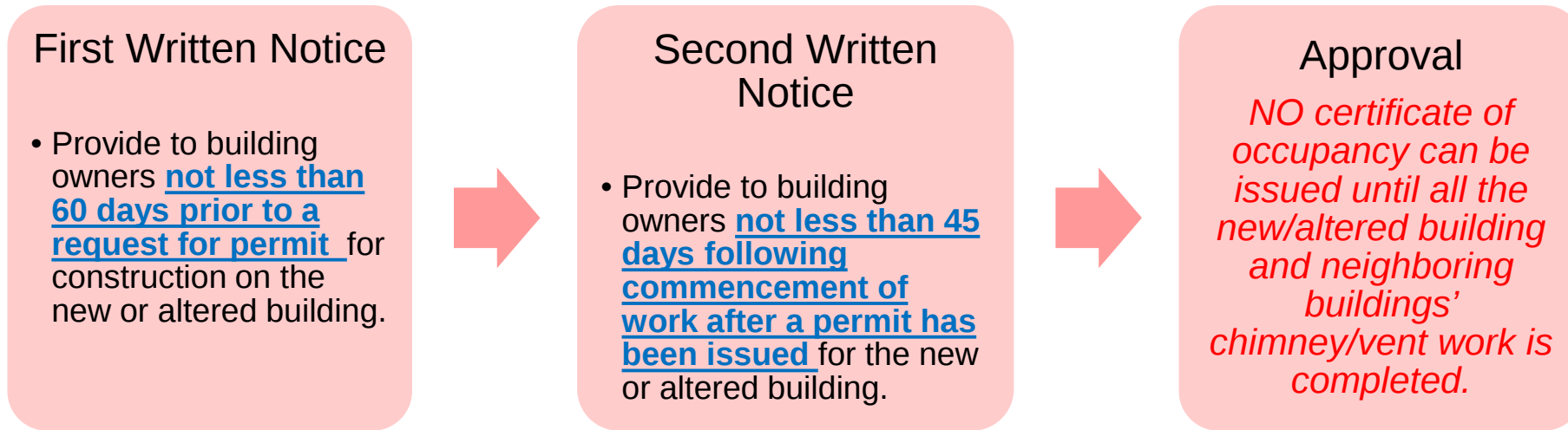
- **501.1.1.3.2 Second notice. (cont'd)**

Exceptions:

1. A second notice shall not be required where an application to alter the affected chimney or vent has been filed with the department.
2. A second notice shall not be required where access is granted and conditions are observed that result in a determination that chimney or vent alteration is not required and a revised chimney and vent plan is submitted to the department.

501.1.1.3.3 Plans and required documentation for alteration work. Where access is granted and conditions are observed that result in a determination that chimney or vent alteration is required, plans for such alteration work shall be provided to the owner of the existing building and a request for written consent to submit construction documents and perform such work shall be made.

FGC SECTION 501.1.1.3 – CHIMNEY/ VENT NOTICE



- **Analysis:** Section expands requirements concerning the need to provide two written notifications to neighbors
- Second Notice requirement added
- More details added concerning requirements for both notices
- Neighbors of adjacent buildings shall be provided with plans and other documentation describing planned alteration, as well as describing adjacent owners' requirements for altering their chimneys/vents to ensure code compliance.
 - ✓ Access to neighbors' properties, needed to ascertain chimney/vent work scope, must also be requested by building owner performing planned alteration work.
- Similar to MC 801.1.1.3

FGC SECTION 501.1.1.4 – CHIMNEY APPROVAL

- **501.1.1.4 Approval.**

The construction documents for the proposed chimney extension, alteration or relocation shall be submitted to the department pursuant to Section 28-104 of the Administrative Code. No certificate of occupancy shall be issued for the new building pursuant to Section 28-118.23 of the Administrative Code until the work associated with the construction documents for the proposed chimney extension, alteration or relocation has been signed-off by the department.

Exceptions:

1. A certificate of occupancy may be issued where access is granted and conditions are observed that result in a determination that **chimney or vent alteration is not required** and a revised chimney or vent plan is submitted pursuant to Section 107.18 of the New York City Building Code documenting such.
2. A certificate of occupancy may be issued **in accordance with Section 28-118.23, Exception 2** of the Administrative Code.

- **Analysis:** Provisions link the certificate of occupancy with the satisfaction of chimney / vent alteration requirements. Exceptions allow for issuance of certificate of occupancy in specific instances when safety concerns are addressed.

FGC SECTION 501.1.1.6 – CHIMNEY PROCEDURE

- **501.1.1.6 Procedure.**

It shall be the obligation of the owner of the new or altered building to:

1. Prepare and submit a chimney and vent plan to the department pursuant to Section 107.18 of the New York City Building Code.
2. Provide required notification pursuant to Section 501.1.1.3 of this code.
3. Provide plans pursuant to Section 501.1.1.3.3 of this code.
4. Prepare and submit construction documents to the department pursuant to Section 28-104 of the Administrative Code for the alteration of existing chimneys or vents which conform to the requirements of this chapter;
5. Obtain permit(s) for the proposed work in accordance with Section 28-105 of the Administrative Code;
6. ...

- **Analysis:** *Aligning with MC, section was expanded to include new/modified procedural requirements and cross references.*

FGC SECTION 501.15 – CHIMNEY TESTING

- **501.15 Existing chimneys and vents.**

- **501.15.5 Testing.**

Testing of existing chimneys shall be in accordance with Section 1705.32 of the New York City Building Code.

- ***Analysis:*** NEW section added to clarify that required testing of existing chimneys shall comply with NYC building code provisions.

FGC SECTION 501.17 – OUTDOOR CHIMNEYS/VENTS

- **501.17 Outdoor chimneys and vents.**

Outdoor portions of chimneys or vents shall be provided with integral R-8 insulation or be provided with an R-8 insulation enclosure, where exposed to the outdoors for more than 5 feet (1524 mm).

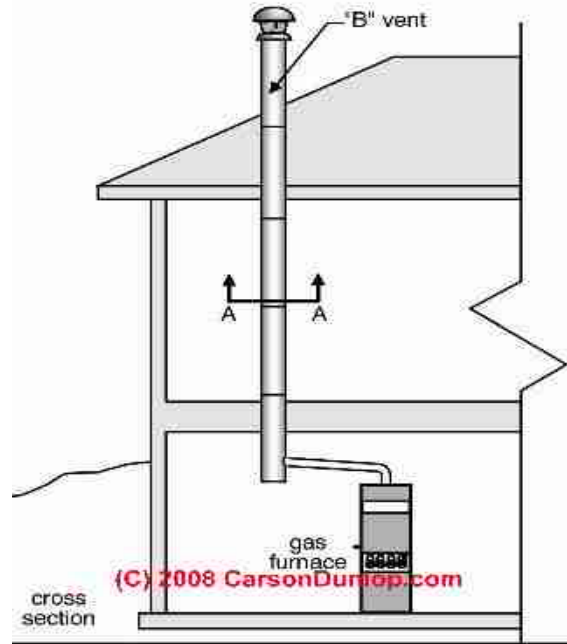


Source: reflectixinc.com

- **Analysis:** New section added for outdoor portions of chimneys and vents; aligns with similar section in MC 801.25. Added insulation mitigates condensation issues, heat loss, and improper drafts.

FGC SECTION 501.17.1 – TYPE B VENTS

Type "B" vent



Source: inspectapedia.com

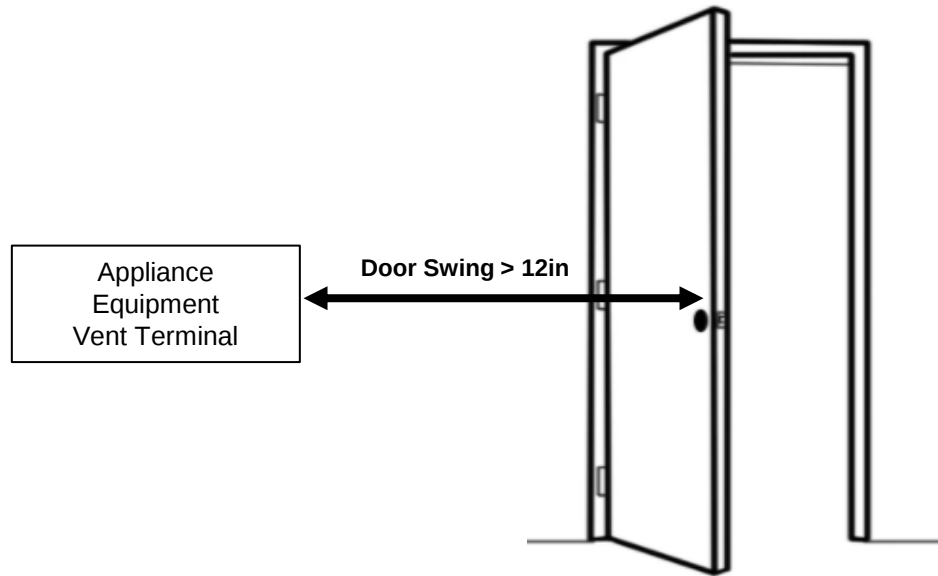
■ 501.17.1 Type B vents.

Type B vents shall not be considered exposed to the outdoors in the following conditions:

1. A type B vent of a listed chimney system passing through an unused masonry chimney provided with a sealed cap that prevents airflow within the confines of the masonry chimney; or
2. A type B vent passing through an unventilated enclosure or chase insulated to R-8.

- **Analysis:** Type B Vents shall not be considered as “exposed to outdoors,” per FGC 501.17 if new conditions cited in FGC 501.17.1 are present

FGC SECTION 502.7.1 – DOOR SWINGS & VENTS



Source: [dimensions.com](https://www.dimensions.com)

- **502.7.1 Door swing.**

Appliance and equipment vent terminals shall be located such that doors cannot swing within 12 inches (304.8 mm) horizontally of the vent terminal. Door stops or closers shall not be installed to obtain this clearance. Means of protecting the clearance that are not easily overridden or removed may be used to obtain this clearance.

- **Analysis:** NEW requirement that appliance and equipment vent terminals must be located at least 12 inch from door swing (horizontally). (Similar to MC 802.9.)

FGC SECTION 503.4.1 – VENTING, PLASTIC PIPING



Source: bobvila.com

- **503.4 Type of venting system to be used.**
 - **503.4.1 Plastic piping.**

Plastic piping used for venting appliances listed for use with such venting materials shall be listed and installed in accordance with the terms of its listing and the manufacturers' instructions. Installation shall be in accordance with the New York City Building Code. PVC shall not be permitted.
 - **503.4.1.1 Plastic vent joints.**

Plastic pipe and fittings used to vent appliances shall be installed in accordance with the appliance manufacturer's instructions. Where a primer is required, it shall be of a contrasting color.

- **Analysis:** NEW subsection added to require color contrasting primer when needed for plastic piping and fittings of appliance vents.

FGC SECTION 503.4.2 – SPECIAL GAS VENT SYSTEM

- **503.4.2 Special gas vent.**

Special gas vent shall be listed and installed in accordance with the terms of the special gas vent listing and the manufacturers' instructions.

503.4.2.1 Inspection of special gas vents. Before replacing an existing appliance or connecting a vent connector to a special gas vent, the special gas vent shall be examined to ascertain that it is clear and free of obstructions.

503.4.2.2 Unsafe special gas vents. Where inspection reveals that an existing special gas vent is not safe... it shall be repaired or replaced.

