

Chapter 3: General Regulations

General Comments

The content of Chapter 3 is often referred to as “miscellaneous,” rather than general regulations. Chapter 3 received that label because it is the only chapter in the code whose requirements do not interrelate. If a requirement cannot be located in another chapter, it should be located in this chapter.

Some nonplumbing regulations merely reference other codes that have the specific requirements. The requirements provide a cross reference to the appropriate document, recognizing that it affects the plumbing system but the details are not specifically contained in the code (Sections 307, 309, 310 and 313 reference other *International Codes*®).

The jurisdictional requirements specify that the water and sewer must connect to the public system when a public system is provided (Sections 602.1 and 701.2 are more specific on this issue).

Nonplumbing requirements include surface requirements for walls and floors in a toilet room, light and ventilation, floodproofing and rodentproofing.

Purpose

Chapter 3 contains safety requirements for the installation of plumbing and nonplumbing requirements for toilet rooms, including requirements for the identification of pipe, pipe fittings, traps, fixtures, materials and devices used in plumbing systems.

The safety requirements provide protection for the building's structural members, stress and strain of pipe and sleeving. The building's structural stability is protected by the regulations for cutting and notching of structural members. Additional protection for the building occupants includes requirements to maintain the plumbing in a safe and sanitary condition, as well as privacy for those occupants.

SECTION 301 GENERAL

301.1 Scope. The provisions of this chapter shall govern the general regulations regarding the installation of plumbing not specific to other chapters.

❖ The requirements included in Chapter 3 are not interrelated, as is typical with other chapters. Many regulations are not specific plumbing requirements, but relate to the overall plumbing system.

301.2 System installation. Plumbing shall be installed with due regard to preservation of the strength of structural members and prevention of damage to walls and other surfaces through fixture usage.

❖ Plumbing components and materials are to be installed in accordance with the installation requirements of the applicable standard listed in the code.

Where a standard is not provided, the manufacturer's instructions must be followed. For example, because there are very few standards available that regulate the installation of valves, the manufacturer's instructions must be used to install these components.

301.3 Connections to drainage system. Plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent indirect waste systems required by Chapter 8.

Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to

an approved gray water system for flushing of water closets and urinals or for subsurface landscape irrigation.

❖ All waste water captured or generated within a building is required to be directed into the sanitary drainage system. In most cases, the connection to the drainage system is a direct connection, meaning that each drain pipe is routed in a continuous manner to its connecting point to a branch of the sanitary drainage system. However, there are some situations where it is not desirable to have a direct connection. For example, a direct connection of the drainage pipe of a commercial kitchen food preparation sink is not desirable because a waste-water backup could contaminate the contents of the sink, perhaps without being noticed by kitchen staff. In these special cases, the drainage pipe is required to discharge through an air break or an air gap into a waste receptor (usually a floor sink), which is indirectly connected to the sanitary drainage system. The outlet of the waste receptor is directly connected to the sanitary drainage system. Chapter 8 covers which fixtures and appliance drains are required to be indirect connected.

The exception to this section recognizes that certain waste-water flows can be a source of water that can be reused for the purposes of water-closet flushing, urinal flushing or subsurface irrigation. These waste-water flows must be collected by a drainage system that is wholly separate from the sanitary drainage system so that extensive treatment of such water is not required before reuse.

301.4 Connections to water supply. Every plumbing fixture, device or appliance requiring or using water for its proper

GENERAL REGULATIONS

operation shall be directly or indirectly connected to the water supply system in accordance with the provisions of this code.

- ❖ Fixtures that supply water or recycled gray water (see Chapter 13) for the occupant's use are required to have either a direct or indirect connection to the potable water supply system. Chapter 6 contains specific requirements governing connections to water supply and distribution systems.

Indirect connections include faucets or fixture fittings discharging into fixtures such as tubs and lavatories. Direct connections occur at water closets and urinals. Water closets and urinals can be supplied with gray flushing water through a direct connection to the fixture if the system meets the requirements of Chapter 13.

301.5 Pipe, tube and fitting sizes. Unless otherwise specified, the pipe, tube and fitting sizes specified in this code are expressed in nominal or standard sizes as designated in the referenced material standards.

- ❖ Pipe, tube and fitting sizes referenced in the code refer to the inside diameter (ID) of the pipe, tube or fitting. The ID measurement in the text is expressed in both English and metric units (inches and millimeters). Systeme International d'Unites (SI) metric unit conversions are indicated at the bottom of each table.

301.6 Prohibited locations. Plumbing systems shall not be located in an elevator shaft or in an elevator equipment room.

Exception: Floor drains, sumps and sump pumps shall be permitted at the base of the shaft, provided that they are indirectly connected to the plumbing system and comply with Section 1003.4.

- ❖ Plumbing systems are prohibited in elevator shafts and elevator equipment rooms because of inaccessibility for repairs and the possible water damage that could be caused to the elevator equipment if a leak developed in the plumbing piping or components. The exception allows floor drains, sumps and sump pumps at the bottom of elevator shafts as long as they are indirectly connected to the plumbing system. An indirect connection is required to prevent waste from a plumbing system from backing up into the elevator shaft. Note that a back-water valve cannot be used as a substitute for the indirect connection.

