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2015

CODE AND COMMENTARY

The complete IPC with
commentary after each
section



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2015 International Plumbing Code® Commentary

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PREFACE

Significant changes in the plumbing industry, as well as in manufacturing technology, had become so commanding that a radically new approach to the design and installation of plumbing systems seemed an imperative. The reply to that imperative was the *International Plumbing Code*, a document emphasizing prescriptive and performance-related provisions.

As a follow-up to the *International Plumbing Code*, we offer a companion document, the *International Plumbing Code Commentary*. The basic appeal of the Commentary is thus: it provides in a small package and at reasonable cost thorough coverage of many issues likely to be dealt with when using the *International Plumbing Code* — and then supplements that coverage with historical and technical background. Reference lists, information sources and bibliographies are also included.

Throughout all of this, strenuous effort has been made to keep the vast quantity of material accessible and its method of presentation useful. With a comprehensive yet concise summary of each section, the Commentary provides a convenient reference for plumbing regulations. In the chapters that follow, discussions focus on the full meaning and implications of the code text. Guidelines suggest the most effective method of application, and the consequences of not adhering to the code text. Illustrations are provided to aid understanding; they do not necessarily illustrate the only methods of achieving code compliance.

The format of the Commentary includes the full text of each section, table and figure in the code, followed immediately by the commentary applicable to that text. Each section's narrative includes a statement of its objective and intent, and usually includes a discussion about why the requirement commands the conditions set forth. Code text and commentary text are easily distinguished from each other. All code text is shown as it appears in the *International Plumbing Code*, and all commentary is indented below the code text and begins with the symbol ❖.

Readers should note that the Commentary is to be used in conjunction with the *International Plumbing Code* and not as a substitute for the code. **The Commentary is advisory only**; the code official alone possesses the authority and responsibility for interpreting the code.

Comments and recommendations are encouraged, for through your input, we can improve future editions. Please direct your comments to the Codes and Standards Development Department at the Chicago District Office.

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Chapter 1: Scope and Administration

General Comments

The law of building regulation is grounded on the police power of the state. In terms of how it is used, this is the power of the state to legislate for the general welfare of its citizens. This power enables passage of such laws as a plumbing code. It is from the police power delegated by the state legislature that local governments are able to enact building regulations. If the state legislature has limited this power in any way, the municipality may not exceed these limitations. Although the municipality may not further delegate its police power (e.g., by delegating the burden of determining code compliance to the building owner, contractor or architect), it may turn over the administration of building regulations to a municipal official, such as a code official, provided that he or she is given sufficient criteria to clearly establish the basis for decisions as to whether or not a proposed building, including its plumbing systems, conforms to the code.

Chapter 1 is largely concerned with maintaining "due process of law" in enforcing the performance criteria contained in the code. Only through careful observation of the administrative provisions can the code official reasonably hope to demonstrate that "equal protection under the law" has been provided. Although it is generally assumed that the administrative and enforcement sections of a code are geared toward the code official, this is not entirely true. The provisions also establish the rights and privileges of the design professional, contractor and building owner. The position of the code official is merely to review the proposed and completed work and determine whether a plumbing installation conforms to the code requirements. The design professional is responsible for the design of a safe, sanitary plumbing system.

The contractor is responsible for installing the system in strict accordance with the plans.

During the course of the construction of a plumbing system, the code official reviews the activity to make sure that the spirit and intent of the law are being met and that the plumbing system provides adequate protection of public health. As a public servant, the code official enforces the code in an unbiased, proper manner. Every individual is guaranteed equal enforcement of the code. Furthermore, design professionals, contractors and building owners have the right of due process for any requirement in the code.

Purpose

A plumbing code, as with any other code, is intended for adoption as a legally enforceable document to safeguard health, safety, property and public welfare. A plumbing code cannot be effective without adequate provisions for its administration and enforcement. The official charged with the administration and enforcement of plumbing regulations has a great responsibility, and with this responsibility goes authority. No matter how detailed the plumbing code may be, the code official must, to some extent, exercise judgment in determining compliance. The code official has the responsibility for establishing that the homes in which the citizens of the community reside and the buildings in which they work are designed and constructed to be reasonably free from hazards associated with the presence and use of plumbing appliances, appurtenances, fixtures and systems. The code is intended to establish a minimum acceptable level of safety.

PART 1—SCOPE AND APPLICATION

SECTION 101 GENERAL

[A] **101.1 Title.** These regulations shall be known as the *International Plumbing Code* of [NAME OF JURISDICTION] hereinafter referred to as "this code."

- ❖ This section sets forth the scope and intent of the code as it applies to new and existing structures. The adopted regulations are identified by inserting the name of the adopting jurisdiction into the code.

[A] **101.2 Scope.** The provisions of this code shall apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction. This code shall regulate non-

flammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems. The installation of fuel gas distribution piping and equipment, fuel-gas-fired water heaters and water heater venting systems shall be regulated by the *International Fuel Gas Code*. Provisions in the appendices shall not apply unless specifically adopted.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.

- ❖ This section describes the types of plumbing system construction-related activities to which the code is intended to apply. The applicability of the code encompasses the initial design of plumbing systems, the installation and construction phases and the mainte-

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nance of operating systems. Section 101.2 excludes nothing plumbing related and does not limit applicability of the code to any device, fixture, system and associated equipment that could fall under, or is construed to fall under, the definition of "Plumbing" (see the definition of "Plumbing" in Chapter 2). The code is intended to govern plumbing systems provided for use by and for the general safety and well being of occupants of a building. The code intends to regulate any and all plumbing-related appliances, systems and associated equipment that can affect the health, safety and welfare of building occupants insofar as they are affected by the installation, operation and maintenance of such appliances and systems. Plumbing systems include the associated equipment by definition of "Plumbing system" in Chapter 2.

In addition, nonflammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems are regulated by the code. Other than the actual connections to the potable water system, the code does not regulate hydronic piping for space heating or cooling, lawn sprinkler (irrigation) systems or automatic fire sprinkler and standpipe systems. These are not considered to be plumbing systems because they have nothing to do with supplying potable water or the transport of liquid wastes and water-borne solid wastes. Flammable/combustible liquid piping, hydronic piping, fire suppression system piping and nonplumbing-related systems are typically addressed in the *International Building Code*® (IBC®), the *International Fire Code*® (IFC®) and the *International Mechanical Code*® (IMC®). Most hydronic heating and cooling systems and fire suppression systems have one or more connections to the plumbing system. Such connections involve direct connections to the water supply system and indirect connections to the drainage system. For example, an automatic fire sprinkler system may be supplied by the public potable water supply and may have one or more drains and test apparatus that discharge water to the building drainage system. In the case of irrigation systems, for example, the plumbing system terminates at the backflow prevention device that joins the potable water supply to the irrigation piping system. All interfaces between plumbing systems and nonplumbing systems are subject to the requirements of the code.

This section references the *International Fuel Gas Code*® (IFGC®) for all fuel-gas-related regulations. This is the result of an agreement between the International Code Council® (ICC®) and the American Gas Association (AGA) to develop the IFGC.

The exception is actually a distinct requirement that sends the user to the *International Residential Code*® (IRC®) for one- and two-family dwellings that are less than four stories in height and townhouses that are

less than four stories in height as these structures are within the scope of the IRC. It is the intent of the *International Codes*® that the *International Plumbing Code*® (IPC®) regulate plumbing in all structures that do not fall within the scope of the IRC. Structures falling within the scope of the IRC are to be regulated by the IRC.

[A] 101.3 Intent. The purpose of this code is to establish minimum standards to provide a reasonable level of safety, health, property protection and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems.

❖ The intent of the code is to set forth regulations that establish minimum standards to provide a reasonable level of safety and to protect public health and general welfare of building occupants. The intent becomes important in the application of such sections as Sections 102, 104.2, 105.2 and 108, as well as any enforcement-oriented interpretive action or judgment. Like any code, the written text is subject to interpretation. Interpretations should not be affected by economics or the potential impact on any party. The only considerations should be occupants' safety, protection of occupants' health and welfare and emergency responder safety.

[A] 101.4 Severability. If any section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

❖ Only invalid sections of the code (as established by the court of jurisdiction) can be set aside. This is essential to safeguard the application of the code text to situations in which a provision of the code is declared illegal or unconstitutional. This section preserves the legislative action that put the legal provisions in place.

SECTION 102 APPLICABILITY

[A] 102.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

❖ Specific requirements of the code override or take precedence over general requirements. For example, while the code specifies the types of piping materials that can be used for vent systems, the specific requirements for chemical waste systems require the vent piping be suitable for the service intended and be approved by the code official.

[A] 102.2 Existing installations. Plumbing systems lawfully in existence at the time of the adoption of this code shall be

permitted to have their use and maintenance continued if the use, maintenance or repair is in accordance with the original design and hazard to life, health or property is not created by such plumbing system.

- ❖ An existing plumbing system is generally considered to be “grandfathered” with code adoption if the system meets a minimum level of safety. Frequently the criteria for this level are the regulations (or code) under which the existing building was originally constructed. If there are no previous code criteria to apply, the code official is to apply those provisions that are reasonably applicable to existing buildings. A specific level of safety is dictated by provisions dealing with hazard abatement in existing buildings and maintenance provisions, as contained in the code and the *International Property Maintenance Code*® (IPMC®), the *International Existing Building Code*® (IEBC®) and the IFC.

[A] 102.3 Maintenance. Plumbing systems, materials and appurtenances, both existing and new, and parts thereof, shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. Devices or safeguards required by this code shall be maintained in compliance with the edition of the code under which they were installed.

The owner or the owner’s authorized agent shall be responsible for maintenance of plumbing systems. To determine compliance with this provision, the code official shall have the authority to require any plumbing system to be reinspected.

- ❖ All plumbing systems and equipment are subject to deterioration resulting from aging, wear, accumulation of dirt and debris, corrosion and other factors. Maintenance is necessary to keep plumbing systems and equipment in proper operating condition. Required safety devices and controls must be maintained to continue providing the protection that they afford. Existing equipment and systems could have safety devices or other measures that were necessary because of the nature of the equipment, and such safeguards may have been required by a code that predates the current code. Safeguards required by previous or present codes must be maintained for the life of the equipment or system.