503.4.2.3 Test run. All special gas vents shall be test run by the registered design professional or special inspector...to demonstrate fire safety and the complete exhausting of smoke and the products of combustion to the outer air. The results of such test run shall be certified...and shall be submitted in writing to the department.

503.4.2.4 Requirement of a smoke test. A smoke test shall be conducted in accordance with Section 503.4.2.5. Any faults or leaks found shall be corrected. Such smoke test shall be witnessed by a representative of the commissioner. In the alternative, the commissioner may accept a test report instead of requiring that it be witnessed by a representative of the commissioner. Such test report of the registered design professional or special inspector responsible for the test which shall be submitted in writing to the department.

503.4.2.5 Smoke test. To determine the tightness of vent construction, a smoke test shall be conducted...with the following conditions...:

1. The equipment, materials, power and labor necessary for such test shall be furnished by...the owner or holder of the work permit.
2. If the test shows any evidence of leakage or other defects, such leakage or other defects shall be corrected...and the test...repeated...
3. The vent shall be filled with a thick penetrating smoke produced by one or more smoke machines...or other equivalent method. As the smoke appears at the stack opening on the roof, such opening shall be tightly closed and a pressure equivalent to ½ inch (12.7 mm) column of water measured at the base of the special gas vent shall be applied. The test shall be applied for a length of time sufficient to permit the inspection of the special gas vent.
4. Testing and inspection of existing and new negative pressure chimneys and vents shall be in accordance with Section 1705.32 of the New York City Building Code.

FGC SECTION 503.5.4 – CHIMNEY TERMINATIONS

- 503.5.4 Termination requirements.
- $D = F \times \sqrt{A}$ (Equation 5-1)
- **D** = Distance, in feet, measured from the center of the chimney, vent or flue outlet to the nearest edge of the construction. If a single chimney is divided into multiple smaller flues or chimneys, measure from the center of the chimney outlet that is closest to the nearest edge of the construction.
- **F** = Value determined from table below.
- **A** = Free area, in square inches, of chimney flue space outlet. If a single chimney is divided into multiple smaller flues or chimneys, the total aggregate free area of such flue and chimney outlets shall be used to calculate “A”.
- **Analysis:** Clarification of “A” and “D” used in Equation 5-1. These address past issues where single chimneys were purposely split into multiple smaller flues or chimneys. Aligns with changes in Equation 8-1 for NYCMC.

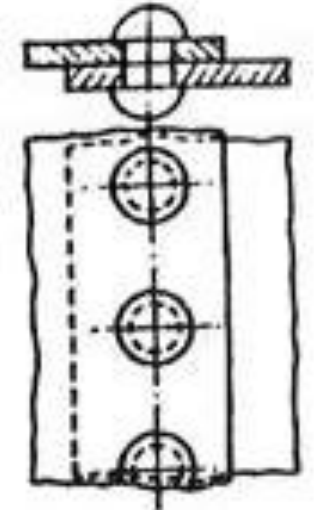
FGC SECTION 503.10 – VENT CONNECTORS

- **503.10 Vent connectors for Category I appliances.**

- **503.10.6 Joints.**

Joints between sections of connector and connections to flue collars and draft hood outlets shall be tight-fitting and fastened by one of the following methods:

1. **Galvanized steel** – Overlapping joint with sheet metal screws or rivets at a minimum of 4 locations for diameters not greater than 12 inches (304.8mm) and 8 locations for diameters greater than 12 inches (304.8 mm).
2. **Carbon steel** – Overlapping joint with ½ inch (12.7 mm) tack welds at a minimum of 4 locations for diameters up to 12 inches (304.8mm) and 8 locations for diameters larger than 12 inches (304.8 mm).
3. **Carbon steel** – continuous butt-welded perimeter.
4. Vent connectors of **listed vent material** assembled and connected to flue collars or draft hood outlets in accordance with the manufacturer's instructions.

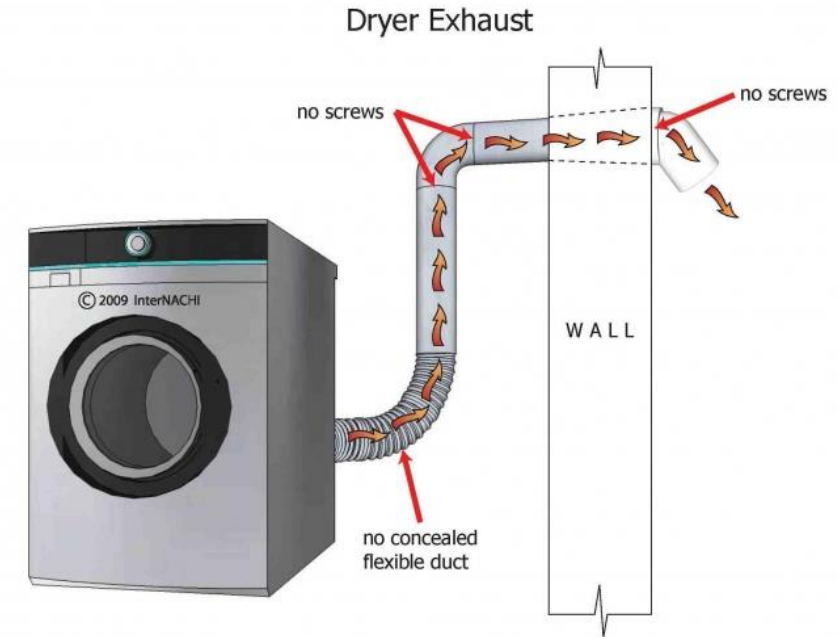


Source:
<http://www.summaryplanet.com/engineering/Fasteners-for-Sheet-Metal.html>

- **Analysis:** Greater detail on fastening requirements, based on material type selected

FGC SECTION 614.1 - CLOTHES DRYERS

- **614.1 Clothes dryer exhaust.** Clothes dryer exhaust shall be in accordance with Section 504 of the New York City Mechanical Code.



Source: allclearadv.com

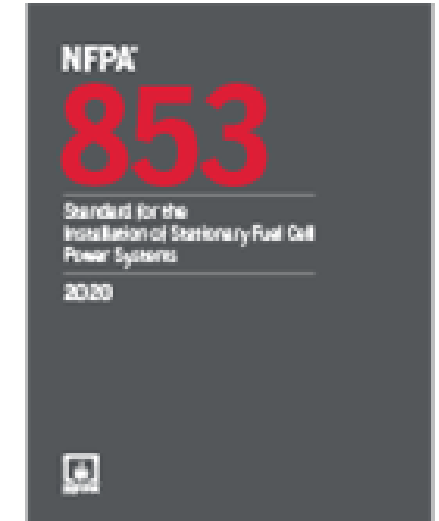
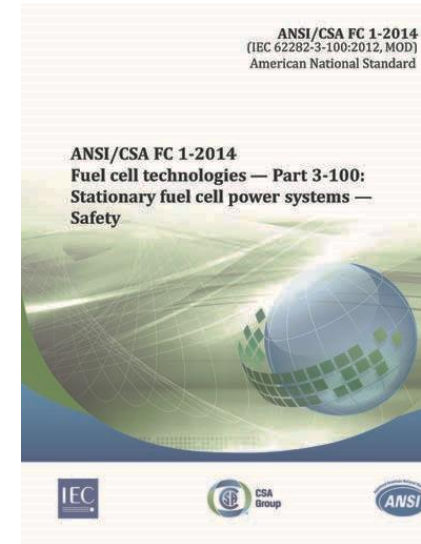
- **Analysis:** 2014 FGC sections 614.1 through 614.8 were deleted, and MC 504 is now cross-referenced for clothes dryer exhaust.

FGC SECTION 633 – FUEL CELLS

- **633 Stationary Fuel Cell Power Systems.**

- **633.1 General.**

Stationary fuel cell power systems having a power output not exceeding **10 MW** shall be tested in accordance with ANSI/CSA America FC 1 and shall be installed in accordance with the manufacturer's instructions, NFPA 853, the New York City Building Code, the New York City Fire Code and the New York City Electrical Code. **Indoor stationary fuel cell power systems used in hydrogen generating systems shall be located in accordance with the requirements of Section 706 of this code.**



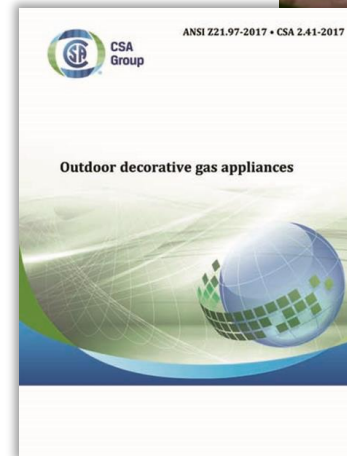
- **Analysis:** Increases max power output allowed for stationary fuel-cell power systems. Maintains requirements for installation & testing (ANSI, NFPA, BC, FC, EC).

FGC SECTION 636 – OUTDOOR DECORATIVE

- **636 Outdoor decorative appliances.**

- **636.1 General.**

Permanently fixed-in-place outdoor decorative appliances shall be tested in accordance with ANSI Z21.97/CSA 2.41 and shall be installed in accordance with the manufacturer's instructions.



Source: <https://www.woodlanddirect.com/is-it-safe-to-use-a-fire-pit-under-a-covered-patio.html>

- **Analysis:** NEW section adds requirements for fixed-in-place outdoor decorative appliances, including compliance with new reference standard ANSI Z21.97/CSA 2.41.

FGC SECTION 703 – GASEOUS HYDROGEN

- **703 General Requirements.**

- **703.1 Hydrogen generation.**

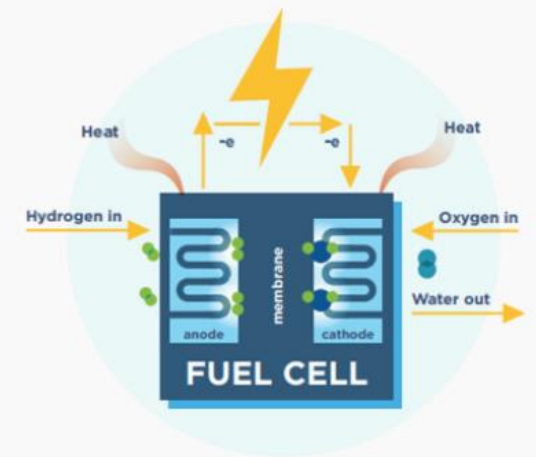
The generation of gaseous hydrogen for immediate on-premises use in indoor fuel cells or other energy production process and incidental indoor storage of gaseous hydrogen shall be located in accordance with Section 706. Exhaust ventilation shall be required in rooms or spaces that house such generation of gaseous hydrogen in accordance with the applicable provisions of NFPA 2.



HOW FUEL CELLS WORK

A fuel cell is an electrochemical energy conversion device – it utilizes hydrogen and oxygen to generate electricity, heat, and water.

- 1** The hydrogen atoms enter at the anode.
- 2** The atoms are stripped of their electrons in the anode.
- 3** The positively charged protons pass through the membrane to the cathode and the negatively charged electrons are forced through a circuit, generating electricity.
- 4** After passing through the circuit, the electrons combine with the protons and oxygen from the air to generate the fuel cell's byproducts: water and heat.



- **Analysis:** NEW section adds requirements for fixed-in-place outdoor decorative appliances, including compliance with new reference standard ANSI Z21.97/CSA 2.41.

