

IRC[®]

INTERNATIONAL RESIDENTIAL CODE[®]
FOR ONE- AND TWO-FAMILY DWELLINGS

**CODE AND
COMMENTARY**
VOLUME 1

2009



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PREFACE

The principal purpose of the Commentary is to provide a basic volume of knowledge and facts relating to building construction as it pertains to the regulations set forth in the 2009 *International Residential Code*. The person who is serious about effectively designing, constructing and regulating buildings and structures will find the Commentary to be a reliable data source and reference to almost all components of the built environment.

As a follow-up to the *International Residential Code*, we offer a companion document, the *International Residential Code Commentary—Volume I*. Volume I covers Chapters 1 through 11 of the 2009 *International Residential Code*. The basic appeal of the Commentary is that it provides in a small package and at reasonable cost thorough coverage of many issues likely to be dealt with when using the *International Residential 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 regulations applicable to the construction of buildings and structures. 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. At the time of printing, the Commentary reflects the most up-to-date text of the 2009 *International Residential Code*. 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 Residential Code*, and all commentary is indented below the code text and begins with the symbol ❖. All code figures and tables are reproduced as they appear in the IRC. Commentary figures and tables are identified in the text by the word "Commentary" [as in "see Commentary Figure R202(7)"], and each has a full border.

Readers should note that the Commentary is to be used in conjunction with the *International Residential 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.

The International Code Council would like to extend its thanks to the following individuals for their contributions to the technical content of this commentary:

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David Cooper	Rebeca Quinn
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I A i i iv

Chapter 1: Scope and Administration

General Comments

Chapter 1 of the code is largely concerned with maintaining due process of law in enforcing the performance criteria contained in the body of the code. Only through careful observation of the administrative provisions can the building official reasonably hope to demonstrate that equal protection under the law has been provided. While it is generally assumed that the administrative and enforcement section of a code is addressed to the building official, this is not entirely true. The provisions also establish the rights and privileges of the design professional, the contractor and the building owner. The position of the building official is to review the proposed and completed work and to determine whether the residential structure conforms to the code requirements. The design professional, if one is used, is responsible for the design of the structure. The contractor is responsible for constructing the building in strict accordance with the code and any approved construction documents.

During the course of the construction of a building, the building official reviews the activity to make certain that the intent and letter of the law are being met and that the structure will provide adequate protection for the health, safety and welfare of the users. As a public servant, the building official enforces the code in an unbiased, professional and honest 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.

Section R101 establishes the title, scope and purpose of the document. Section R102 establishes the applicability of the code. Section R103 establishes the Depart-

ment of Building Safety. Section R104 establishes the duties and powers of the building official. Section R105 addresses the requirements for permits. Section R106 establishes the requirements for construction documents. Section R107 addresses the topic of temporary structures and uses. Section R108 establishes permit fees, payment of fees, building permit valuations, and related fees and refunds. Section R109 establishes the requirements for inspections. Section R110 establishes the requirements for occupancy, as well as the issuance and revocation of occupancy certificates. Section R111 regulates the connection and disconnection of utilities. Section R112 establishes the board of appeals and its authority. Section R113 addresses the topic of violations of the code. Section R114 establishes the authority for the building official to stop work.

Purpose

A construction code is intended to be adopted as a legally enforceable document that will safeguard health, safety, property and public welfare. A code cannot be effective without adequate provisions for its administration and enforcement. The building official charged with the administration and enforcement of construction regulations has a great responsibility, and with this responsibility goes authority. No matter how detailed the code may be, the building official must exercise judgement in determining code compliance. He or she is responsible for assuring that the homes in which the citizens of the community reside are designed and constructed to be reasonably free from hazards associated with the building's use. The code establishes a minimum acceptable level of safety.

ART I SCOPE AND ADMINISTRATION

SECTION R 0 GENERAL

R101.1 T . These provisions shall be known as the Residential Code for One- and Two-family Dwellings of [NAME OF

JURISDICTION], and shall be cited as such and will be referred to herein as "this code."

❖ The code is formally known as the *International Residential Code*® (IRC®) for One- and Two-family Dwellings, generally referred to as the *International Residential Code* or IRC for short. Upon adoption by the jurisdiction, it is known as the *Residential Code for One- and Two-family Dwellings* of the adopting juris-

diction, and in the document is often referred to as "the code." It is offered for adoption as a model document of prescriptive provisions to jurisdictions as a stand-alone residential code that establishes minimum regulations for one- and two-family dwellings and townhouses. The forum under which the code is developed encourages consistency of application of its provisions, and it is offered ready for adoption by all communities, large and small, internationally.

R101.2 S . The provisions of the International Residential Code for One- and Two-family Dwellings shall apply to the construction, alteration, renovation, enlargement, replacement, repair, equipment, use and occupancy, location, relocation and demolition of detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures.

Equivalent work units comply with the requirements of Section 419 of the International Building Code shall be permitted to be built as one- and two-family dwellings or townhouses. Fire suppression required by Section 419 of the International Building Code when constructed under the International Residential Code for One- and Two-family Dwellings shall conform to Section 419 of the International Building Code.