The maintenance of plumbing systems as prescribed in this section is the responsibility of the owner of the property. The owner may authorize another party to be responsible for the property, in which case that party is responsible for the maintenance of the plumbing systems involved.

The reinspection authority of the code official is needed to assure compliance with the maintenance requirements in this section.

[A] 102.4 Additions, alterations or repairs. Additions, alterations, renovations or repairs to any plumbing system shall conform to that required for a new plumbing system without requiring the existing plumbing system to comply with all the requirements of this code. Additions, alterations

or repairs shall not cause an existing system to become unsafe, insanitary or overloaded.

Minor additions, alterations, renovations and repairs to existing plumbing systems shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is *approved*.

- ❖ Simply stated, new work must comply with current code requirements. Any alteration or addition to an existing system involves some new work, and therefore is subject to the requirements of the code. Additions or alterations to an existing system can place additional loads or different demands on the system, which could necessitate changing all or part of the existing system. For example, the addition of plumbing fixtures to an existing system may necessitate an increase in drain piping size and water distribution piping size. Additions and alterations must not cause an existing system to be any less in compliance with the code than it was before the changes.

Repair of an existing nonconforming plumbing system is permitted without having to completely replace the nonconforming portion. This typically occurs when repairing a fixture or piping. Although some types of fixtures or piping arrangements are no longer permitted, existing fixtures or piping can be repaired and remain in service if a health hazard or insanitary condition is not maintained or created. This section distinguishes between alterations (subject to applicable provisions of the code) and ordinary repairs (maintenance activities not requiring a permit). The intent of this section is to allow the continued use of existing plumbing systems and equipment that may or may not be designed and constructed as required for new installations.

Existing plumbing systems and equipment will normally require repair and component replacement to remain operational. This section permits repair and component replacements without requiring the redesign, alteration or replacement of the entire system. In other words, the plumbing system is allowed to stay as it was if it is not hazardous. It is important to note that the word “minor” in this section is intended to modify “additions,” “alterations,” “renovations” and “repairs.” It is not the intent of this section to waive code requirements for the replacement of all or major portions of systems under the guise of repair. Any work other than minor repairs or replacement of minor portions of a system must be considered as new work subject to all applicable provisions of the code. Repairs and minor component replacements are permitted in a manner that is consistent with the existing system if those repairs or replacements are approved by the code official; are not hazardous; do not cause the system or equipment to be any less in compliance with the code than before; and are, to the extent practicable, in compliance with the provisions of the code applicable to new work.

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[A] **102.5 Change in occupancy.** It shall be unlawful to make any change in the *occupancy* of any structure that will subject the structure to any special provision of this code applicable to the new *occupancy* without approval of the code official. The code official shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new *occupancy* and that such change of *occupancy* does not result in any hazard to the public health, safety or welfare.

- ❖ When a building undergoes a change of occupancy, the plumbing system must be evaluated to determine what effect the change has on the plumbing system. For example, if a mercantile building was converted to a restaurant, additional plumbing fixtures would be required for the public based on the increased occupant load. If an existing system serves an occupancy that is different from the one it served when the code went into effect, the plumbing system must comply with the applicable code requirements for the newer occupancy. Depending on the nature of the previous occupancy, changing a building's occupancy classification could result in the requirement for additional or different types of plumbing fixtures.

[A] **102.6 Historic buildings.** The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings where such buildings or structures are judged by the code official to be safe and in the public interest of health, safety and welfare regarding any proposed construction, alteration, repair, enlargement, restoration, relocation or moving of buildings.

- ❖ This section gives the code official the widest possible flexibility in enforcing the code when the building in question has historic value. This flexibility, however, does not come without conditions. The most important criterion for application of this section is that the building must be specifically classified as being of historic significance by a qualified party or agency. Usually this is done by a state or local authority after considerable scrutiny. Most, if not all, states have such authorities, as do many local jurisdictions. Agencies with such authority typically exist at the state or local government level.

[A] **102.7 Moved buildings.** Except as determined by Section 102.2, plumbing systems that are a part of buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new installations.

- ❖ Buildings that have been relocated are subject to the requirements of the code as if they were new construction. Placing a building where one did not previously exist is analogous to constructing a new building. It is the intent of this section to require alteration of the existing plumbing systems to the extent necessary to bring them into compliance with the provisions of the code applicable to new construction or make the existing plumbing system comply with Section 102.2.

[A] **102.8 Referenced codes and standards.** The codes and standards referenced in this code shall be those that are listed in Chapter 15 and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections 102.8.1 and 102.8.2.

- ❖ The code references many standards and codes promulgated and published by other organizations. A complete list of referenced standards appears in Chapter 15. The wording in this provision, "shall be those that are listed in Chapter 15," was carefully chosen to establish the edition of the standard or code that is enforceable under the code.

[A] **102.8.1 Conflicts.** Where conflicts occur between provisions of this code and the referenced standards, the provisions of this code shall apply.

- ❖ The code takes precedence when the requirements of the standard conflict with the requirements of the code. For example, Section 412.1 requires all floor drains to conform to ASME A112.3.1, ASME A112.6.3 or CSA B79. These standards regulate the design and construction of a floor drain and permit both fixed and removable strainers; however, Section 412.2 requires all floor drains to have removable strainers. Although a floor drain without a removable cover may conform to ASME A112.3.1, ASME A112.6.3 or CSA B79, removable strainers would be required because the code takes precedence over the standard. Although it is the intent of the code to be in harmony with referenced standards, the code text governs if conflicts occur.

[A] **102.8.2 Provisions in referenced codes and standards.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

- ❖ Although a standard or code is referenced, its full scope and content is not necessarily applicable. The standard (or code) is applicable only to the extent indicated in the text in which the standard is specifically referenced. A referenced standard or a portion thereof is an enforceable extension of the code as if the content of the standard were included in the body of the code. The use and application of referenced standards are limited to those portions of the standards that are specifically identified.

[A] **102.9 Requirements not covered by code.** Any requirements necessary for the strength, stability or proper operation of an existing or proposed plumbing system, or for the public safety, health and general welfare, not specifically covered by this code shall be determined by the code official.

- ❖ Evolving technology in our society will inevitably result in a situation in which the code is comparatively silent on an identified hazard. The reasonable application of the code to such hazardous, unforeseen conditions is addressed in this section. Clearly this section and the code official's judicious and reasonable application of it is necessary. The purpose of this section, however, is

not to impose requirements that may be preferred when the code provides alternative methods or is not silent on the circumstances. Additionally, this section can be used to implement the general performance-oriented language of the code to specific enforcement situations.

[A] **102.10 Other laws.** The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

- ❖ Other laws enacted by the local, state or federal government may be applicable to a condition that is also governed by a requirement in the code. In such circumstances, the requirements of the code are in addition to those other laws, even though the code official may not be responsible for the enforcement of those laws. For example, the health department might require the handsinks in a restaurant to be indirectly connected whereas the code requires these sinks to be directly connected.

[A] **102.11 Application of references.** Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

- ❖ In a situation where the code may make reference to a chapter or section number or to another code provision without specifically identifying its location in the code, assume that the referenced section, chapter or provision is in the code and not in a referenced code or standard.

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 103 DEPARTMENT OF PLUMBING INSPECTION

[A] **103.1 General.** The department of plumbing inspection is hereby created and the executive official in charge thereof shall be known as the code official.

- ❖ This section describes the plumbing inspection department and the duties of its employees. The executive official in charge of the plumbing department is named the “code official” by this section. In actuality, the person who is in charge of the department may hold a different title such as building commissioner, plumbing inspector, construction official, etc. For the purpose of the code, the person is referred to as the “code official” on being appointed.

[A] **103.2 Appointment.** The code official shall be appointed by the chief appointing authority of the jurisdiction.

- ❖ This section establishes the code official as an appointed position from which he or she cannot be removed, except for cause subject to a due process review.

[A] **103.3 Deputies.** In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the code official shall have the authority

to appoint a deputy code official, other related technical officers, inspectors and other employees. Such employees shall have powers as delegated by the code official.

- ❖ This section gives the code official the authority to appoint other individuals to assist with the administration and enforcement of the code. These individuals have authority and responsibility as designated by the code official.

[A] **103.4 Liability.** The code official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

- ❖ The code official, other department employees and members of the appeals board are not intended to be held liable, either civilly or criminally, for those actions performed in accordance with the code in a reasonable and lawful manner. The responsibility of the building official in this regard is subject to local, state and federal laws that may supersede this provision.

[A] **103.4.1 Legal defense.** Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

- ❖ This section establishes that code officials (or subordinates) must not be liable for costs in any legal action instituted in response to the performance of lawful duties. These costs are to be borne by the state, county or municipality. The best way to be certain that the code official’s action is a “lawful duty” is always to cite the applicable code section on which the enforcement action is based.

SECTION 104 DUTIES AND POWERS OF THE CODE OFFICIAL

[A] **104.1 General.** The code official is hereby authorized and directed to enforce the provisions of this code. The code official shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

- ❖ The duty of the code official is to enforce the code, and he or she is the “authority having jurisdiction” for all matters relating to the code and its enforcement. It is the duty of the code official to interpret the code and to

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determine compliance. Code compliance will not always be easy to determine and will require judgment and expertise. In exercising this authority, however, the code official cannot set aside or ignore any provision of the code.

[A] 104.2 Applications and permits. The code official shall receive applications, review construction documents and issue permits for the installation and alteration of plumbing systems, inspect the premises for which such permits have been issued, and enforce compliance with the provisions of this code.

- ❖ The code enforcement process is normally initiated with an application for a permit. The code official is responsible for processing the applications and issuing permits for the installation, replacement, addition to or modification of plumbing systems in accordance with the code.

[A] 104.3 Inspections. The code official shall make all the required inspections, or shall accept reports of inspection by *approved* agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such *approved agency* or by the responsible individual. The code official is authorized to engage such expert opinion as deemed necessary to report on unusual technical issues that arise, subject to the approval of the appointing authority.

- ❖ The code official is required to make inspections as necessary to determine compliance with the code or to accept written reports of inspections by an approved agency. The inspection of the work in progress or accomplished is another significant element in determining code compliance. Even though a department may not have the resources to inspect every aspect of all work, the required inspections are those that are dictated by administrative rules and procedures based on many parameters, including available inspection resources. To expand the available inspection resources, the code official may approve an inspection agency that, in his or her opinion, possesses the proper qualifications. When unusual, extraordinary or complex technical issues arise relative to plumbing installations or the safety of an existing plumbing system, the code official has the authority to seek the opinion and advice of experts. A technical report from an expert can be used to assist the code official in the approval process.