FGC SECTION 706 – HYDROGEN SYSTEM: LOCATION

- **706 Location of gaseous hydrogen systems.**

- **706.1 General.**

The location and installation of gaseous hydrogen systems and appliances shall be in accordance with Sections 706.2 and 706.3.

Exception: Outdoor stationary fuel cell power plants in accordance with Section 633. Indoor stationary fuel cell power systems used in hydrogen generating systems shall be located in accordance with the requirements of Section 706.

- **706.2 Indoor gaseous hydrogen systems.**

Gaseous hydrogen systems shall be located in hydrogen fuel gas rooms constructed in accordance with the **New York City Building Code, the New York City Mechanical Code, the New York City Fire Code and NFPA 2.**

- **706.3 Outdoor gaseous hydrogen systems.**

Gaseous hydrogen systems located outdoors shall be **in accordance with the New York City Fire Code.**

- **Analysis:** *NEW section aligns with hydrogen fuel gas rooms requirements in the NYC FC and NYC BC Section 421, which regulate the design and construction of hydrogen fuel gas rooms.*

FGC SECTION 706 – HYDROGEN SYSTEM: LOCATION

- **706.2 Indoor gaseous hydrogen systems.**

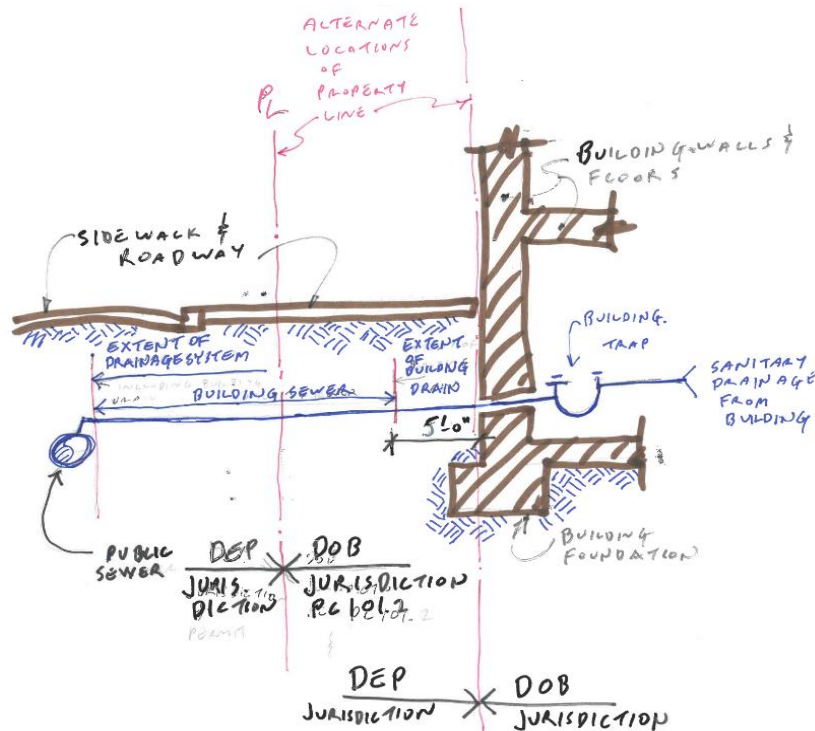
Gaseous hydrogen systems shall be located in hydrogen fuel gas rooms constructed in accordance with the New York City Building Code, the New York City Mechanical Code, the New York City Fire Code and NFPA 2.

BC 202 – Definitions

HYDROGEN FUEL GAS ROOM. A separately ventilated, fully enclosed room designed to exclusively house the generation of gaseous hydrogen for immediate on-premises use in indoor fuel cells or other energy production process, and incidental indoor storage of gaseous hydrogen. A hydrogen fuel gas room is not intended to house the production or dispensing of hydrogen motor Fuel.

2022 NEW YORK CITY PLUMBING CODE

PC SECTION 202 – SUBSURFACE JURISDICTION



Source: DOB image

- **Building Drain.** That part of the lowest piping of a drainage system that receives the discharge from soil, waste and other drainage pipes inside and that extends to the exterior face of the exterior building wall, or the outlet of the most downstream trap, private manhole, catch basin, detention tank, or similar fixture or equipment, and conveys the drainage directly to the building sewer or, in the absence of building sewer, to an approved place of disposal.
- **Building Sewer.** That part of the drainage system that extends from the end of the building drain, or the outlet of the most downstream trap, private manhole, catch basin, detention tank or similar fixture or equipment, and conveys the discharge to a public sewer.
- **Analysis:** Changed definitions of BUILDING DRAIN and BUILDING SEWER to reflect a new regulatory scheme. Generally, building drains are within the jurisdiction of DOB; building sewers are within the jurisdiction of DEP.

PC SECTION 303.1 – REQUIRED IDENTIFICATION



- **303.1 Identification.**
Each length of pipe and each pipe fitting, trap, fixture, material and device utilized in a plumbing system shall bear the identification of the manufacturer and any markings required by the applicable referenced standards.
- **Analysis:** *Following IPC, clarifies that all components be appropriately marked, in accordance with referenced standards.*

Source: <https://www.directmaterial.com/what-does-a-ul-listing-mean-csa-certification-upc>

PC SECTION 303.4 – REQUIRED CERTIFICATION



- **303.4 Third-party certification.**
All plumbing products and materials shall be listed by a third-party certification agency as complying with the referenced standards. Products and materials shall be identified in accordance with Section 303.1.
- ***Analysis:*** Aligning with IPC changes, all plumbing products and materials must be third party listed. Manufacturers are no longer permitted to state compliance with referenced requirements.

Source: <https://www.directmaterial.com/what-does-a-ul-listing-mean-csa-certification-upc>

PC SECTION 307 – CODIFYING BEST PRACTICES: STRUCTURAL SAFETY

- **307.1 General.**

In the process plumbing work, finished floors, walls, ceilings, tile work or any other part of the building or premises shall be left in a safe structural condition.

- **307.2 Loading.**

Alterations resulting in additional loads to any member (ie, appliances & equipment) shall not be permitted without verification of additional loading capacity.

- **307.3 Cutting, notching and boring.**

Cutting, notching & boring of elements shall be in accordance with Appendix C.

- **307.4 Penetrations of floor/ceiling assemblies...**

Penetrations of fire-resistance rated assemblies shall be protected per the Building Code.

- **307.5 Trusses.**

Truss members cannot be cut, drilled, notched, spliced or altered without written RDB approval.

- **307.6 Protection of footings.**

Trenching installed parallel to footings and walls shall not extend into the bearing plane of a footing or wall.

- **307.7 Piping materials exposed within plenums.**

Piping materials exposed within plenums must comply with the Mechanical Code.



Source: <https://elizabethtown.wini.com/resources/tech-articles/improper-notching-and-boring-joists/>

PC SECTION 312.11 – WELDER QUALIFICATIONS

- **312.11 Joint inspection.**

Inspections of welded joints shall consist of visual examination, during or after manufacture, fabrication, assembly, or pressure tests as appropriate.

- **312.11.1 Welder's qualifications.** Welders installing **domestic water piping** within buildings at any pressure shall comply with the following:

1. Welders shall be qualified for all pipe sizes, wall thicknesses and all positions in accordance with the *ASME Boiler and Pressure Vessel Code*, Section IX. Requalification of a welder is required should the welder fail to maintain welder's continuity every 6 months. The licensed master plumber employing the welder shall maintain a welder continuity log and the log shall be made available to the department upon request.
2. Welder qualification testing shall be performed by an approved agency and the inspector witnessing the test shall be an authorized AWS Certified Welding Inspector.
3. Copies of the certified welder qualification reports shall be maintained by both the approved agency and the licensed master plumber employing the welder for at least six years and shall be made available to the department upon request.



Source:
<https://www.martinandwhite.com/pipe-welding-services>

PC SECTION 403.5 – DRINKING FOUNTAINS

- **403.5 Drinking fountain location.**

Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are **located on each story** within a distance of travel of 500 feet (152 m) of the most remote location in the tenant space on such story. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet (91 m). Drinking fountains shall be located on an accessible route.



Source: <https://inspectionsada.com/ada-compliance-blog/2021/1/3/drinking-fountains-and-the-ada>

- **Analysis:** *This item is related to the previously mediated section 410 "Drinking fountains". ICC added this section to clarify where drinking fountains can be located. The NYC modification ensures greater accessibility for users.*

PC SECTION 605.7 – CONSISTENT STANDARDS

■ 605.7 Valves.

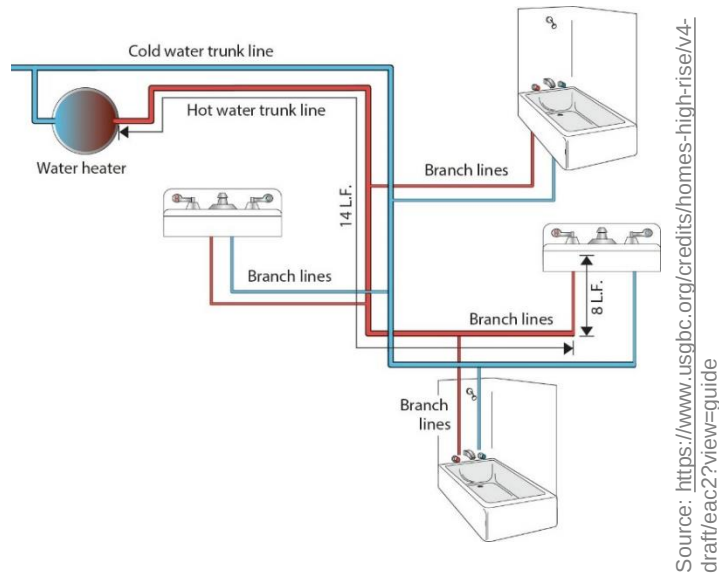
Valves shall be compatible with the type of piping material installed in the system. Valves shall conform to one of the standards listed in Table 605.7 or shall be approved. Valves intended to supply drinking water shall meet the requirements of NSF 61.



Source: <https://www.emerson.com/documents/automation/catalog-lead-free-solutions-asco-en-us-6116526.pdf>

- **Analysis:** Requires valves to meet the same requirements of NSF-61 as water distribution piping. Ensures that contaminants, including lead, are not imparted to the drinking water.

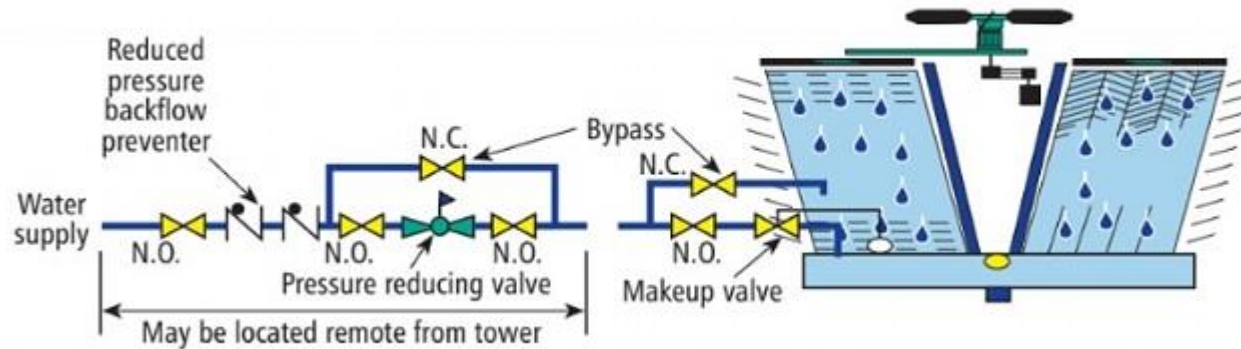
PC SECTION 607.2 – ENERGY CONSERVATION



- **607.2 Hot or tempered water supply to fixtures.**
The developed length of hot or tempered water piping, from the source of hot water to the fixtures that require hot or tempered water, shall not exceed 20 feet (6096 mm) or the maximum length in accordance with the New York City Energy Conservation Code. Recirculating system piping and heat-traced piping shall be considered to be sources of hot or tempered water.