Because the defined term "plumbing system" includes both sanitary drains and storm sewers, the designer has to make a decision of whether to put the discharge from the floor drain, sump or sump pump into the sanitary system or storm sewer. Two reasons for water to be in the base of an elevator shaft are: 1) the base of many elevator shafts are below grade where ground water (from rain events or a seasonally high water table) might enter through cracks and seams in the walls and floors of the shaft and 2) water from an activated fire sprinkler system could enter through elevator doors. If the water is considered to be storm water, Section 1101.3 would prohibit connection to the sanitary system. If the water is considered no different than what would enter a floor drain, then Section 301.3 would require its discharge to the sanitary sys-

tem. Other considerations could be whether or not local storm water regulators or waste-water plant operators have authority to specify where such water should be discharged.

The exception references Section 1003.4 to alert the code user that if the elevator is a hydraulic type, an oil separator is required to be installed before the discharge of the floor drain, sump or sump pump enters the plumbing system.

301.7 Conflicts. In instances where conflicts occur between this code and the manufacturer's installation instructions, the more restrictive provisions shall apply.

- ❖ A conflict refers to instances where the code and manufacturer's instructions differ. The code official must evaluate each circumstance of perceived conflict and identify the requirements that provide the greatest level of protection for life and property.

SECTION 302 EXCLUSION OF MATERIALS DETRIMENTAL TO THE SEWER SYSTEM

302.1 Detrimental or dangerous materials. Ashes, cinders or rags; flammable, poisonous or explosive liquids or gases; oil, grease or any other insoluble material capable of obstructing, damaging or overloading the building drainage or *sewer* system, or capable of interfering with the normal operation of the sewage treatment processes, shall not be deposited, by any means, into such systems.

- ❖ This section prohibits the disposal of detrimental or dangerous materials into the sewer system. Such materials can cause the pipes to clog or accelerate the clogging of pipes, which prevents the proper disposal of sewage waste. Section 1003 contains design and installation details for the use of interceptors, grease traps and separators to remove oil, grease, sand and other detrimental substances.

Discharge of materials that are flammable or combustible into the public sewer system is prohibited because an accumulation of these types of materials poses a fire and explosion hazard. Insoluble chemicals that are not processed before disposal could react with other discharged chemicals to cause damage to the piping and components of the drainage, sewer and waste treatment systems. Section 803.2 provides details for using approved dilution or neutralizing devices to process harmful chemicals prior to disposal.

302.2 Industrial wastes. Waste products from manufacturing or industrial operations shall not be introduced into the *public sewer* until it has been determined by the code official or other authority having jurisdiction that the introduction thereof will not damage the *public sewer* system or interfere with the functioning of the sewage treatment plant.

- ❖ Harmful or hazardous industrial waste must be treated before it is discharged to the sewer. This can require the complete removal or neutralization of certain chemicals or substances.

**SECTION 303
MATERIALS**

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.

❖ The manufacturer is given 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. Where the code indicates compliance with an approved standard, the manufacturer must comply with the requirements for marking in accordance with the applicable standard [see Commentary Figures 303.1(1) and 303.1(2)].

303.2 Installation of materials. All materials used shall be installed in strict accordance with the standards under which the materials are accepted and *approved*. In the absence of such installation procedures, the manufacturer’s instructions shall be followed. Where the requirements of referenced standards or manufacturer’s installation instructions do not conform to minimum provisions of this code, the provisions of this code shall apply.

❖ Plumbing components and materials are to be installed in accordance with the installation requirements of the applicable standard listed in the code. Where a standard is not provided, the manufacturer’s instructions must be followed. For example, because there are very few standards available that regulate the installation of valves, the manufacturer’s instructions must be used to install these components.

303.3 Plastic pipe, fittings and components. All plastic pipe, fittings and components shall be third-party certified as conforming to NSF 14.

❖ Plastic piping, fittings and plastic pipe-related components, including solvent cements, primers, tapes, lubricants and seals used in plumbing systems, must be tested and certified as conforming to NSF 14. This

includes all water service, water distribution, drainage piping and fittings and plastic piping system components, including but not limited to pipes, fittings, valves, joining materials, gaskets and appurtenances. This section does not apply to components that only include plastic parts such as brass valves with a plastic stem, or to fixture fittings such as fixture stop valves. Plastic piping systems, fittings and related components intended for use in the potable water supply system must comply with NSF 61 in addition to NSF 14.

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.

❖ Prior to the 2012 edition of the code, only certain products and materials used in the construction of plumbing systems were required to be third-party tested or third-party certified. 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 and a report or documentation was developed, but retesting at a later date was 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.

The code requirements for testing and certification have frequently confused code officials and manufacturers over the years. Securing and submitting the necessary documentation for certain products and materials is often a challenge for contractors and engineers. The code official is also burdened with trying to keep up with the myriad of products he or she sees in the field and the documentation that has (or has not) been submitted. To simplify inspections and approvals, the code requires that all products and materials be third-party certified. The code official only has to confirm that the product or material has the mark of the third-party certifying agency.