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the code official has reasonable cause to believe that there exists in any building or upon any premises any conditions or violations of this code that make the building or premises unsafe, insanitary, dangerous or hazardous, the code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the code official by this code. If such building or premises is occupied, the code official shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the code official shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or control of the building or

premises and request entry. If entry is refused, the code official shall have recourse to every remedy provided by law to secure entry.

Where the code official shall have first obtained a proper inspection warrant or other remedy provided by law to secure entry, no owner, owner's authorized agent, occupant or person having charge, care or control of any building or premises shall fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

- ❖ The first part of this section establishes the right of the code official to enter the premises to make the permit inspections required by Section 107. Permit application forms typically include a statement signed by the applicant (who is the owner or owner's agent) granting the code official the authority to enter specific areas to enforce code provisions related to the permit. The right to enter other structures or premises is more limited. First, to protect the right of privacy, the owner or occupant must grant the code official permission before the interior of the property can be inspected. Permission is not required for inspections that can be accomplished from within the public right-of-way. Second, access may be denied by the owner or occupant. Unless the inspector has reasonable cause to believe that a violation exists, access may be unattainable. Third, code officials must present proper identification (see commentary, Section 104.5) and request admittance during reasonable hours—usually the normal business hours of the establishment. Fourth, inspections must be aimed at securing or determining compliance with the provisions and intent of the regulations that are specifically within the established scope of the code official's authority.

Searches to gather information for the purpose of enforcing the other codes, ordinances or regulations are considered unreasonable and are prohibited by the Fourth Amendment to the U.S. Constitution. "Reasonable cause" in the context of this section must be distinguished from "probable cause," which is required to gain access to property in criminal cases. The burden of proof establishing reasonable cause may vary among jurisdictions. Usually, an inspector must show that the property is subject to inspection under the provisions of the code; that the interests of the public health, safety and welfare outweigh the individual's right to maintain privacy; and that such an inspection is required solely to determine compliance with the provisions of the code.

Many jurisdictions do not recognize the concept of an administrative warrant and may require the code official to prove probable cause in order to gain access upon refusal. This burden of proof is usually more substantial, often requiring the code official to stipulate in advance why access is needed (usually access is restricted to gathering evidence for seeking an indictment or making an arrest); what specific items or information is sought; its relevance to the case against the

individual subject; how knowledge of the relevance of the information or items sought was obtained; and how the evidence sought will be used. In all such cases, the right to privacy must always be weighed against the right of the code official to conduct an inspection to establish public health, safety and welfare. Such important and complex constitutional issues should be discussed with the jurisdiction's legal counsel. Jurisdictions should establish procedures for securing the necessary court orders when an inspection is deemed necessary following a refusal.

The last paragraph in this section requires the owner or occupant to permit entry for inspection if a proper warrant or other documentation required by law has been obtained.

[A] 104.5 Identification. The code official shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

- ❖ This section requires the code official (including by definition all authorized designees) to carry identification in the course of conducting the duties of the position. This identification removes any question concerning the purpose and authority of the inspector.

[A] 104.6 Notices and orders. The code official shall issue all necessary notices or orders to ensure compliance with this code.

- ❖ An important element of code enforcement is the necessary advisement of deficiencies and correction, which is accomplished through notices and orders. The code official is required to issue orders to abate illegal or unsafe conditions. Sections 108.7, 108.7.1, 108.7.2 and 108.7.3 contain additional information for these notices.

[A] 104.7 Department records. The code official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for the retention of public records.

- ❖ In keeping with the need for an efficiently conducted business practice, the code official must keep records pertaining to permit applications, permits, fees collected, inspections, notices and orders issued. Such documentation provides a valuable resource if questions arise regarding the department's actions with respect to a building. It requires that other documents be kept for the length of time mandated by a jurisdiction's, or its state's, laws or administrative rules for retaining public records.

SECTION 105 APPROVAL

[A] 105.1 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, upon application of the owner or owner's authorized agent, provided the code official shall

first find that special individual reason makes the strict letter of this code impractical and the modification conforms to the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the plumbing inspection department.

- ❖ The code official may amend or make exceptions to the code as needed where strict compliance is impractical. Only the code official has authority to grant modifications. Consideration of a particular difficulty is to be based on the application of the owner and a demonstration that the intent of the code is accomplished. This section is not intended to permit setting aside or ignoring a code provision; rather, it is intended to provide acceptance of equivalent protection. Such modifications do not, however, extend to actions that are necessary to correct violations of the code. In other words, a code violation or the expense of correcting one cannot constitute a practical difficulty.

[A] 105.2 Alternative materials, methods and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material or method of construction shall be *approved* where the code official finds that the proposed alternative material, method or equipment complies with the intent of the provisions of this code and is not less than the equivalent of that prescribed in this code. Where the alternative material, design or method of construction is not *approved*, the code official shall respond in writing, stating the reasons why the alternative was not *approved*.

- ❖ The code is not intended to inhibit innovative ideas or technological advances. A comprehensive regulatory document such as a plumbing code cannot envision and then address all future innovations in the industry. As a result, a performance code must be applicable to and provide a basis for the approval of an increasing number of newly developed, innovative materials, systems and methods for which no code text or referenced standards yet exist. The fact that a material, product or method of construction is not addressed in the code is not an indication that the material, product or method is prohibited. The code official is expected to apply sound technical judgment in accepting materials, systems or methods that, although not anticipated by the drafters of the current code text, can be demonstrated to offer equivalent performance. By virtue of its text, the code regulates new and innovative construction practices while addressing the relative safety of building occupants. The code official is responsible for determining whether a requested alternative provides an equivalent level of protection of the public health, safety and welfare as required by the code. In order to ensure effective communication and due process of law, if an alternative is not approved, the code official must state, in writing, the reasons for the disapproval.

The most common application of an alternative approval occurs with the proposed use of new mate-

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rial. For example, if a new piping material is produced, the manufacturer may gain approval for use by submitting adequate technical data indicating it is equivalent in quality, strength, effectiveness, fire resistance, durability and safety to the piping material listed as acceptable in the code. At the same time, the manufacturer may submit a proposed code change to recognize the new piping material. If the code official rejects the request for an alternative approval, the applicant may appeal the decision, as regulated by Section 109.

[A] 105.2.1 Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from *approved* sources.

❖ When an alternative material or method is proposed for construction, it is incumbent upon the code official to determine whether this alternative is, in fact, an equivalent to the methods prescribed by the code. Reports providing evidence of this equivalency are required to be supplied by an approved source, meaning a source that the code official finds to be reliable and accurate. The ICC Evaluation Service is one example of an agency that provides research reports for alternative materials and methods.

[A] 105.3 Required testing. Where there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternate materials or methods, the code official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction.

❖ To provide the basis on which the code official can make a decision regarding an alternative material or type of equipment, sufficient technical data, test reports and documentation must be provided for evaluation. If evidence satisfactory to the code official proves that the alternative equipment, material or construction method is equivalent to that required by the code, the code official is obligated to approve it for use. Any such approval cannot have the effect of waiving any requirements of the code. The burden of proof of equivalence lies with the applicant who proposes the use of alternative equipment, materials or methods.

[A] 105.3.1 Test methods. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the code official shall approve the testing procedures.

❖ The code official must require the submission of any appropriate information and data to assist in the determination of equivalency before a permit can be issued. The type of information required includes test data in accordance with the referenced standards, evidence of compliance with the referenced standard specifications, and design calculations. An evaluation report issued by an authoritative agency, such as ICC Evaluation Service is particularly useful in providing the code official with the technical basis for evaluation and approval of new and innovative plumbing materials

and components. The use of authoritative research reports can greatly assist the code official by reducing the time-consuming engineering analysis necessary to review materials and products. Failure to adequately substantiate a request for the use of an alternative is a valid reason for the code official to deny a request.

[A] 105.3.2 Testing agency. Tests shall be performed by an *approved agency*.

❖ The testing agency must be approved by the code official. The testing agency should have technical expertise, test equipment and quality assurance to properly conduct and report the necessary testing.

[A] 105.3.3 Test reports. Reports of tests shall be retained by the code official for the period required for retention of public records.

❖ Test reports substantiating the modification must be retained in accordance with public record laws. The attorney of the jurisdiction could be asked to verify the specific time period in applicable laws of the jurisdiction.

[A] 105.4 Approved materials and equipment. Materials, equipment and devices *approved* by the code official shall be constructed and installed in accordance with such approval.

❖ The code is a compilation of criteria with which materials, equipment, devices and systems must comply to be suitable for a particular application. The code official has a duty to evaluate such materials, equipment, devices and systems for code compliance and when compliance is determined, approve the same for use. The materials, equipment, devices and systems must be constructed and installed in compliance with, and all conditions and limitations considered as a basis for, that approval. For example, the manufacturer's instructions and recommendations are to be followed if the approval of the material was based, even in part, on those instructions and recommendations. The approval authority given to the code official is a significant responsibility and is a key to code compliance. The approval process is first technical and then administrative and must be approached as such. For example, if data to determine code compliance is required, such data should be in the form of test reports or engineering analysis and not simply taken from a sales brochure.

[A] 105.4.1 Material and equipment reuse. Materials, equipment and devices shall not be reused unless such elements have been reconditioned, tested, placed in good and proper working condition and *approved*.

❖ The code criteria for materials and equipment have changed over the years. Evaluation of testing and materials technology has permitted the development of new criteria, which the old materials may not satisfy. As a result, used materials must be evaluated in the same manner as new materials. Used (previously installed) equipment must be equivalent to that required by the code if it is to be used in a new installation.

SECTION 106 PERMITS

[A] 106.1 When required. Any owner, owner's authorized agent or contractor who desires to construct, enlarge, alter, repair, move, demolish or change the *occupancy* of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the code official and obtain the required permit for the work.

❖ This section contains the administrative rules governing the issuance, suspension, revocation or modification of plumbing permits. It also establishes how and by whom the application for a plumbing permit is to be made, how it is to be processed and what information it must contain or have attached to it. In general, a permit is required for all activities that are regulated by the code, and these activities cannot begin until the permit is issued.