- **Analysis:** In accordance with the NYCECC, as required to conserve energy, limits the maximum length of uncirculated hot water piping. Section ECC C404 Table 404.5.1. limits pipe length as a function of diameter and depending on the diameter the acceptable length is either more or less than 20 feet.

PC SECTION 608.16.6 – DRINKING WATER SAFETY



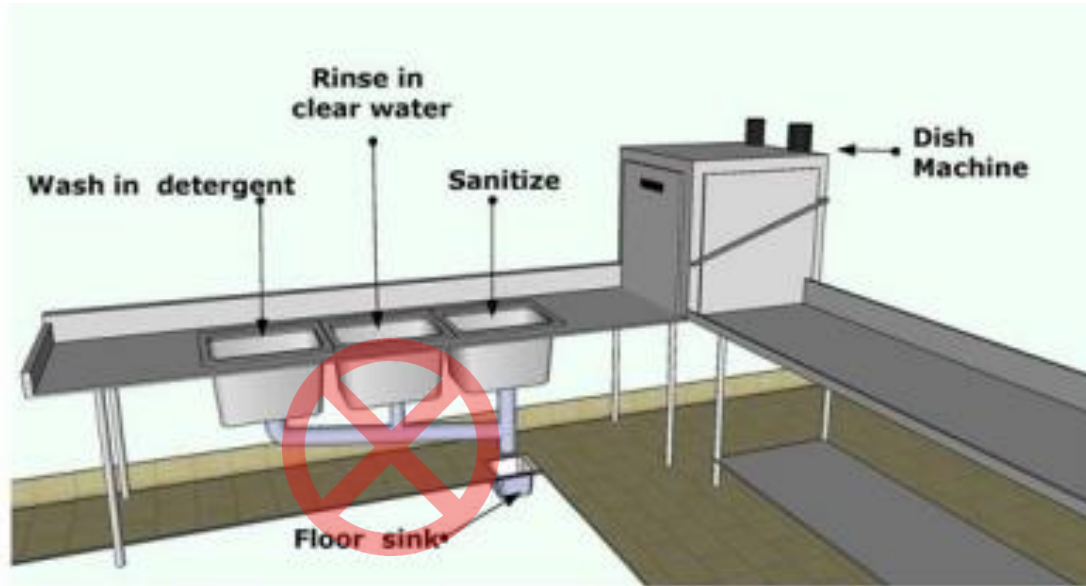
Source: <https://jimpcoblog.com/hvac-blog/how-to-pick-a-cooling-tower-strategies-for-make-up-water>

■ 608.16.6 Connections subject to backpressure.

Where a potable water connection is made to a nonpotable line, fixture, tank, vat, pump, **cooling tower** or other equipment subject to high-hazard backpressure, the potable water connection shall be protected by a reduced pressure principle backflow prevention assembly.

- **Analysis:** Added cooling towers to the list of equipment that trigger the need to protect potable water connection by a backflow preventor at such cooling towers.

PC SECTION 802.1.1 – FOOD HANDLING SINKS



Source: [Contra Costa Health Services](#)

■ 802.1.1 Food handling.

Equipment and fixtures utilized for the storage, preparation and handling of food shall discharge through an indirect waste pipe by means of an air gap. Each well of a multiple compartment sink shall discharge independently to a waste receptor.

- **Analysis:** When a multiple compartment sink is used each compartment well shall be connected to a waste receptor (with air gap).

PC SECTION 802.2 – INDIRECT WASTE PIPING



Source: [CNN](#)

- **802.2 Installation.**

Indirect waste piping shall discharge through an air gap or air break into a waste receptor. Waste receptors shall be trapped and vented and shall connect to the building drainage system. Indirect waste piping that exceeds 30 inches (762 mm) in developed length measured horizontally, or 54 inches (1372 mm) in total developed length, shall be trapped.

Exception: Where a waste receptor receives only clear-water waste and does not directly connect to a sanitary drainage system, the receptor shall not require a trap.

PC SECTION 802.3 – WASTE RECEPTORS



Source: Cavan Images/The Image Bank/Getty Images

- **802.3 Waste receptors.**

For other than hub drains that receive only clear-water waste and standpipes, a removable strainer or basket shall cover the outlet of waste receptors. **Waste receptors shall not be installed in concealed spaces.** Waste receptors shall not be installed in plenums, crawl spaces, attics, interstitial spaces above ceilings and below floors. **Ready access shall be provided to waste receptors.**



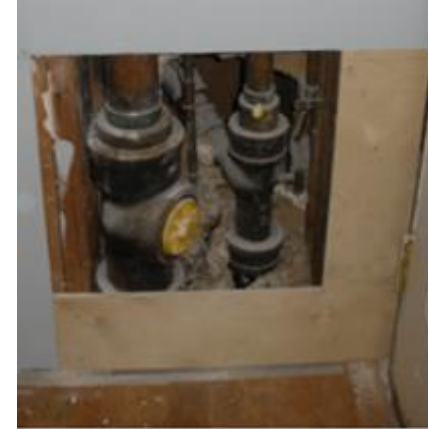
Source: [Brickkicker Home Inspection](#)

- ***Analysis:*** Accepted ICC changes that clarify that waste receptors shall not be installed in concealed spaces. Also, installation of waste receptors are prohibited in plenums, crawl spaces, attics, interstitial spaces above ceilings and below floors. The code has clarified that standpipes are waste receptors

PC SECTION 802.3 – WASTE RECEPTORS

- **Analysis (cont'd):**

Waste receptors requiring “ready access” is not a new requirement. Some limitations for where waste receptors could not be located have been removed. Instead of requiring waste receptors be installed in ventilated spaces and prohibit their installation in bathrooms or toilet rooms or in any inaccessible or unventilated spaces, the new language prohibits the installation of waste receptors in concealed locations, as defined in PC202.



ACCESS (TO). That which enables a fixture, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door or similar obstruction (see “Ready access”).

*READY ACCESS (TO). That which enables a device, fixture, appliance or equipment to be directly reached **without requiring the removal or movement of any panel, door or similar obstruction and without the use of a portable ladder, step stool or similar device.***

*CONCEALED LOCATION. A location that **cannot be accessed without damaging permanent parts of the building structure** or finished surface. Spaces above, below or behind readily removable panels or doors shall not be considered as concealed.*

CONCEALED PIPING. Piping that is located in a concealed location (see “Concealed Location”)

PC SECTION 803.3 – CHEMICAL WASTE SYSTEMS

TABLE 803.3.1
CHEMICAL WASTE AND VENT PIPE

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASTM F 2618
Glass pipe	ASTM C 1053
High silicon cast iron	ASTM A 518 A/518 M
Polyolefin pipe	ASTM F 1412; CSA B181.3
Polypropylene (PP) pipe	ASTM F 1412
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F 1673; CSA B181.3

TABLE 803.3.2
CHEMICAL WASTE AND VENT PIPE FITTINGS

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASTM F 2618
Glass	ASTM C 1053
High silicon iron	ASTM A 861
Polyolefin pipe	ASTM F 1412; CSA B181.3
Polypropylene (PP) pipe	ASTM F 1412
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F 1673; CSA B181.3

- **Analysis:** New subsections and tables were added which now clearly contain allowable standards to which chemical waste piping, vent piping (803.3.1) and vent pipe fittings (803.3.2) shall conform.
- PC 803.3.3 directs the user to Chapter 7 for requirements on the installation of chemical waste and vent pipe (704.1 slope; 704.2 change in size; 704.3 connections to offsets; 704.4 future fixtures; 704.5 dead ends)

PC SECTION 910.1 – VENT / FIXTURE TRAP DIST.

TABLE 909.1
MAXIMUM DISTANCE OF FIXTURE TRAP FROM VENT

SIZE OF TRAP (inches)	SLOPE (inch per foot)	DISTANCE FROM TRAP (feet)
1 1/4	1/4	5
1 1/2	1/4	6
2	1/4	8
3	1/8	12
4	1/8	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m.

■ 910.1 Individual vent permitted.

Each trap and trapped fixture is permitted to be provided with an individual vent. The individual vent shall connect to the fixture drain of the trap or trapped fixture being vented in accordance with section 909.1, but at a distance not to exceed 16 feet (4876 mm).

- **Analysis:** Formerly Section PC 907.1, this section now allows individual vents be connected to the fixture drain of the trap or trapped fixture being vented at a distance not to exceed 16 ft; this was previously 4 ft.
- The distance from fixture trap to the connection is limited to the length specified in the new Table 909.1.

PC SECTION 912.3 – WET VENTING

TABLE 912.3
WET VENT SIZE

MINIMUM WET VENT PIPE SIZE (inches)	MAXIMUM DRAINAGE FIXTURE UNIT LOAD (dfu)
2	4
2½	6
3	12

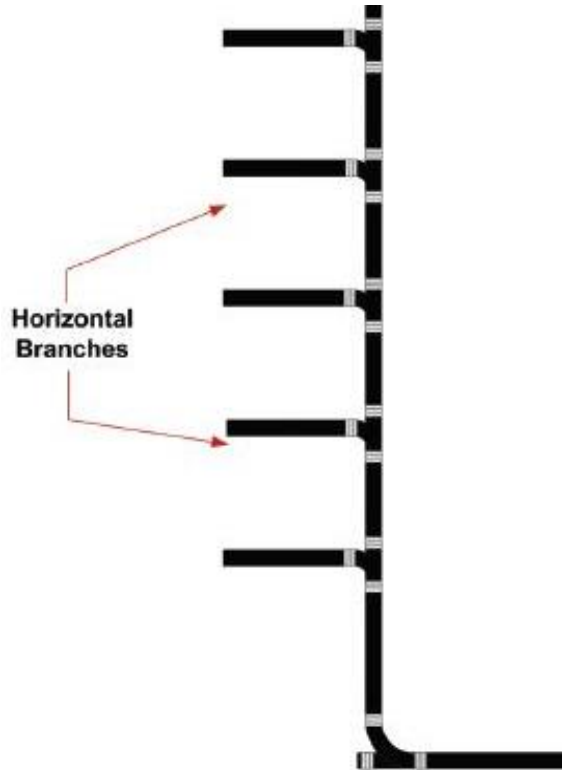
For SI: 1 inch = 25.4 mm.

■ 912.3 Size.

The dry vent serving the wet vent shall be sized based on the largest required diameter of pipe within the wet-vent system served by the dry vent. The wet vent shall be of a size not less than that specified in Table 912.3, based on the fixture unit discharge to the wet vent.

- **Analysis:** Formerly Section PC 907.1, this section now allows individual vents be connected to the fixture drain of the trap or trapped fixture being vented at a distance not to exceed 16 ft; this was previously 4 ft.
- The distance from fixture trap to the connection is limited to the length specified in the new Table 909.1.

PC SECTION 914.3 – CIRCUIT VENTING



- **914.3 Slope and size of horizontal branch.**
The slope of the vent section of the horizontal branch drain shall be not greater than one unit vertical in 12 units horizontal (8.3-percent slope). The entire length of the vent section of the horizontal branch drain shall be sized for the total drainage discharge to the branch.