A plumbing permit is required for the installation, replacement, alteration or modification of all plumbing systems and components that are in the scope of applicability of the code. Replacement of an existing fixture, piece of equipment or related piping is treated no differently than a new installation in new building construction. The purpose of a permit is to cause the work to be inspected to determine compliance with the intent of the code.

[A] 106.1.1 Annual permit. Instead of an individual construction permit for each alteration to an already *approved* system or equipment or appliance installation, the code official is authorized to issue an annual permit upon application therefor to any person, firm or corporation regularly employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

❖ Many large facilities need plumbing alteration work performed often and on short notice. (Note that there is not a definition in the code for what constitutes an "alteration.") The obtaining of permits could occur nearly every day and might take more time than performing the work. If a qualified individual will be performing work on an already approved plumbing system, the code official can issue an annual permit to cover all the alteration work that occurs. This is sometimes referred to as a "blanket" permit. The person in charge of getting the work accomplished needs to be a qualified tradesperson. The code is not specific as to what is meant by qualified. Often this is someone who has worked in the plumbing trades for several years and has attained a level of understanding that is commensurate of the knowledge possessed by a journeyman plumbing tradesperson. However, the code official will have to decide the level of qualifications needed before issuing an annual permit.

Note that the person in charge of performing the work needs to be someone who is regularly employed by the person, firm or organization that owns or operates the facility. The term "employed" usually means

that the person is on the payroll of the facility's owner (or operator) and is not a contractor. The intent is that the annual permit not be used to cover the work performed at the facility by outside contractors. This employer/employee arrangement provides some assurance that the employee (the tradesperson) will "do the right thing" when performing the work in order to maintain future employment. This also makes the owner or operator of the facility directly responsible for the work performed. Where the work is performed by contractors, incorrect work is sometimes more difficult to get corrected as the owner/operator originally paid for correct work and might be reluctant to "pay again" to resolve violations found months later. Thus, contractors would be required to obtain a permit for each "job" except for the exempt work indicated in Section 106.2. The term "regularly" is somewhat ambiguous but generally, a facility's owner or operator will usually employ at least one tradesperson on a full-time basis because of the frequency of (unknown) events that occur in the facility.

[A] 106.1.2 Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of alterations made under such annual permit. The code official shall have access to such records at all times or such records shall be filed with the code official as designated.

❖ The issuance of an annual permit makes the owner or operator responsible for detailed logging of all the work performed during that year. Ideally, when the code official has slack time periods in performing regular inspections, he or she can call on facilities with annual permits and inspect some of the work performed since the last visit. Where the code official cannot make periodic visits to the facility, he or she should periodically request a copy of the records to identify items that fall outside the scope of "alterations" (as defined by the code official) such that an inspection can be scheduled.

[A] 106.2 Exempt work. The following work shall be exempt from the requirement for a permit:

1. The stopping of leaks in drains, water, soil, waste or vent pipe provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

❖ Repair work, maintenance procedures and similar work are exempt from the permit requirement, pro-

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vided that such work does not involve the replacement of any system components other than minor parts.

Literally, the only plumbing activities that are exempt from the requirement for a permit are drain cleaning and rodding and the repair of faucets, fill valves, flushometers and similar fixture trim and fittings. Any plumbing work that results in the alteration or disassembly of existing drain, waste, vent and water distribution piping would require a permit. Additionally, any plumbing work that involves the alteration of a plumbing fixture would require a permit.

[A] 106.3 Application for permit. Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The application shall be signed by the owner or owner's authorized agent. The permit application shall indicate the proposed *occupancy* of all parts of the building and of that portion of the site or lot, if any, not covered by the building or structure and shall contain such other information required by the code official.

❖ This section limits persons who may apply for a permit to the building owner or an authorized agent. An owner's authorized agent could be anyone who is given written permission to act in the owner's interest for the purpose of obtaining a permit, such as an architect, an engineer, a contractor, a tenant or other. Permit forms generally have sufficient space to write a very brief description of the work to be accomplished, which is acceptable for small jobs. For larger projects, the description will be augmented by construction documents.

[A] 106.3.1 Construction documents. Construction documents, engineering calculations, diagrams and other such data shall be submitted in two or more sets with each application for a permit. The code official shall require construction documents, computations and specifications to be prepared and designed by a registered design professional where required by state law. Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. Construction documents for buildings more than two stories in height shall indicate where penetrations will be made for pipes, fittings and components and shall indicate the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

Exception: The code official shall have the authority to waive the submission of construction documents, calculations or other data if the nature of the work applied for is such that reviewing of construction documents is not necessary to determine compliance with this code.

❖ A detailed description of the work for which application is made must be submitted. When the work is of a "minor nature," either in scope or needed description, the code official may use judgement in determining the need for a detailed description of the work. An example of minor work that may not involve a detailed descrip-

tion is the replacement of an existing fixture in a plumbing system or the replacement or repair of a defective portion of a piping system.

These provisions are intended to reflect the minimum scope of information needed to determine code compliance. A statement on the construction documents such as, "All plumbing work must comply with the 2015 IPC," is not an acceptable substitute for showing the required information.

This section also requires the code official to determine compliance with any state professional registration laws as they apply to the preparation of construction documents.

[A] 106.3.2 Preliminary inspection. Before a permit is issued, the code official shall be authorized to inspect and evaluate the systems, equipment, buildings, devices, premises and spaces or areas to be used.

❖ Some projects might require a preliminary inspection by the code official prior to a permit being issued. This is especially useful for remodel and addition projects where the conditions of the existing building plumbing systems are unknown or are of questionable condition. This section authorizes the code official to make such inspections.

[A] 106.3.3 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that the code official shall have the authority to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

❖ Once an application for a permit has been submitted for proposed work, a time limit of 180 days is established for issuance of the permit. This prevents the code official from having to hold onto incomplete or delayed applications for an indefinite amount of time. The code official can grant extensions for this time period if provided with a written request with justifiable reasons for the extension request.

[A] 106.4 By whom application is made. Application for a permit shall be made by the person or agent to install all or part of any plumbing system. The applicant shall meet all qualifications established by statute, or by rules promulgated by this code, or by ordinance or by resolution. The full name and address of the applicant shall be stated in the application.

❖ This section specifies that the permit applicant is to meet all of the qualifications that may be established by the governmental enforcing agency. For example, some governmental enforcing agencies may require the permit applicant to be a registered design professional or licensee.

[A] 106.5 Permit issuance. The application, construction documents and other data filed by an applicant for permit shall be reviewed by the code official. If the code official finds that the proposed work conforms to the requirements of

this code and all laws and ordinances applicable thereto, and that the fees specified in Section 106.6 have been paid, a permit shall be issued to the applicant.

- ❖ This section requires the code official to review all submittals for a permit for compliance with the code and to verify that the project will be carried out in accordance with any other applicable laws. This may involve inter-agency communication and cooperation so that all laws are being obeyed. Once the code official verifies this, a permit may be issued upon payment of the required fees.

[A] 106.5.1 Approved construction documents. When the code official issues the permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "APPROVED." Such *approved* construction documents shall not be changed, modified or altered without authorization from the code official. Work shall be done in accordance with the *approved* construction documents.

The code official shall have the authority to issue a permit for the construction of a part of a plumbing system before the entire construction documents for the whole system have been submitted or *approved*, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire plumbing system will be granted.

- ❖ Construction documents that reflect compliance with code requirements form an integral part of the permit process. Successful execution of the work depends on these documents. This section requires the code official to stamp the complying construction documents as being "approved." Once approved, no further revisions to the documents may be made without the express authorization of the code official in order to maintain code compliance.

In the interest of saving time and coordinating construction phases, it is common practice for contractors to seek permits solely applicable to the installation of site work, such as water services and sewers. This practice allows the project to proceed before the final construction documents are completed, thus minimizing delays in the construction process. This also allows the builder to perform site work while the weather permits.

The holder of a partial permit must realize that a permit for the remainder of the plumbing system or structure may not be granted for various reasons. Issuance of a partial permit in no way guarantees issuance of a permit for the entire scope of the project.

[A] 106.5.2 Validity. The issuance of a permit or approval of construction documents shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or any other ordinance of the jurisdiction. A permit presuming to give authority to violate or cancel the provisions of this code shall not be valid.

The issuance of a permit based upon construction documents and other data shall not prevent the code official from

thereafter requiring the correction of errors in said construction documents and other data or from preventing building operations being carried on thereunder where in violation of this code or of other ordinances of this jurisdiction.

- ❖ An important code section, this section states the fundamental premise that the permit is only "a license to proceed with the work." It is not a license to "violate, cancel or set aside any provisions of the code." This is important because it means that, despite any errors in the approval process, the permit applicant is responsible for code compliance.

[A] 106.5.3 Expiration. Every permit issued by the code official under the provisions of this code shall expire by limitation and become null and void if the work authorized by such permit is not commenced within 180 days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days. Before such work can be recommenced, a new permit shall be first obtained and the fee therefor shall be one-half the amount required for a new permit for such work, provided changes have not been made and will not be made in the original construction documents for such work, and provided further that such suspension or abandonment has not exceeded 1 year.

- ❖ The permit becomes invalid under two distinct situations, both based on a six-month period. The first situation is when no work has started six months from issuance of the permit. The second situation is when there is no continuation of authorized work for six months. The person who was issued the permit should be notified in writing that it is invalid and what steps must be taken to restart the work.

This section also provides the administrative authority with a means of offsetting the costs associated with expired permits by charging a nominal fee for permit reissuance. If, however, the nature or scope of the work to be resumed is different from that covered by the original permit, the permit process essentially starts from "scratch" and full fees are charged. The same procedure would also apply if the work has not commenced within one year of the date of permit issuance or if work has to be suspended for a year or more.

[A] 106.5.4 Extensions. Any permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required by this section for good and satisfactory reasons. The code official shall extend the time for action by the permittee for a period not exceeding 180 days if there is reasonable cause. A permit shall not be extended more than once. The fee for an extension shall be one-half the amount required for a new permit for such work.

- ❖ Although it is typical for a project to begin immediately following issuance of a permit, there are occasions when an unforeseen delay may occur. This section intends to afford the permit holder the opportunity to apply for and receive a single, 180-day extension within which to begin a project under a still-valid permit

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(i.e., less than 180 days old). The applicant must, however, provide the code official with an adequate explanation for the delay in starting a project, which could include such things as the need to obtain approvals or permits from other agencies having jurisdiction. This section requires the code official to determine what constitutes "good and satisfactory" reasons for any delay and further allows the jurisdiction to offset its administrative costs for extending the permit by charging one-half the fee for a new permit for the extension.

[A] 106.5.5 Suspension or revocation of permit. The code official shall have the authority to suspend or revoke a permit issued under the provisions of this code wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulation or any of the provisions of this code.

❖ A permit is in reality a license to proceed with the work. The code official, however, must revoke all permits shown to be based, all or in part, on any false statement or misrepresentation of fact. An applicant may subsequently reapply for a permit with the appropriate corrections or modifications made to the application and construction documents.

[A] 106.5.6 Retention of construction documents. One set of *approved* construction documents shall be retained by the code official for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.

One set of *approved* construction documents shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

❖ Once the code official has stamped or endorsed as approved the construction documents on which the permit is based (see commentary, Section 106.3.1), one set of approved construction documents must be kept on the construction site to serve as the basis for all subsequent inspections. To avoid confusion, the construction documents on the site must be precisely the documents that were approved and stamped. This is because inspections are based on the approved documents. Additionally, the contractor cannot determine compliance with the approved construction documents unless those documents are readily available. Unless the approved construction documents are available, the inspection should be postponed and work on the project halted.

[A] 106.5.7 Previous approvals. This code shall not require changes in the construction documents, construction or designated *occupancy* of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

❖ This section provides the code official with a useful tool to protect the continuity of permits issued under previous codes or code editions, as long as such permits are being actively executed subsequent to the effective date of the ordinance adopting the newer code.

[A] 106.5.8 Posting of permit. The permit or a copy shall be kept on the site of the work until the completion of the project.

❖ This section requires the permit (or a copy of the permit) to be on the work site until the project is completed. Having the permit at the jobsite provides project information and evidence to anyone needing to know if the project has been duly authorized.

[A] 106.6 Fees. A permit shall not be issued until the fees prescribed in Section 106.6.2 have been paid, and an amendment to a permit shall not be released until the additional fee, if any, due to an increase of the plumbing systems, has been paid.

❖ All fees are to be paid prior to permit issuance. This requirement establishes that the permit applicant intends to proceed with the work, as well as facilitates payment.

[A] 106.6.1 Work commencing before permit issuance. Any person who commences any work on a plumbing system before obtaining the necessary permits shall be subject to 100 percent of the usual permit fee in addition to the required permit fees.

❖ This section is intended to serve as a deterrent to proceeding with work on a plumbing system without a permit (except as provided in Section 106.2). As a punitive measure, it doubles the cost of the permit fee. This section does not, however, intend to penalize a contractor called upon to do emergency work after hours, provided that he or she makes prompt notification to the code official the next business day and obtains the requisite permit for the work done and has the required inspections performed.

[A] 106.6.2 Fee schedule. The fees for all plumbing work shall be as indicated in the following schedule:

[JURISDICTION TO INSERT APPROPRIATE SCHEDULE]

❖ A published fee schedule must be established for plans examination, permits and inspections. Ideally, the department should generate revenues that cover operating costs and expenses. The permit fee schedule is an integral part of this process.

[A] 106.6.3 Fee refunds. The code official shall authorize the refunding of fees as follows:

1. The full amount of any fee paid hereunder that was erroneously paid or collected.
2. Not more than [SPECIFY PERCENTAGE] percent of the permit fee paid where work has been done under a permit issued in accordance with this code.

3. Not more than [SPECIFY PERCENTAGE] percent of the plan review fee paid where an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review effort has been expended.

The code official shall not authorize the refunding of any fee paid except upon written application filed by the original permittee not later than 180 days after the date of fee payment.

- ❖ This section allows for a partial refund of fees resulting from the revocation, abandonment or discontinuance of a plumbing project for which a permit has been issued and fees have been collected. The incomplete work for which the excess fees are to be refunded refers to the work that would have been required by the department had the permit not been terminated. The refund of fees should be related to the cost of enforcement services not provided because of termination of the project.

SECTION 107 INSPECTIONS AND TESTING

[A] 107.1 General. The code official is authorized to conduct such inspections as are deemed necessary to determine compliance with the provisions of this code. Construction or work for which a permit is required shall be subject to inspection by the code official, and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the code official nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

- ❖ The inspection function is one of the more important aspects of building department operations. This section authorizes the code official to inspect the work for which a permit has been issued and requires that the work to be inspected remain accessible to the code official until inspected and approved. Any expense incurred in removing or replacing material that conceals an item to be inspected is not the responsibility of the code official or the jurisdiction. As with the issuance of permits (see Section 106.5.2), an approval as a result of an inspection is not a license to violate the code. Any work approved that might contain a violation of the code does not relieve the applicant from complying with the code.

[A] 107.2 Required inspections and testing. The code official, upon notification from the permit holder or the permit holder's agent, shall make the following inspections and such other inspections as necessary, and shall either release that portion of the construction or shall notify the permit holder or an agent of any violations that must be corrected. The holder

of the permit shall be responsible for the scheduling of such inspections.

1. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping installed, and before any backfill is put in place.
 2. Rough-in inspection shall be made after the roof, framing, fireblocking, firestopping, draftstopping and bracing is in place and all sanitary, storm and water distribution piping is roughed-in, and prior to the installation of wall or ceiling membranes.
 3. Final inspection shall be made after the building is complete, all plumbing fixtures are in place and properly connected, and the structure is ready for occupancy.
- ❖ This section requires that all portions of the plumbing system be inspected before and after fixtures are installed. The code official has the authority to require noncomplying plumbing to be brought into compliance and reinspected.

Inspections are necessary to determine that an installation conforms to all code requirements. Because the majority of a plumbing system is hidden within the building enclosure or is underground, periodic inspections are necessary before the systems are concealed. The code official is required to determine that plumbing systems and equipment are installed in accordance with the applicable code requirements and any special arrangements that fall outside of the code requirements, but have been approved during the jurisdiction's plan review (see Section 106.3). All inspections that are necessary to provide such verifications must be conducted. The code official is not required to inspect the work against the construction drawings (except the drawing for any special arrangements that were approved during plan review). The inspecting code official is not a quality control inspector insofar as making sure that the plumbing system is installed exactly like the construction drawings that the jurisdiction approved during plan review. As long as the installed work complies with the code, the work should be acceptable to the inspecting code official. Note that some jurisdictions could have different policies regarding site inspections. Contractors should always check with the local code official to determine how inspections are handled for projects.

Generally, the administrative rules of a department indicate the required interim inspections. Construction projects that occur in steps or phases may necessitate multiple inspections; therefore, an exact number of required inspections cannot be specified. Where violations are noted and corrections are required, reinspections may be necessary. As time permits, frequent inspections of some job sites, especially where the work is complex, can be beneficial in detecting code violations or other potential problems before they develop or become more difficult to resolve.

It is the responsibility of the contractor, the builder, the owner or other authorized party to arrange for the

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required inspections and to coordinate them to prevent work from being concealed before it is inspected.

1. Inspection of underground plumbing is especially important because once it is covered, it is the most challenging part of a plumbing system in which to detect a leak. If repairs are necessary, underground repairs are proportionately more expensive because of the need for heavy equipment and the more labor-intensive nature of working below grade level (see Section 306 for trenching, excavation and backfill requirements).
2. A rough-in inspection is a visual observation of all parts of the plumbing system that will eventually be concealed in the building structure. Rough-in inspections also include verification that the applicable test pressures are applied to the system and that leaks do not exist. The inspection must be made before any of the system is covered by building finish materials or hidden by future work.

A rough-in inspection may be completed in one visit or as a series of inspections. This is administratively determined by the local inspections department and is typically dependent on the size of the job.

3. A final inspection may be done as a series of inspections or in one visit, similar to a rough-in inspection. A final inspection is required prior to the approval of plumbing work and installations. For the construction of a new building, final approval is required prior to the issuance of the certificate of occupancy as specified in the IBC. To verify that all previously issued correction orders have been complied with and to determine whether subsequent violations exist, a final inspection must be made. All violations observed during the final inspection must be noted and the permit holder must be advised.

The final inspection follows the completion of the work or installation. Typically, the final inspection is an inspection of all that was installed after the rough-in inspection and not concealed in the building construction. Subsequent reinspections are necessary if the final inspection generates a notice of violation.

[A] 107.2.1 Other inspections. In addition to the inspections specified above, the code official shall be authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced.

- ❖ Any item regulated by the code is subject to inspection by the code official to determine compliance with the applicable code provision, and no list can include all types of work in a given building. Also, other inspections before, during or after the rough-in could be necessary. This section gives the code official the authority to inspect any regulated work.

[A] 107.2.2 Inspection requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the code official when work is ready for inspection. It shall be the duty of the permit holder to provide *access* to and means for inspections of such work that are required by this code.

- ❖ This section clarifies that it is the responsibility of the permit holder to arrange for the required inspections when the completed work is ready. It also establishes his or her responsibility for keeping the work open for inspection and providing all means needed to accomplish the inspections.

[A] 107.2.3 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the code official. The code official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the code official.

- ❖ This section establishes that work cannot progress beyond the point of a required inspection without the code official's approval. Upon making the inspection, the code official must either approve the completed work or notify the permit holder or other responsible party of that which does not comply with the code. Approvals and notices of noncompliance must be in writing, as required by Section 104.3, to avoid any misunderstanding as to what is required. Any work not approved cannot be concealed until it has been corrected and approved by the code official.

[A] 107.2.4 Approved agencies. The code official is authorized to accept reports of *approved* inspection agencies, provided that such agencies satisfy the requirements as to qualifications and reliability.

- ❖ The determination as to whether to accept an agency test report rests with the code official and the reporting agency must be acceptable to the code official.

[A] 107.2.5 Evaluation and follow-up inspection services. Prior to the approval of a closed, prefabricated plumbing system and the issuance of a plumbing permit, the code official shall require the submittal of an evaluation report on each prefabricated plumbing system indicating the complete details of the plumbing system, including a description of the system and its components, the basis upon which the plumbing system is being evaluated, test results and similar information, and other data as necessary for the code official to determine conformance to this code.