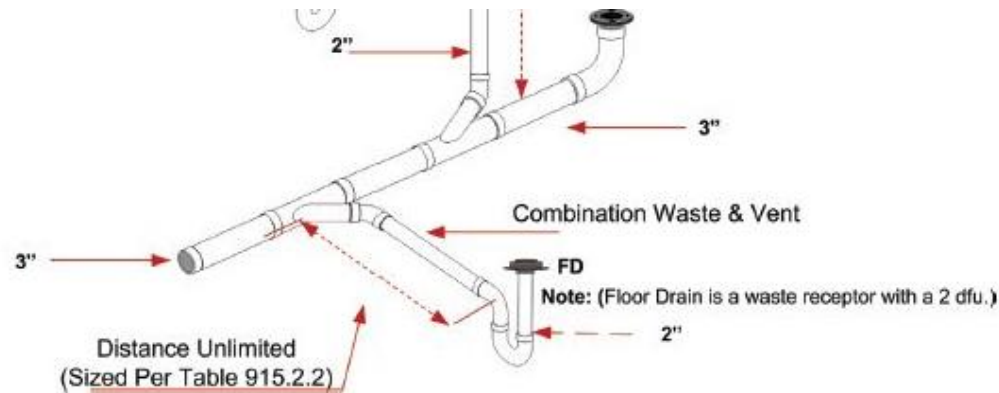
Source : [Methods of venting plumbing fixtures and traps in the 2021 International Plumbing Code](#)

- **Analysis:** Formerly Section PC 911.3 in the 2014 Plumbing Code, this section increases the slope requirement to "8.3 percent slope"; this was previously "8-percent slope"

PC SECTION 915.2.2 – COMBINATION WASTE/VENT

■ 915.2.2 Size and length.

The size of a combination waste and vent pipe shall be not less than that indicated in Table 915.2.2. The horizontal length of a combination waste and vent system shall be unlimited.



Source : [Methods of venting plumbing fixtures and traps in the 2021 International Plumbing Code](#)

TABLE 915.2.2
SIZE OF COMBINATION WASTE AND VENT PIPE

DIAMETER PIPE (inches)	MAXIMUM NUMBER OF DRAINAGE FIXTURE UNITS (dfu)	
	Connecting to a horizontal branch or stack	Connecting to a building drain or building subdrain
2	3	4
2½	6	26
3	12	31
4	20	50
5	160	250
6	360	575

For SI: 1 inch = 25.4 mm.

- **Analysis:** Formerly Section PC 912.3 in the 2014 NYC Plumbing Code. This section clarifies that there is no limit on the horizontal length of a combination waste and vent system.

PC SECTION 915.2.5 – COMBINATION WASTE/VENT

TABLE 909.1
MAXIMUM DISTANCE OF FIXTURE TRAP FROM VENT

SIZE OF TRAP (inches)	SLOPE (inch per foot)	DISTANCE FROM TRAP (feet)
1 ¹ / ₄	1 ¹ / ₄	5
1 ¹ / ₂	1 ¹ / ₄	6
2	1 ¹ / ₄	8
3	1 ¹ / ₈	12
4	1 ¹ / ₈	16

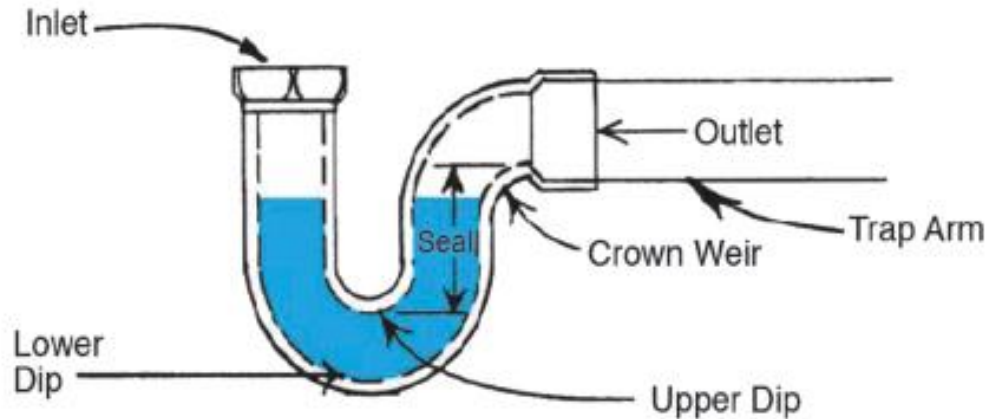
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m.

■ 915.2.5 Fixture branch or drain.

The fixture branch or fixture drain shall connect to the combination waste and vent within a distance specified in Table 909.1. The combination waste and vent pipe shall be considered the vent for the fixture.

- **Analysis:** This new subsection simply clarifies that the distance from fixture trap to the connection to the combination waste and vent system is limited to the length specified in Table 909.1.

PC SECTION 1002.1 – TRAP DISTANCE



Source: [JAPMO](#)

■ 1002.1 Fixture traps.

Each plumbing fixture shall be separately trapped by a liquid-seal trap, except as otherwise permitted by this code. The vertical distance from the fixture outlet to the trap weir shall not exceed 48 inches (1220 mm), and the horizontal distance shall not exceed 30 inches (762 mm) measured from the centerline of the fixture outlet to the centerline of the inlet of the trap. The height of a clothes washer standpipe above a trap shall conform to Section 802.3.3. A fixture shall not be double trapped.

- **Analysis:** The maximum vertical distance from the fixture outlet to the trap weir was increased from 24 inches to 48 inches, as the traps that are vulnerable to siphonage are not permitted in NYC.

PC SECTION 1002.1 – TRAP EXCEPTIONS

Source: Code Update Training 2015



- **1002.1 Exceptions:**
 4. Floor drains in multilevel parking structures that discharge to a building storm sewer shall not be required to be individually trapped. Where floor drains in multilevel parking structures are required to discharge to a combined building sewer system, the floor drains shall not be required to be individually trapped provided that they are connected to a main trap in accordance with Section 1103.1.
 5. ..drinking fountains discharging to a drywell.
 6. This section shall not apply where local acid neutralizing systems are utilized in accordance with the rules of the Department of Environmental Protection and Section 803.2 of this code.

- **Analysis:** New exceptions #4 & #6

PC SECTION 1002.6 – HOUSE TRAPS



Source: [House Trap](#)

- **1002.6 Building traps.**

Building (house) traps shall be installed on all building drains near the foundation wall of the structure, inside of the street line, and on the sewer side of all connections except the connection used to receive the discharge from a sewage ejector, oil separator or leader on combined systems. If such trap is placed outside of the foundation wall or below a cellar floor, it shall be made accessible in a manhole with a cover, or by extension of the two handholes that shall be provided with cleanouts at the cellar floor or grade. Handhold extensions shall be not more than 18 inches (457 mm) above the centerline of the drain. Building (house) traps shall be the same size as the building drain connected thereto and shall be provided with a fresh air inlet in accordance with Section 703.7.1.

- **Analysis:** Replaced the existing text with clearer requirements for house traps.

PC SECTION 1003.4 – OIL SEPARATORS

- **1003.4 Oil separators required.**

At repair garages where floor or trench drains are provided, car washing facilities with engine or undercarriage cleaning capability, factories where oily and flammable liquid wastes are produced and hydraulic elevator pits, oil separators shall be installed into which oil-bearing, grease-bearing or flammable wastes shall be discharged before emptying into the building drainage system or other point of disposal.



Exception: An oil separator is not required in hydraulic elevator pits where an automatic shut-down system is installed for the prevention of accidental discharge of oil-laden waste water into the sanitary system. Such systems shall not terminate the operation of pumps utilized to maintain emergency operation of the elevator by fire fighters.

- **Analysis:** Clarifies that automatic shut-down systems in hydraulic elevator pits may not interfere with the fire fighter's emergency operation of the elevator.

PC SECTION 1101.5.2 – DET/RETENTION TANKS

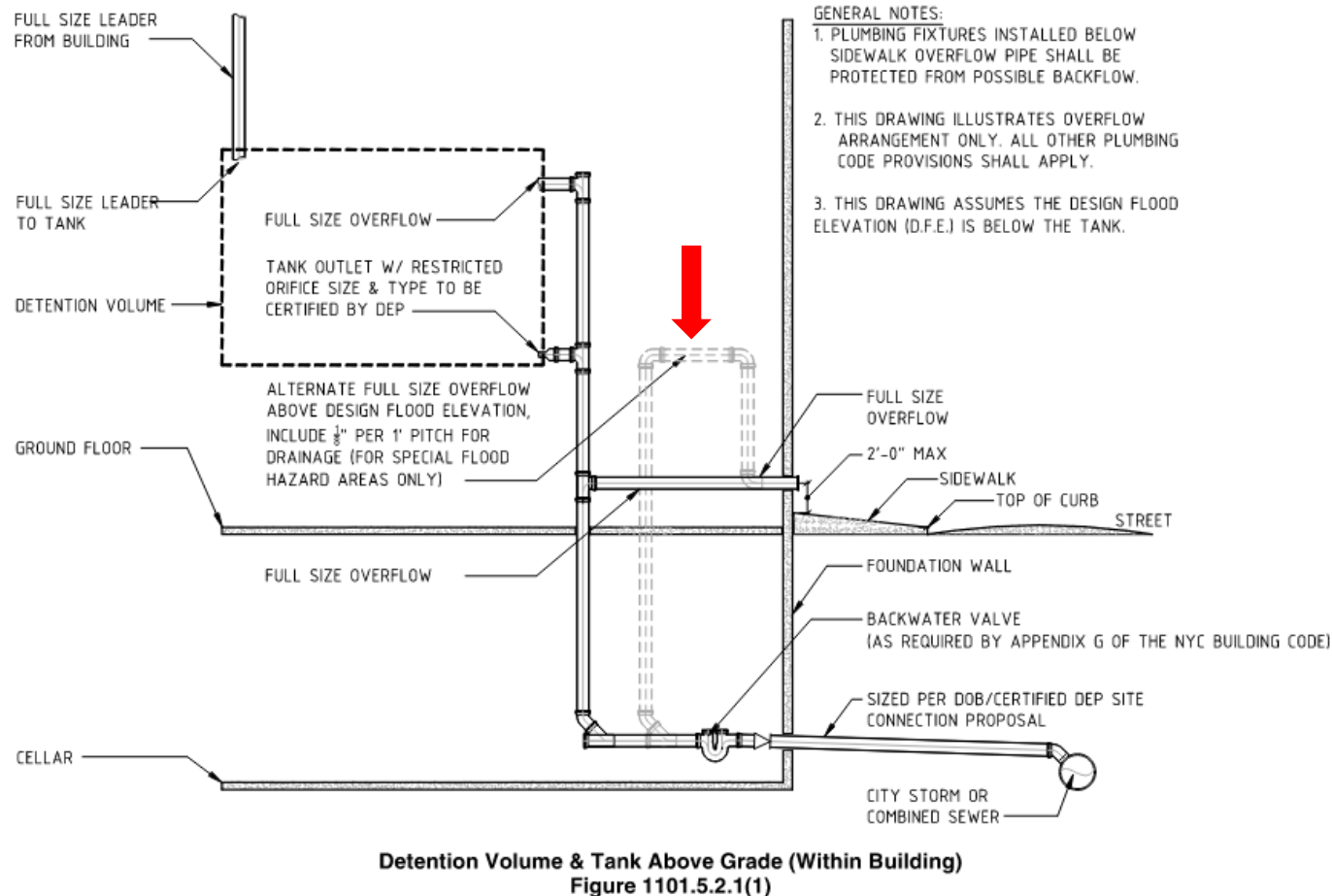
- **1101.5.2 Detention and retention tanks.**

Detention and retention tanks located within buildings in flood hazard areas shall be located **above the design flood elevation or** shall be designed and **constructed to withstand the static pressure conditions** the system will experience in the event of a flood condition.