- ❖ As an alternative to a physical inspection in the plant or location where prefabricated components are fabricated (such as modular homes, prefabricated structures, etc.), the code official has the option of accepting an evaluation report from an approved agency detailing such inspections. These evaluation reports can serve as the basis for code compliance.

[A] **107.2.5.1 Evaluation service.** The code official shall designate the evaluation service of an *approved agency* as the evaluation agency, and review such agency's evaluation report for adequacy and conformance to this code.

- ❖ The code official is required to review all submitted reports for conformity to the applicable code requirements. If, in the judgment of the code official, the submitted reports are acceptable, he or she should document the basis for the approval.

[A] **107.2.5.2 Follow-up inspection.** Except where *ready access* is provided to all plumbing systems, service equipment and accessories for complete inspection at the site without disassembly or dismantling, the code official shall conduct the frequency of in-plant inspections necessary to ensure conformance to the *approved* evaluation report or shall designate an independent, *approved* inspection agency to conduct such inspections. The inspection agency shall furnish the code official with the follow-up inspection manual and a report of inspections upon request, and the plumbing system shall have an identifying label permanently affixed to the system indicating that factory inspections have been performed.

- ❖ The owner is required to provide special inspections of fabricated assemblies at the fabrication plant. The code official or an approved inspection agency must conduct periodic in-plant inspections to ensure conformance to the approved evaluation report described in Section 107.2.5.1. Such inspections would not be required where the plumbing systems can be inspected completely at the job site.

[A] **107.2.5.3 Test and inspection records.** Required test and inspection records shall be available to the code official at all times during the fabrication of the plumbing system and the erection of the building, or such records as the code official designates shall be filed.

- ❖ All testing and inspection records related to a fabricated assembly must be filed with the code official so he or she can maintain a complete and legal record of the assembly and erection of the building.

[A] **107.3 Special inspections.** Special inspections of *alternative engineered design* plumbing systems shall be conducted in accordance with Sections 107.3.1 and 107.3.2.

- ❖ This section establishes that the design professional has to periodically inspect the alternative engineered design, keep records of such inspections and submit a final report to the code official certifying that all work conforms to the construction documents. Because of the unusual nature and possible complexity of alternative engineered plumbing systems, it is necessary for the system designer to be involved in the inspection process.

[A] **107.3.1 Periodic inspection.** The registered design professional or designated inspector shall periodically inspect and observe the *alternative engineered design* to determine that the installation is in accordance with the *approved* construction documents. Discrepancies shall be brought to the

immediate attention of the plumbing contractor for correction. Records shall be kept of all inspections.

- ❖ The registered design professional must periodically inspect the engineered plumbing system during installation to determine that the system conforms to the approved construction documents. This is an important step because the design professional can identify any deviations from the approved plans in the early stages of the plumbing work. The design professional must then advise the plumbing contractor of any problems so that corrective measures can be taken before needless costs are incurred, and labor and materials are wasted.

The design professional must compile a complete legal record of the project, which must include all inspections made, discrepancies found and resolutions of discrepancies. It is the responsibility of the design professional to document and submit inspection records and written certification in accordance with Section 107.3.2.

[A] **107.3.2 Written report.** The registered design professional shall submit a final report in writing to the code official upon completion of the installation, certifying that the *alternative engineered design* conforms to the *approved* construction documents. A notice of approval for the plumbing system shall not be issued until a written certification has been submitted.

- ❖ After all work is completed, the design professional is required to inspect the entire alternative engineered plumbing system. The details of that inspection, including verification of compliance with the approved construction documents, must be submitted in writing to the code official before final approval can be granted.

[A] **107.4 Testing.** Plumbing work and systems shall be tested as required in Section 312 and in accordance with Sections 107.4.1 through 107.4.3. Tests shall be made by the permit holder and observed by the code official.

- ❖ Visual inspection is not all that is required in the determination of a plumbing system's compliance with the code. This section establishes where and how testing is to be performed to disclose leaks and defects.

[A] **107.4.1 New, altered, extended or repaired systems.** New plumbing systems and parts of existing systems that have been altered, extended or repaired shall be tested as prescribed herein to disclose leaks and defects, except that testing is not required in the following cases:

1. In any case that does not include addition to, replacement, alteration or relocation of any water supply, drainage or vent piping.
2. In any case where plumbing equipment is set up temporarily for exhibition purposes.

- ❖ Every plumbing system must be tested before it is placed into service. Testing is necessary to make sure that the system is free from leaks or other defects. Testing is also required, to the extent practicable, for portions of existing systems that have been repaired, altered or extended.

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[A] 107.4.2 Equipment, material and labor for tests. Equipment, material and labor required for testing a plumbing system or part thereof shall be furnished by the permit holder.

- ❖ The permit holder is responsible for performing tests, as well as for supplying all of the labor, equipment and apparatus necessary to conduct such tests. The code official observes but never performs the test.

[A] 107.4.3 Reinspection and testing. Where any work or installation does not pass any initial test or inspection, the necessary corrections shall be made to comply with this code. The work or installation shall then be resubmitted to the code official for inspection and testing.

- ❖ If a system or portion thereof does not pass the initial test or inspection, all violations must be corrected and the system must be reinspected.

To encourage code compliance and cover the expense of the code official's time, many jurisdictions charge fees for inspections that are required subsequent to the first reinspection.

[A] 107.5 Approval. After the prescribed tests and inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the code official.

- ❖ After the code official has performed the required inspections and observed the required equipment and system tests (or has received written reports of the results of such tests), he or she must determine whether the installation or work is in compliance with all applicable sections of the code. The code official must issue a written notice of approval if it has been determined that the subject plumbing work or installation is in apparent compliance with the code. The notice of approval is given to the permit holder, and a copy of the notice is retained on file by the code official.

[A] 107.5.1 Revocation. The code official is authorized to, in writing, suspend or revoke a notice of approval issued under the provisions of this code wherever the notice is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure, premise or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

- ❖ This section is needed to give the code official the authority to revoke a notice of approval for the reasons indicated in the code text. The code official can suspend the notice until all of the code violations are corrected.

[A] 107.6 Temporary connection. The code official shall have the authority to authorize the temporary connection of the building or system to the utility source for the purpose of testing plumbing systems or for use under a temporary certificate of occupancy.

- ❖ The typical procedure for a local jurisdiction is to withhold the issuance of the certificate of occupancy until approvals have been received from each code official responsible for inspection of the structure. The code official is permitted to issue a temporary authorization

to make connections to the public utility system prior to the completion of all work. The certification is intended to acknowledge that, because of seasonal limitations, time constraints, the need for testing or partial operation of equipment, some building systems may be connected even though the building is not suitable for final occupancy. The intent of this section is that a request for temporary occupancy or the connection and use of plumbing equipment or systems should not be denied when the requesting permit holder has demonstrated to the code official's satisfaction that the public health, safety and welfare will not be endangered.

The code official should view the issuance of a "temporary authorization or certificate of occupancy" as substantial an act as the issuance of the final certificate. Indeed, the issuance of a temporary certificate of occupancy offers a greater potential for conflict because once the building or structure is occupied, it is very difficult to remove the occupants through legal means.

[A] 107.7 Connection of service utilities. A person shall not make connections from a utility, source of energy, fuel, power, water system or *sewer* system to any building or system that is regulated by this code for which a permit is required until authorized by the code official.

- ❖ This section establishes the authority of the code official to approve utility connections to a building, such as water, sewer, electricity, gas and steam, and to require their disconnection when such approval has not been granted. For the protection of building occupants, including workers, such systems must have had final inspection approvals, except as allowed by Section 110.3 for temporary connections.

SECTION 108 VIOLATIONS

[A] 108.1 Unlawful acts. It shall be unlawful for any person, firm or corporation to erect, construct, alter, repair, remove, demolish or utilize any plumbing system, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

- ❖ This section describes the citing, recording and subsequent actions pursuant to observed code violations. Violations of the code are prohibited; this is the basis for all citations and correction notices.

[A] 108.2 Notice of violation. The code official shall serve a notice of violation or order to the person responsible for the erection, installation, alteration, extension, repair, removal or demolition of plumbing work in violation of the provisions of this code, or in violation of a detail statement or the *approved* construction documents thereunder, or in violation of a permit or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

- ❖ The code official is required to notify the person responsible for the erection or use of a building found

to be in violation of the code. The section that is allegedly being violated must be cited so that the responsible party can respond to the notice.

[A] 108.3 Prosecution of violation. If the notice of violation is not complied with promptly, the code official shall request the legal counsel of the jurisdiction to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

- ❖ The code official must pursue, through the use of legal counsel of the jurisdiction, legal means to correct the violation. This is not optional.

Any extensions of time for voluntary correction of the violations must be for a reasonable, bona fide cause, or the code official may be subject to criticism for “arbitrary and capricious” actions. In general, it is better to have a standard time limitation for correction of violations. Departures from this standard must be for a clear and reasonable purpose, usually stated in writing by the violator.

[A] 108.4 Violation penalties. Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter or repair plumbing work in violation of the *approved* construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a **[SPECIFY OFFENSE]**, punishable by a fine of not more than **[AMOUNT]** dollars or by imprisonment not exceeding **[NUMBER OF DAYS]**, or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

- ❖ A standard fine or other penalty as deemed appropriate by the jurisdiction is prescribed in this section. Additionally, this section identifies a principle that “each day that a violation continues shall be deemed a separate offense” for the purpose of applying the prescribed penalty in order to facilitate prompt resolution.

[A] 108.5 Stop work orders. Upon notice from the code official, work on any plumbing system that is being performed contrary to the provisions of this code or in a dangerous or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner’s authorized agent, or to the person performing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than **[AMOUNT]** dollars or more than **[AMOUNT]** dollars.

- ❖ Upon receipt of a violation notice from the code official, the owner of the property, the owner’s agent or the person doing the work must immediately cease all con-

struction activities identified in the notice, except as expressly permitted to correct the violation. A stop work order can prevent a violation from becoming worse and more difficult or expensive to correct. However, it can result in inconvenience and monetary loss to the affected parties; therefore, justification must be evident and judgment must be exercised before such an order is issued.

A stop work order may be issued where work is proceeding without a permit. Hazardous conditions could develop where the code official is unaware of the nature of the work and a permit has not been issued. The issuance of a stop work order on a plumbing system often results from work done by the plumbing contractor that affects a nonplumbing component. For example, if a plumbing contractor cuts a structural element to install piping or fixtures, the structure may be weakened enough to cause a partial or complete structural failure. As determined by the adopting jurisdiction, a penalty may be assessed for failure to comply with this section, and it is to be inserted in the blanks provided.

[A] 108.6 Abatement of violation. The imposition of the penalties herein prescribed shall not preclude the legal officer of the jurisdiction from instituting appropriate action to prevent unlawful construction or to restrain, correct or abate a violation, or to prevent illegal occupancy of a building, structure or premises, or to stop an illegal act, conduct, business or utilization of the plumbing on or about any premises.

- ❖ Despite the assessment of a penalty in the form of a fine or imprisonment against a violator, the violation itself must still be corrected. Failure to make the necessary corrections will result in the violator being subject to additional penalties as described in the preceding section.

[A] 108.7 Unsafe plumbing. Any plumbing regulated by this code that is unsafe or that constitutes a fire or health hazard, insanitary condition, or is otherwise dangerous to human life is hereby declared unsafe. Any use of plumbing regulated by this code constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is hereby declared an unsafe use. Any such unsafe equipment is hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal.

- ❖ Unsafe conditions include those that constitute a health hazard, fire hazard, explosion hazard, shock hazard, asphyxiation hazard, physical injury hazard or are otherwise dangerous to human life and property.

In the course of performing duties, the code official may identify a hazardous condition. Such condition must be declared in violation of the code and, therefore, must be abated. For example, while inspecting a plumbing installation, the code official may notice a leaking soil pipe that is causing structural decay, a missing cleanout plug or a defective water-heater relief valve. Even though the defective plumbing may be

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unrelated to the installation that the code official was called to inspect, he or she is obligated to address the hazard and have it corrected.

[A] 108.7.1 Authority to condemn equipment. Whenever the code official determines that any plumbing, or portion thereof, regulated by this code has become hazardous to life, health or property or has become insanitary, the code official shall order in writing that such plumbing either be removed or restored to a safe or sanitary condition. A time limit for compliance with such order shall be specified in the written notice. A person shall not use or maintain defective plumbing after receiving such notice.

Where such plumbing is to be disconnected, written notice as prescribed in Section 108.2 shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

❖ When a plumbing system or plumbing equipment is determined to be unsafe, the code official is required to notify the owner or agent of the building as the first step in correcting the difficulty. Such notice is to describe the repairs and improvements necessary to correct the deficiency or require removal or replacement of the unsafe equipment or system. All such notices must specify a time frame in which the corrective actions must occur. Additionally, such notice should require the immediate response of the owner or agent. If he or she is not available, public notice of such declaration should suffice for the purposes of complying with this section. The code official may also determine that disconnection of the system is necessary to correct an unsafe condition and must give written notice to that effect (see commentary, Section 108.2) unless immediate disconnection is essential for public health and safety reasons (see commentary, Section 108.7.2).

[A] 108.7.2 Authority to disconnect service utilities. The code official shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by the technical codes in case of an emergency, where necessary, to eliminate an immediate danger to life or property. Where possible, the owner or the owner's authorized agent and occupant of the building, structure or service system shall be notified of the decision to disconnect utility service prior to taking such action. If not notified prior to disconnecting, the owner, the owner's authorized agent or occupant of the building, structure or service systems shall be notified in writing, as soon as practical thereafter.

❖ The code official should have the authority to order disconnection of any plumbing supplied to a building, structure or equipment regulated by the code when it is determined that the equipment or any portion thereof has become an immediate danger. Written notice of an order to disconnect service and the causes therefore, should be given to the owner and the occupant of the building, structure or premises. However, disconnection should be done without such notice in cases of immediate danger to life or property.

[A] 108.7.3 Connection after order to disconnect. A person shall not make connections from any energy, fuel, power sup-

ply or water distribution system or supply energy, fuel or water to any equipment regulated by this code that has been disconnected or ordered to be disconnected by the code official or the use of which has been ordered to be discontinued by the code official until the code official authorizes the reconnection and use of such equipment.

Where any plumbing is maintained in violation of this code, and in violation of any notice issued pursuant to the provisions of this section, the code official shall institute any appropriate action to prevent, restrain, correct or abate the violation.

❖ Once the reason for discontinuation of use or disconnection of the plumbing system no longer exists, only the code official can authorize resumption of use or reconnection of the system after it is demonstrated to his or her satisfaction that all repairs or other work are in compliance with applicable sections of the code. This section also requires him or her to take action to abate code violations (see commentary, Section 108.2).

SECTION 109 MEANS OF APPEAL

[A] 109.1 Application for appeal. Any person shall have the right to appeal a decision of the code official to the board of appeals. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equally good or better form of construction is proposed. The application shall be filed on a form obtained from the code official within 20 days after the notice was served.

❖ This section holds that any aggrieved party with a material interest in the decision of the code official may challenge such a decision before a board of appeals. This provides a forum, other than the court of jurisdiction, in which to review the code official's actions.

This section literally allows any person to appeal a decision of the code official. In practice, this section has been interpreted to permit appeals only by aggrieved parties with a material or definitive interest in the decision of the code official. An aggrieved party may not appeal a code requirement per se. The intent of the appeal process is not to waive or set aside a code requirement; rather, it is to provide a means of reviewing a code official's decision on an interpretation or application of the code or to review the equivalency of protection to the code requirements.

[A] 109.2 Membership of board. The board of appeals shall consist of five members appointed by the chief appointing authority as follows: one for 5 years, one for 4 years, one for 3 years, one for 2 years and one for 1 year. Thereafter, each new member shall serve for 5 years or until a successor has been appointed.

❖ The board of appeals is to consist of five members appointed by the "chief appointing authority"—typically, the mayor or city manager. One member is to be

appointed for five years, one for four, one for three, one for two and one for one year. This method of appointment allows for a smooth transition of board of appeals members, allowing continuity of action over the years.

[A] 109.2.1 Qualifications. The board of appeals shall consist of five individuals, one from each of the following professions or disciplines:

1. Registered design professional who is a registered architect; or a builder or superintendent of building construction with not less than 10 years' experience, 5 years of which shall have been in responsible charge of work.
2. Registered design professional with structural engineering or architectural experience.
3. Registered design professional with mechanical and plumbing engineering experience; or a mechanical and plumbing contractor with not less than 10 years' experience, 5 years of which shall have been in responsible charge of work.
4. Registered design professional with electrical engineering experience; or an electrical contractor with not less than 10 years' experience, 5 years of which shall have been in responsible charge of work.
5. Registered design professional with fire protection engineering experience; or a fire protection contractor with not less than 10 years' experience, 5 years of which shall have been in responsible charge of work.

❖ The board of appeals consists of five persons with the qualifications and experience indicated in this section. One must be a registered design professional (see Item 2) with structural or architectural experience. The others must be registered design professionals, construction superintendents or contractors with experience in various areas of building construction. These requirements are important in that technical people rule on technical matters. The board of appeals is not the place for policy or political deliberations. It is intended that these matters be decided purely on their technical merits, with due regard for state-of-the-art construction technology.

[A] 109.2.2 Alternate members. The chief appointing authority shall appoint two alternate members who shall be called by the board chairman to hear appeals during the absence or disqualification of a member. Alternate members shall possess the qualifications required for board membership, and shall be appointed for 5 years or until a successor has been appointed.

❖ This section authorizes the chief appointing authority to appoint two alternate members who are to be available if the principal members of the board are absent or disqualified. Alternate members must possess the same qualifications as the principal members and are appointed for a term of five years or until such time that a successor is appointed.

[A] 109.2.3 Chairman. The board shall annually select one of its members to serve as chairman.

❖ It is customary to determine chairmanship annually so that a regular opportunity is available to evaluate and either reappoint the current chairman or appoint a new one.

[A] 109.2.4 Disqualification of member. A member shall not hear an appeal in which that member has any personal, professional or financial interest.

❖ All members must disqualify themselves regarding any appeal in which they have a personal, professional or financial interest.

[A] 109.2.5 Secretary. The chief administrative officer shall designate a qualified clerk to serve as secretary to the board. The secretary shall file a detailed record of all proceedings in the office of the chief administrative officer.

❖ The chief administrative officer is to designate a qualified clerk to serve as secretary to the board. The secretary is required to record the proceedings using detailed records.

[A] 109.2.6 Compensation of members. Compensation of members shall be determined by law.

❖ Members of the board of appeals need not be compensated unless required by the local municipality or jurisdiction.

[A] 109.3 Notice of meeting. The board shall meet upon notice from the chairman, within 10 days of the filing of an appeal or at stated periodic meetings.

❖ The board must meet within 10 days of the filing of an appeal or at regularly scheduled meetings.

[A] 109.4 Open hearing. Hearings before the board shall be open to the public. The appellant, the appellant's representative, the code official and any person whose interests are affected shall be given an opportunity to be heard.

❖ All hearings before the board must be open to the public. The appellant, the appellant's representative, the code official and any person whose interests are affected must be heard.

[A] 109.4.1 Procedure. The board shall adopt and make available to the public through the secretary procedures under which a hearing will be conducted. The procedures shall not require compliance with strict rules of evidence, but shall mandate that only relevant information be received.

❖ The board is required to establish and make available to the public written procedures detailing how hearings are to be conducted. Additionally, this section provides that although strict rules of evidence are not applicable, the information presented must be deemed relevant.

[A] 109.5 Postponed hearing. When five members are not present to hear an appeal, either the appellant or the appellant's representative shall have the right to request a postponement of the hearing.

❖ When all five members of the board are not present, either the appellant or the appellant's representative may request a postponement of the hearing.

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[A] **109.6 Board decision.** The board shall modify or reverse the decision of the code official by a concurring vote of three members.

- ❖ A concurring vote of three members of the board is needed to modify or reverse the decision of the code official.

[A] **109.6.1 Resolution.** The decision of the board shall be by resolution. Certified copies shall be furnished to the appellant and to the code official.

- ❖ A formal decision in the form of a resolution is required to provide an official record. Copies of this resolution are to be furnished to both the appellant and the code official. The code official is bound by the action of the board of appeals unless he or she thinks that the board of appeals has acted improperly. In such cases, relief through the court having jurisdiction may be sought by corporate council.