1101.5.2.1 Emergency overflow. Emergency overflow piping shall equal the full size of the incoming storm water flow. Emergency overflows and vent terminations for buildings located in flood hazard areas shall be located above the design flood elevation. Such emergency overflow shall discharge the overflow outside of the building into either of the following locations:

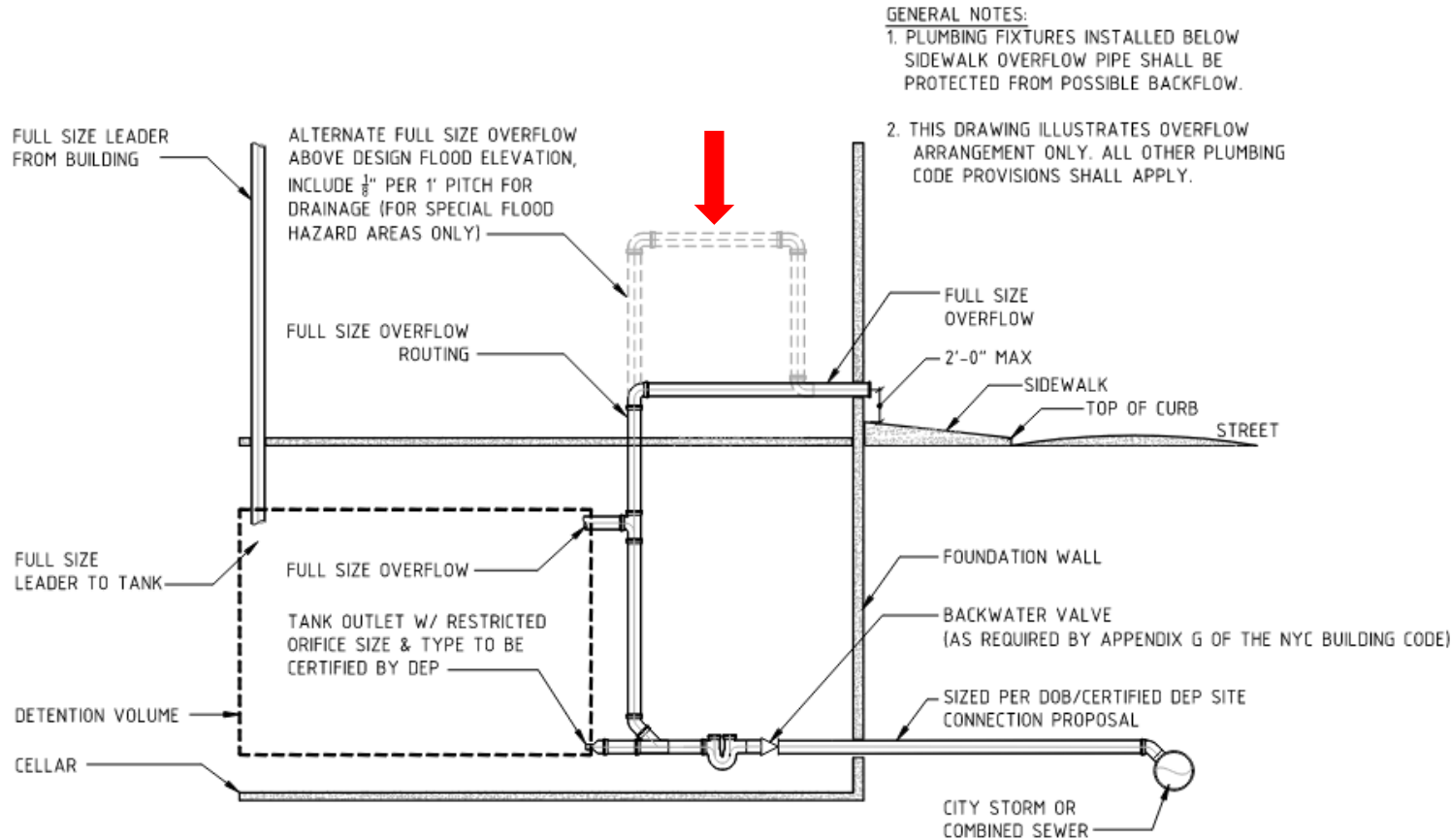
1. The tax lot; or
2. The public sewer, provided that the overflow piping is provided with a vent, of the same diameter as the overflow piping, that terminates on the front wall of the building facing the street and no more than 2 feet (610 mm) above the sidewalk. **See Figures 1101.5.2.1(1), 1101.5.2.1(2) and 1101.5.2.1(3).**

PC SECTION 1101.5.2 – DET/RETENTION TANKS



- **Analysis:** This sketch illustrates an **above grade** detention tank with an emergency overflow piping discharging into the public sewer, and a vent in the overflow piping, of the same diameter as the overflow piping, which terminates on the front wall of the building facing the street, no more than 2 feet (610 mm) above the sidewalk.
- **For buildings located in a special flood hazard area, an alternate tank emergency overflow/vent piping located above the design flood elevation is required to be provided, as shown in the sketch.**

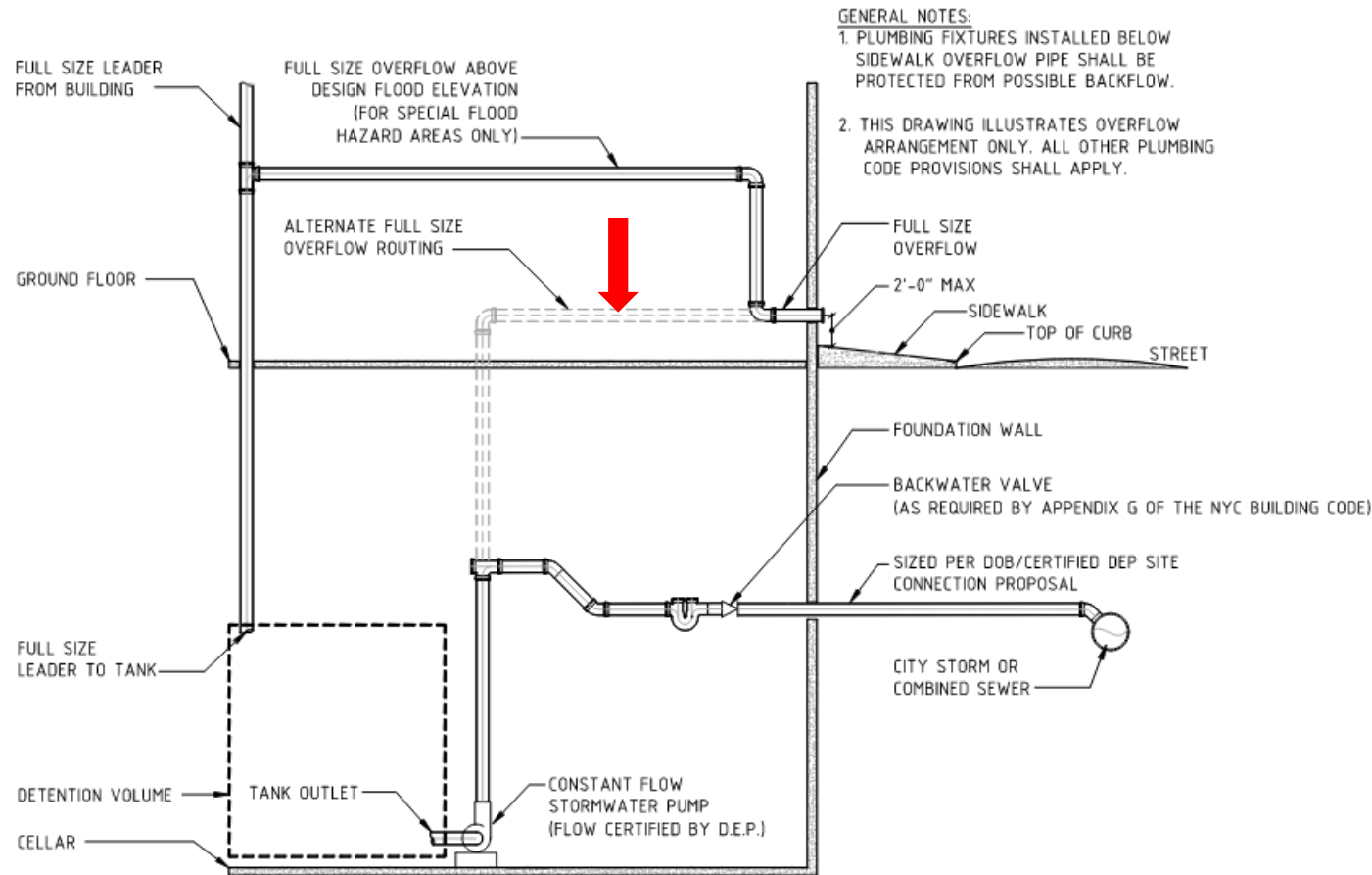
PC SECTION 1101.5.2 – DET/RETENTION TANKS



Detention Volume Above Sewer, Tank Below Grade (Within Building)
Figure 1101.5.2.1(2)

- **Analysis:** This sketch illustrates a detention tank **below grade, but above the public sewer**, with an emergency overflow piping discharging into the public sewer, and a vent in the overflow piping, of the same diameter as the overflow piping, which terminates on the front wall of the building facing the street, no more than 2 feet (610 mm) above the sidewalk.
- **For buildings located in a special flood hazard area, an alternate tank emergency overflow/vent piping located above the design flood elevation is required to be provided, as shown in the sketch.**

PC SECTION 1101.5.2 – DET/RETENTION TANKS



Detention Volume & Tank Below Grade (Within Building)
Figure 1101.5.2.1(3)

- **Analysis:** This sketch illustrates a detention tank **below grade, and below the public sewer line**, which discharges into the public sewer via a constant flow stormwater pump, or to the outside with overflow piping that terminates on the front wall of the building facing the street, no more than 2 feet (610 mm) above the sidewalk.
- **For buildings located in a special flood hazard area, an alternate tank emergency overflow piping located above the design flood elevation is required to be provided, as shown in the sketch.**

PC SECTION 1101.7 – ROOF DESIGN



Source: [Inadequate roof drainage](#)

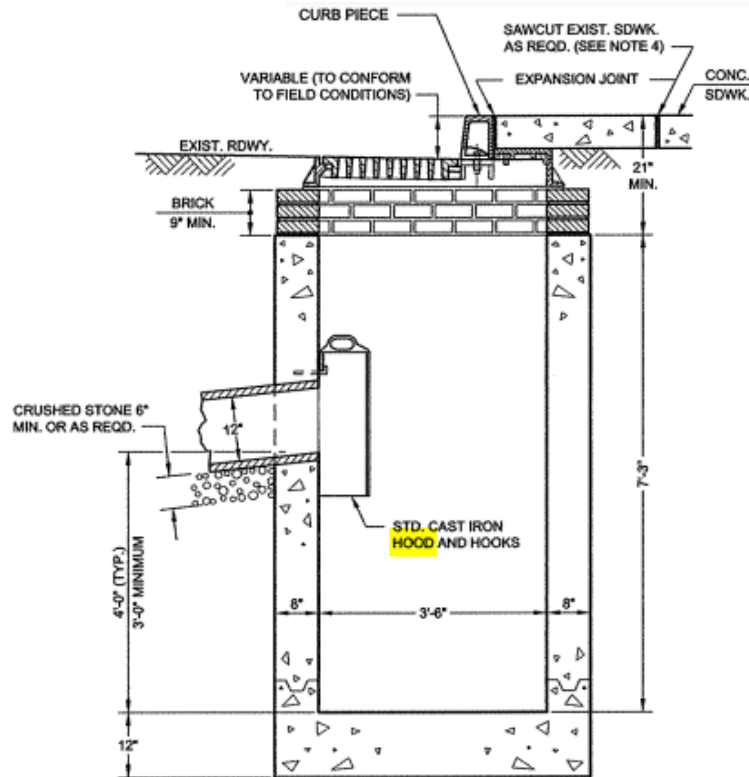


- **1101.7 Roof design.**

Roofs shall be designed for the maximum possible depth of water that will pond thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements. In determining the maximum possible depth of water, all primary roof drainage means shall be assumed to be blocked. The maximum possible depth of water on the roof shall include the height of the water required above the inlet of the secondary roof drainage means to achieve the required flow rate of the secondary drainage means to accommodate the design rainfall rate as required by Section 1106.

- **Analysis:** Clarifies that the secondary roof drainage system design now shall be able to accommodate the design rainfall rate in accordance with the new requirements of Section 1106.

PC SECTION 1103.1 – HOODED CATCH BASIN



- **1103.1 Main trap.**

Leaders and storm drains connected to a combined sewer shall be trapped. Individual storm water traps shall be installed on the storm water drain branch serving each conductor, or a single trap shall be installed in the main storm drain just before its connection with the combined building sewer or the public sewer. A hooded catch basin located within the property line shall be the equivalent of a building-house trap for the connection to a public sewer.

- **Analysis:** Hooded catch basins are an acceptable alternative to a trap on a storm system.

PC SECTION 1106 – STORM DRAIN SIZING

TABLE 1106.2
STORM DRAIN PIPE SIZING

PIPE SIZE (inches)	CAPACITY (gpm)			
	VERTICAL DRAIN	SLOPE OF HORIZONTAL DRAIN		
		1/8 inch per foot	1/4 inch per foot	1/2 inch per foot
2	34	15		
3	87	39		
4	180	81		
5	311	117		
6	538	243		
8	1,117	505		
10	2,050	927		
12	3,272	1,480		
14	4,204	1,312		
15	5,543	2,508		
16	5,543	2,508		
18	8,218	3,100		

TABLE 1106.3
VERTICAL LEADER SIZING

SIZE OF LEADER (inches)	CAPACITY (gpm)
2	30
2 × 2	30
1 1/2 × 2 1/2	30
2 1/2	54
2 1/2 × 2 1/2	54
3	92
2 × 4	92
2 1/2 × 3	92
4	192
3 × 4 1/4	192
3 1/2 × 4	192
5	360
4 × 5	360
4 1/2 × 4 1/2	360
6	563
5 × 6	563
5 1/2 × 5 1/2	563
8	1208
6 × 8	1208

For SI: 1 inch = 25.4 mm, 1 gallon per minute = 3.785 L/m.

1106.2 Size of storm drain piping.

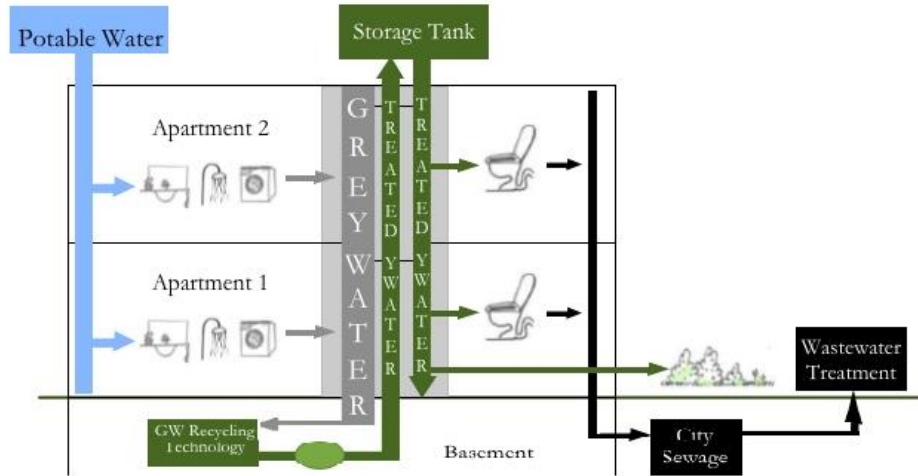
Vertical and horizontal storm drain piping shall be sized based on the flow rate through the roof drain. The flow rate in storm drain piping shall not exceed that specified in Table 1106.2.

1106.3 Vertical leader sizing.

Vertical leaders shall be sized based on the flow rate from horizontal gutters or the maximum flow rate through roof drains. The flow rate through vertical leaders shall not exceed that specified in Table 1106.3.

- **Analysis:** Storm drain piping including vertical conductors, leaders and horizontal branches of drains were required to be sized based on the maximum projected roof area.
- The 2022 NYC Plumbing Code requires that storm drains be sized based on the published roof drain flow rate and anticipated pounding of the roof drain. Tables 1106.2(1) and 1106.3 in the 2014 Plumbing Code were replaced with a new table, Table 1106.2.
- Similarly, vertical leaders are now required to be sized based on flow rates, therefore Table 1106.2(2) in the 2014 NYC Plumbing Code was replaced with new Table 1106.3

PC SECTION 1301.1 – NONPOTABLE SYSTEMS



Source: <http://www.shomera.org/on-greywater-recycling/what-is-greywater-recycling/>

■ 1301.1 Scope.

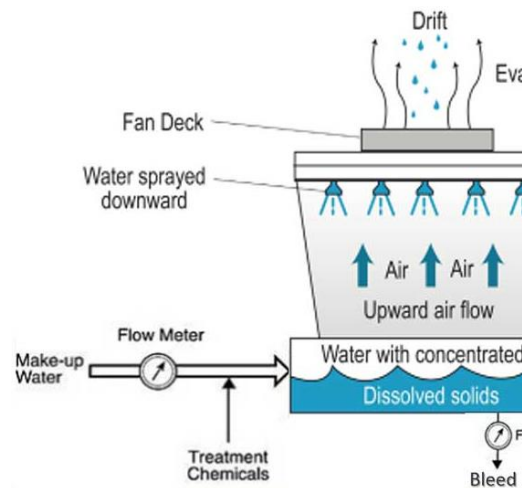
The provisions of Chapter 13 shall govern the materials, design, construction and installation of systems for the collection, storage, treatment and conveyance of nonpotable water. The use and application of nonpotable water shall comply with the New York City Construction Codes, and all applicable laws, and rules, including but not limited to those of the Department of Environmental Protection and the Department of Health and Mental Hygiene. Water from nonpotable systems shall be collected, stored, treated, conveyed and used on the same tax lot unless otherwise approved by the commissioner.

- **Analysis:** Chapter 13 is a relocation and expansion of the requirements of former Appendix C. It reflects the new regulatory scheme whereas DOB regulates construction requirements, & DOHMH regulates water quality & use.

PC SECTION 1301.1.1 – NONPOTABLE: USES

- **1301.1.1 Uses of nonpotable water.**

Nonpotable water end use applications shall be in accordance with the requirements established by the Department of Health and Mental Hygiene.



Source: <https://www.duboischemicals.com/water-treatment/summer-is-heating-up-top-5-ways-to-save-on-cooling-tower-bleed/>



Source: <https://www.cnn.com/2020/06/16/health/flush-toilet-spray-coronavirus-wellness-trnd/index.html>



Source: <https://www.thehonestconsumer.com/blog/clothing-made-from-recycled-plastic>

- **Analysis:** New section which clarifies that the DOHMH regulates nonpotable water end use applications.

PC SECTION 1301.2 – NONPOTABLE: WATER

■ 1301.2 Water quality.

Nonpotable water for each end use application shall meet the minimum water quality and treatment standards and requirements established by the Department of Health and Mental Hygiene.



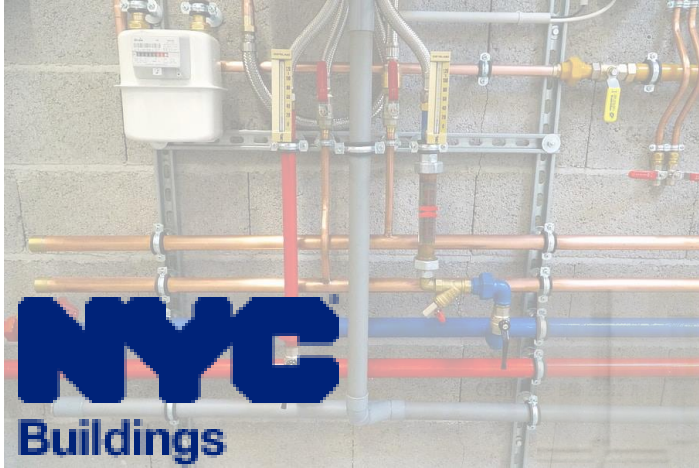
TABLE C102.1
MINIMUM WATER QUALITY STANDARDS

POLLUTANT	QUANTITY LIMIT
BOD	< 10 mg/l ^a
TSS	< 10 mg/l
Total Coliform	< 100 per 100 ml
E. Coli	< 2.2 colonies per 100 ml
pH	6.5-8.0
Turbidity	< 2.0 NTU ^b

- a. Effluent from rainwater and condensate collected in separate tanks or compartments from wastewater shall not be required to meet the BOD limitations indicated above.
- b. The wastewater facility effluent must meet the performance standards of < 2.0 NTU for turbidity for 95% of the measurements. At no time can the turbidity result be above 5 NTU. These results shall be recorded and compiled in the annual report.

- **Analysis:** New section to clarify that the DOHMH regulates quality of nonpotable water used in these systems.

PC SECTION 1301.4 – NONPOTABLE: PERMITS



Source: <https://www.cbc.ca/news/canada/british-columbia/water-restrictions-in-metro-vancouver-limit-sidewalk-cleaning-1.3143766>

Source: <https://535plumbing.com/2020/05/01/why-plumbing-inspections-for-new-construction-are-recommended/>



- **1301.4 Permits.**

Permits shall be required for the construction, installation, and alteration of nonpotable water systems, and shall be required by the Department of Health and Mental Hygiene for review, commissioning and operation of nonpotable water systems.

Exception: Work outlined in Article 105.4 of Chapter 1 of Title 28 of the Administrative Code.

- **Analysis:** New section concerning permitting requirements. DOB permits shall be required for construction, installation and alteration of water recycling systems. DOHMH permits for commissioning and operation of such systems.

PC SECTION 1301.6 – NONPOTABLE: MATERIALS

- **1301.6 Approved components and materials.**

Permits shall be required for the construction, installation, and alteration of nonpotable water systems, and shall be required by the Department of Health and Mental Hygiene for review, commissioning and operation of nonpotable water systems.