[A] **109.6.2 Administration.** The code official shall take immediate action in accordance with the decision of the board.

- ❖ To avoid any undue hindrance in the progress of construction, the code official is required to act without delay based on the board's decision. This action may be to enforce the decision or to seek legislative relief if the board's action can be demonstrated to be inappropriate.

[A] **109.7 Court review.** Any person, whether or not a previous party of the appeal, shall have the right to apply to the appropriate court for a writ of certiorari to correct errors of law. Application for review shall be made in the manner and time required by law following the filing of the decision in the office of the chief administrative officer.

- ❖ This section allows any person to request a review by the court of jurisdiction of perceived errors of law. Application for such review must be made after the decision of the board is filed with the chief administrative officer. This helps to establish the observance of due process for all concerned.

SECTION 110 TEMPORARY EQUIPMENT, SYSTEMS AND USES

[A] **110.1 General.** The code official is authorized to issue a permit for temporary equipment, systems and uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The code official is authorized to grant extensions for demonstrated cause.

- ❖ The code official is permitted to issue temporary authorization to make connections to a public utility system prior to completion of all work. This acknowledges that, because of seasonal limitations, time constraints or the need for testing or partial operations of equipment, some building systems may be safely connected even though the building is not suitable for final occupancy. The temporary connection and utilization of connected

equipment should be approved when the requesting permit holder has demonstrated to the code official's satisfaction that public health, safety and welfare will not be endangered.

[A] **110.2 Conformance.** Temporary equipment, systems and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure the public health, safety and general welfare.

- ❖ Even though a utility connection may be temporary, the only way to make sure that the public health, safety and general welfare are protected is for those temporary connections to comply with the code.

[A] **110.3 Temporary utilities.** The code official is authorized to give permission to temporarily supply utilities before an installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in the code.

- ❖ Commonly, the utilities on many construction sites are installed and energized long before all aspects of the system are completed. This section would allow such temporary systems to continue provided that they comply with the applicable safety provisions of the code.

[A] **110.4 Termination of approval.** The code official is authorized to terminate such permit for temporary equipment, systems or uses and to order the temporary equipment, systems or uses to be discontinued.

- ❖ This section provides the code official with the necessary authority to terminate the permit for temporary equipment, systems and uses if conditions of the permit have been violated or if temporary equipment or systems pose an imminent hazard to the public. This enables the code official to act quickly when time is of the essence in order to protect public health, safety and welfare.

Bibliography

The following resource materials are referenced in this chapter or are relevant to the subject matter addressed in this chapter.

ASME A112.6.3-01, *Floor and Trench Drains*. New York: American Society of Mechanical Engineers, 2001.

CSA B79-94(2000), *Floor, Area and Shower Drains, and Cleanouts for Residential Construction*. Canadian Standards Association, 2000.

Chapter : e initions

General Comments

The words or terms defined in this chapter are deemed to be of prime importance in both specifying the subject matter of code provisions and giving meaning to certain terms used throughout the code for administrative or enforcement purposes.

Purpose

Codes, by their very nature, are technical documents. As such, literally every word, term and punctuation mark can add to or change the meaning of the intended result.

This is even more so with a performance code where the desired result often takes on more importance than the specific words.

Furthermore, the code, with its broad scope of applicability, includes terms inherent in a variety of construction disciplines. These terms can often have multiple meanings depending on the context or discipline being used at the time.

For these reasons, it is necessary to maintain a consensus on the specific meaning of terms contained in the code. Chapter 2 performs this function by stating clearly what specific terms mean for the purpose of the code.

SECTION 201 GENERAL

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

- ❖ This section contains language and provisions that are supplemental regarding the use of Chapter 2. The subsections give guidance to the use of the defined words relevant to tense, gender, etc. Finally, this chapter provides the means to resolve those terms not defined.

201.2 Interchangeability. Words stated in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural the singular.

- ❖ Although the definitions contained in Chapter 2 are to be taken literally, gender and tense are considered to be interchangeable. This is so that any grammatical inconsistencies within the code do not hinder the understanding or enforcement of the requirements.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Building Code*, *International Fire Code*, *International Fuel Gas Code* or the *International Mechanical Code*, such terms shall have the meanings ascribed to them as in those codes.

- ❖ When a word or term appears in the code that is not defined in this chapter, other references may be used to find its definition, such as the other *International Codes*® in the International Code Council® (ICC®) family of codes, which are coordinated to prevent conflict among documents.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

- ❖ Another resource for defining words or terms not defined herein or in other codes is their "ordinarily accepted meanings." The intent of this statement is

that a dictionary definition could suffice, provided that such definition refers to the context.

Some of the construction terms used throughout the code may not be defined in Chapter 2 or in a dictionary. In such a case, one would first turn to the definitions contained in the referenced standards (see Chapter 15) and then to published textbooks on the subject in question.

SECTION 202 GENERAL DEFINITIONS

ACCEPTED ENGINEERING PRACTICE. That which conforms to accepted principles, tests or standards of nationally recognized technical or scientific authorities.

- ❖ The code makes frequent reference to a variety of consensus standards. Where a requirement is not based on a specific standard but on a body of knowledge of a particular engineering or construction discipline, this term is used.

It is also understood that where the code is silent on a subject, any rules that could be applicable in the interest of public safety must be in accordance with that body of knowledge called "accepted engineering practice." The code official can enforce this concept through the use of Section 102.9, titled "Requirements not covered by code." Care and caution need to be used by the code official when enforcing the "accepted engineering practice" concept to be sure that the concept is sound and safe.

[M] 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*").

- ❖ Access to plumbing fixtures, appliances and appurtenances is necessary to facilitate inspection, observation, maintenance, adjustment, repair or replacement. Access to something means that it can be easily physically reached without having to remove a permanent

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portion of the structure. It is acceptable, for example, to install a device in a space that would require removal of lay-in suspended ceiling panels to gain access. A fixture, appliance or device would not be considered accessible if it were necessary to remove or open any portion of a structure other than panels, doors, covers or similar obstructions intended to be removed or opened normally, without special tools or knowledge. See the definition of "Ready access."

Access can be described as the capability of being reached or approached for inspection, observation, maintenance, adjustment, repair or replacement. Achieving access could require the removal or opening of a panel, door or similar obstruction and might require overcoming an obstacle such as elevation. When access is being provided to an emergency shut-off valve, the designer should be aware that more damage can occur during the time it takes to actually "access" the valve.

ACCESS COVER. A removable plate, usually secured by bolts or screws, to permit *access* to a pipe or pipe fitting for the purposes of inspection, repair or cleaning.

- ❖ A removable access cover is normally installed to conceal a plumbing fitting that must be inspected, serviced, repaired or cleaned through a finished material or surface. Where the floor or paved surface is subject to pedestrian or vehicular traffic, the access cover must be structurally capable of supporting the load applied to it. Most access covers are secured with either fasteners, such as bolts or screws, or a simple latching mechanism. In special installations where security or safety is a concern, the method for securing the access cover could become more extensive and complicated. These special installations should be limited in number wherever possible because of the concern over the time it takes to access the fitting behind the cover.

Access covers placed in finished walls are often set flush with the face of the wall. Some access covers have provisions that allow for insertion of a portion of the actual wall finish material to help conceal the access cover. Where the access cover is in a floor surface, it should be installed flush so that it does not create a tripping hazard.

ADAPTER FITTING. An *approved* connecting device that suitably and properly joins or adjusts pipes and fittings that do not otherwise fit together.

- ❖ Where approved by the code official, these fittings are used to join pipes that are of different diameters, different materials or both. Adapter fittings are used to convert from one joining method to another. Refer to Sections 605 and 705 for specific information related to joints.

AIR ADMITTANCE VALVE. One-way valve designed to allow air to enter the plumbing drainage system when negative pressures develop in the piping system. The device shall close by gravity and seal the vent terminal at zero differential pressure (no flow conditions) and under positive internal pressures. The purpose of an air admittance valve is to pro-

vide a method of allowing air to enter the plumbing drainage system without the use of a vent extended to open air and to prevent *sewer* gases from escaping into a building.

- ❖ An air admittance valve (AAV) is a device used as an alternative method for the venting of traps for fixtures and waste receptors. AAVs reduce the amount of vent piping required to terminate outdoors. An AAV is designed to open and admit air into the drainage system when negative drain system pressures occur. An AAV closes by gravity and seals the vent terminal when the drain system pressure is equal to or exceeds atmospheric pressure. The seal prevents sewer gas from entering the building [see Commentary Figures 202(1) and 202(2)].

It is important to note that a mechanical vent is not considered an air admittance valve [see Commentary Figure 202(3)]. A mechanical vent is a device that operates in a manner similar to that of an air admittance valve. The mechanical vent opens to admit air under negative pressure conditions and closes under zero and positive pressure conditions. It cannot, however, be classified as an air admittance valve because it closes against the force of gravity by a lightweight wire spring. The use of a spring to overcome the forces of gravity to return the seal to the closed position introduces a higher probability of device failure than that of an air admittance valve.

AIR BREAK (Drainage System). A piping arrangement in which a drain from a fixture, appliance or device discharges indirectly into another fixture, receptacle or interceptor at a point below the *flood level rim* and above the trap seal.

- ❖ An air break is an indirect drainage method in which waste discharges to the drainage system through piping that terminates below the flood level rim and above the trap seal of an approved receptor. An air break is commonly used to protect mechanical equipment from sewage backup in the event that stoppage occurs. It also protects the drainage system from adverse pressure conditions caused by pumped discharge [see Commentary Figure 202(4)].

AIR GAP (Drainage System). The unobstructed vertical distance through the free atmosphere between the outlet of the waste pipe and the *flood level rim* of the receptacle into which the waste pipe is discharging.

- ❖ An air gap (drainage system) is a type of indirect waste arrangement where the waste is discharged to the drainage system through piping that terminates at a specified distance above the flood level rim of an approved receptor.

An air gap is commonly installed in drain lines serving equipment that is used in the preparation, storage and service of food; the conveyance of potable water; and the sterilization of medical equipment. The air gap serves as an impenetrable barrier for sewage to overcome in the event that stoppage occurs in the receptor drain, because sewage backup would overflow the receptor drain flood level before it came in contact with the drain line above [see Commentary Figure 202(4)].