- 1301.6.1 Above-ground piping.**

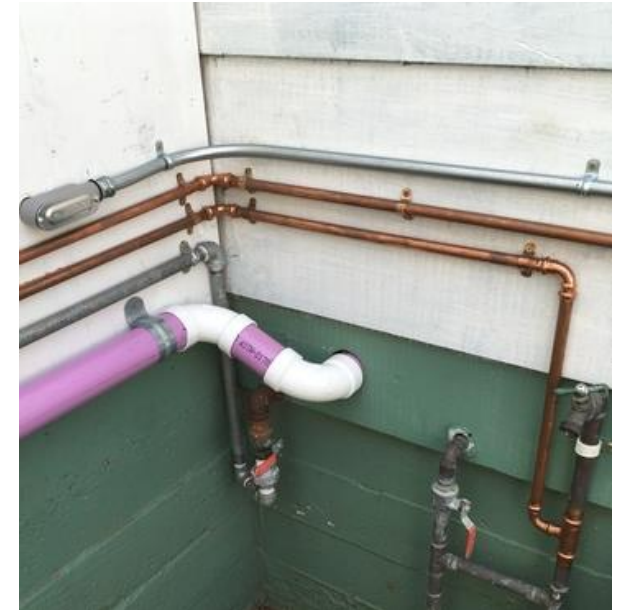
- Above-ground drain, waste and vent piping for nonpotable water systems shall conform to one of the standards listed in Table 702.1.

- ...

- 1301.6.3 Conveyance piping.**

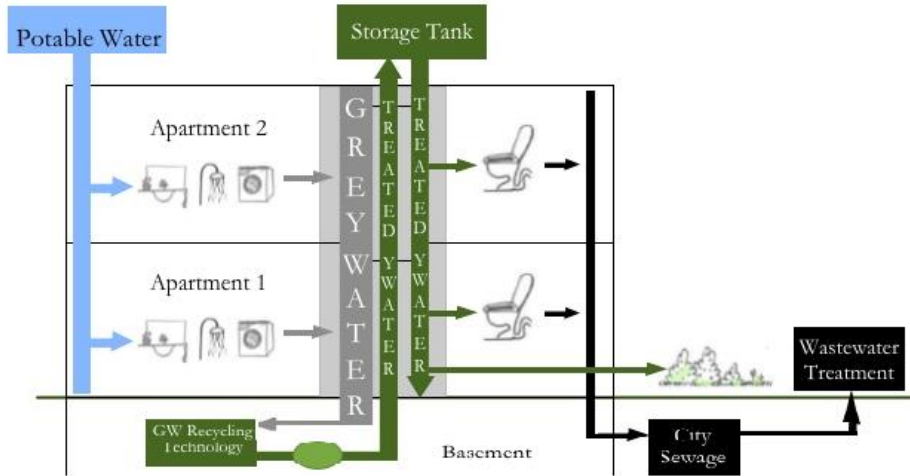
- Conveyance piping for nonpotable water systems shall conform to one of the standards listed in Table 1301.6 and shall be purple in color, either manufactured, painted, or covered in a purple jacket and labeled in accordance with Section 1301.3.

- **Analysis:** *New subsections for material requirements, previously part of C101.5.*



Source: <https://www.rexrooter.com/blog/view/1114/grey-water-plumbing-in-ventura>

PC SECTION 1302.1 – NONPOTABLE: RECYCLING



Source: <http://www.shomera.org/on-greywater-recycling/what-is-greywater-recycling/>

■ 1302.1 General.

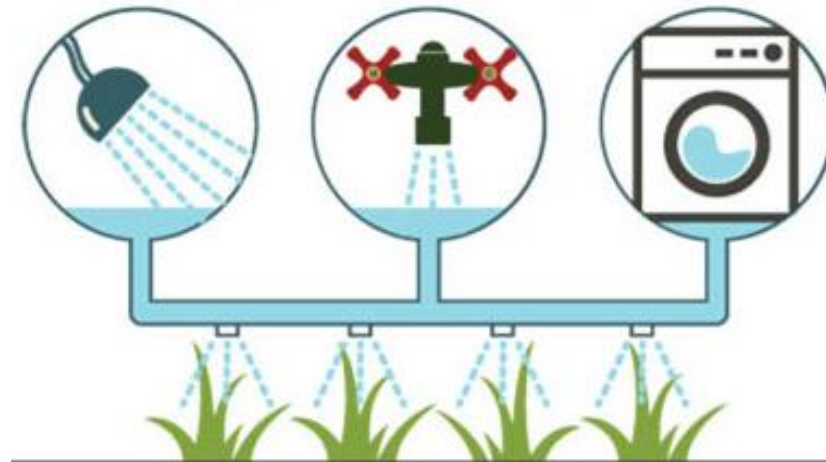
The provisions of Section 1302 shall govern the construction, installation, alteration and repair of on-site nonpotable water reuse systems for the collection, storage, treatment conveyance and application of on-site sources of nonpotable water as permitted by the New York City Construction Codes, and all applicable laws, and rules, including but not limited to those of the Department of Environmental Protection and the Department of Health and Mental Hygiene.

- *Analysis: Replaced the list of end uses of recycled water by referencing DOHMH and DEP regulations.*

PC SECTION 1302.2 – NONPOTABLE: INPUT

- **1302.2 Sources.**

On-site nonpotable water reuse systems shall be permitted to collect waste discharge from only the allowed sources as established by the Department of Health and Mental Hygiene.



Source: <https://thetinytlife.com/greywater-systems/>

- **Analysis:** Adopted the new ICC section with NYC modification that sources of water are regulated by DOHMH.

PC SECTION 1302.5 – NONPOTABLE: REQUIREMENTS



Source: <https://www.indiamart.com/proddetail/commercial-water-purification-system-20543780155.html>

- **1302.5 Filtration.**
Untreated water collected for reuse shall be filtered as required for the intended nonpotable end use as established by the Department of Health and Mental Hygiene. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves immediately upstream and downstream to allow for isolation during maintenance.

- **Analysis:** Relocated and expanded on C101.11. Filtration requirements will be per DOHMH.

PC SECTION 1302.12 – NONPOTABLE: PERFORMANCE

- **1302.12 Tests and inspections.**

Tests and inspections shall be performed in accordance with Sections 108, 312, and Sections 1302.12.1 through 1302.12.7. Special inspections of the nonpotable water systems shall be conducted in accordance with Chapter 17...

- 1302.12.6 Water quality test.**

- Water quality testing and monitoring shall be conducted in accordance with requirements of the Dept. of Health...

- 1302.12.7 Inspection and testing of cross connection control.**

- Cross connection control inspection and testing shall be conducted in accordance with the requirements of the Dept. of Health...

- **Analysis:** Added new subsections. Water quality testing and monitoring; and cross connection control inspection and testing must be in accordance with the requirements of DOHMH. Special insp. of storage tanks & roofwashers per BC 17.

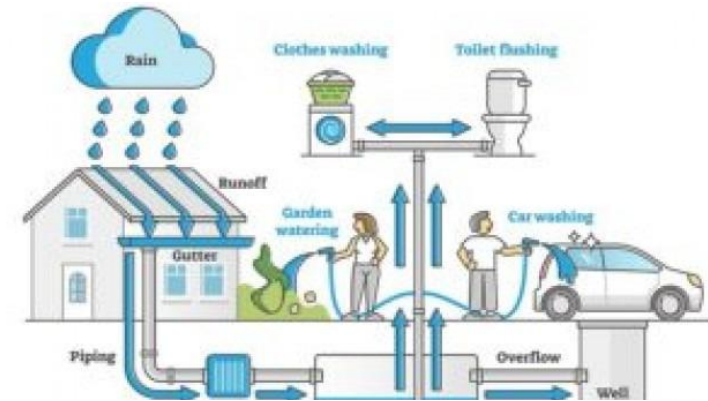


Source: <https://www.ziprecruiter.com/Career/Plumbing-Inspector/What-Is-How-to-Become>

PC SECTION 1303.1 – NONPOTABLE: RAINWATER

■ 1303.1 General.

The provisions of Section 1303 shall govern the construction, installation, alteration and repair of rainwater collection and conveyance systems for the collection, storage, treatment and conveyance of rainwater for nonpotable applications, as permitted by the New York City Construction Codes, and all applicable laws, and rules, including but not limited to those of the Department of Environmental Protection and the Department of Health and Mental Hygiene.



Source: <https://smartwatermagazine.com/blogs/graham-mann/new-buildings-turkey-feature-rainwater-harvesting-systems>

- **Analysis:** Replaced the list of end uses of rainwater by referencing DOHMH and DEP regulations.

PC SECTION 1303.8 – NONPOTABLE: REQUIREMENTS

■ 1303.8 Filtration.

Untreated rainwater collected for reuse shall be filtered as required for the intended nonpotable end use as established by the Department of Health and Mental Hygiene. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves installed immediately upstream and downstream to allow for isolation during maintenance.



Source: <http://bgdenterprise.blogspot.com/p/iron-removal-ferrous-iron-in-borehole.html>

- **Analysis:** Relocated and expanded on C101.11. Filtration requirements will be per DOHMH.

PC SECTION 1303.15 – NONPOTABLE: PERFORMANCE

- **1303.15 Tests and inspections.**

Tests and inspections shall be performed in accordance with Sections 108, 312, and Sections 1302.15.1 through 1302.15.9. Special inspections of the nonpotable water systems shall be conducted in accordance with Chapter 17...

- 1303.15.8 Water quality test.**

Water quality testing and monitoring shall be conducted in accordance with requirements of the Dept. of Health...

- 1303.15.9 Inspection and testing of cross connection control.**

Cross connection control inspection and testing shall be conducted in accordance with the requirements of the Dept. of Health...

- **Analysis:** Added new subsections. Water quality testing and monitoring; and cross connection control inspection and testing must be in accordance with the requirements of DOHMH. Special insp. of storage tanks & roofwashers per BC 17.



Source: <https://www.ziprecruiter.com/Career/Plumbing-Inspector/What-Is-How-to-Become>

PC CHAPTER 14 – SUBSURFACE IRRIGATION



Source: <https://brooklyneagle.com/articles/2019/05/29/farming-takes-to-the-rooftops-in-sunset-park/>

- Subsurface Landscape Irrigation Systems
 - 1401 General.
 - 1402 System Design and Sizing.
 - 1403 Installation.

- **Analysis:** *New chapter - governs the materials, design, construction and installation of subsurface landscape irrigation systems in NYC.*

PC APPENDIX C – CODIFYING BEST PRACTICES: STRUCTURAL SAFETY



Source: <https://elizabethtown.wini.com/resources/tech-articles/improper-notching-and-boring-joists/>

- C101.1 Cutting, notching and boring in wood members.
 - C101.1.1 Engineered wood products.
 - C101.1.2 Solid non-engineered joist notches and holes.
 - C101.1.3 Stud cutting and notching.
 - C101.1.4 Bored holes in studs.
 - C101.1.5 Drilling and notching of top plate.
 - C101.2 Cutting, notching and boring in steel members.
 - C101.2.1 Structural steel framing.
 - C101.2.2 Cold-formed steel framing.
 - C101.2.3 Nonstructural cold-formed steel wall framing.
 - C101.2.4 Steel floor and roof decking.
 - C101.3 Cutting, notching and coring into concrete.
-
- **Analysis:** New Appendix C limits cutting, notching and boring of lumber, concrete and steel framing; the provisions are needed for the safety of the joists, studs, beams, columns or other structural members that support the building.
 - 2014 PC Section 307.2 referenced general NYC BC



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