❖ The provisions of the code apply to all aspects of construction for detached one- and two-family dwellings; multiple single-family dwellings, defined as townhouses; and all structures accessory to the dwellings and townhouses. This section sets a limitation in its scope of application to include only those townhouses and dwellings that are up to and including three stories above grade. Additionally, the provisions require each two-family dwelling or townhouse to have separate egress systems for each of the dwelling units. Where a dwelling or townhouse exceeds the allowed height in stories, does not provide individual egress for each dwelling unit or does not conform to the prescriptive provisions of the code, the structures are then beyond the scope of the code, and the provisions of the code cannot be applied. The building must then meet the provisions of the *International Building Code*® (IBC®) or other legally adopted building code of the jurisdiction. The actual limiting height of the building, measured in feet and as applied to the height of each story, is limited by the governing provisions for each specific material as found in Chapter 6 of the code. The user of the code will discover that, depending upon which material is selected for the wall construction, the result may be buildings of different permitted heights. For instance, where the wall system is of insulating concrete form construction as prescribed in Section R611, the building is limited to two stories above grade and each story is limited to 10 feet (3048 mm) in height. If wood stud wall framing is used pursuant to the requirements of Section R602, the allowable story height and overall

building height will greatly exceed those permitted for the insulating concrete form wall construction method. The code does not limit the area of the building.

The provisions address all aspects of constructing, altering, repairing, maintaining, using, occupying, enlarging, locating, removing or demolishing any one-family dwelling, two-family dwelling, townhouse or accessory structure. The code regulates any and all activities that modify the buildings, as well as any structures that are of incidental use to the main buildings and that are also located on the same lot. The code regulates construction, plumbing, mechanical, electrical, equipment, fixture and gas piping installations that are done to the building and its operating systems, as well as to other structures incidental to the main building and on the same lot. Even work that is specifically exempted from permits must comply with the requirements of the code.

The exception addresses live/work units, which are designed to comply with Section 419 of the IBC. As stated in Section 419 of the IBC, a live/work unit is a dwelling unit in which a significant portion includes a nonresidential use, such as an office, a hair styling shop or barbershop, or small store. Section 419 of the IBC states that if the nonresidential portion of the building is an office that comprises less than 10 percent of the building area, the unit does not need to be made to comply with the provisions of the IBC, Section 419, for live/work units. Section 419 of the IBC places limitations on live/work units, including limitations on the nonresidential occupancies that can be included in a live/work unit and addresses specific issues regarding means of egress, accessibility, ventilation, fire safety and structural requirements.

R101.3 I . The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affordability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

❖ With the adoption and establishment of a set of minimum construction standards, a community can impose reasonable standards for construction that will maintain the livability of the community while reducing factors that contribute to substandard and hazardous conditions that risk public health, safety, welfare or contribute to undue risk to fire fighters and emergency responders. Adoption of a modern construction code, such as this one, increases the level of safety and quality in the built environment, and is a necessary instrument used to reduce substandard conditions or construction by establishing minimum levels of acceptable construction practice. A reduction in blighted and slum conditions benefits the general public welfare and contributes toward maintenance of a consis-

tent base for the property tax assessments that local governments typically use to fund their general budgets. By applying minimum structural, health, sanitation, fire safety and life safety criteria that must be met through the prescriptive or performance provisions of the code, a standard is set that ensures the public and individual building occupants they will not be exposed to construction that has gone unchecked or unregulated. The regulation and inspection of plumbing, electrical and mechanical installations also enhances safety for the public's health and welfare. The imposition of construction requirements that are in excess of the minimum standards would, in most cases, be considered unreasonable and would encounter a lack of support, which in turn could undermine the purpose of construction regulations.

SECTION R102 APPLICABILITY

R102.1 General. **here there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. here, in an specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.**

❖ This section provides guidance to both building officials and other code users on the application of the code when different sections of the code specify different materials, methods of construction or other requirements. The importance of this section should not be understated. It resolves the question of how to handle conflicts between the general and specific provisions found in the code or those instances where different sections specify different requirements. This section provides a necessary hierarchy for the application of code provisions and clarifies code applications that would otherwise leave persistent questions and lead to debate. The code requires that where different sections of the code apply, but contain different requirements, the most restrictive provisions govern. The code also resolves conflicts between the general requirements of any particular issue with any specific requirements of the same issue by indicating that the specific requirements take precedence over the general requirements.

The following example illustrates the principle. Section R311.7 applies to all stairway types within the purview of the code. Section R311.7.4.1 limits the maximum height of risers to $7\frac{3}{4}$ inches (196 mm), thus providing a general requirement for stairway riser height. Section R311.7.9.1 limits risers within a spiral stairway to a maximum height of $9\frac{1}{2}$ inches (241 mm). This provision is specific to spiral stairways. At first it may appear that these two sections have requirements that are in conflict with one another. However, Sections R311.7.4.1 and R311.7.9.1 are subordinate requirements of Section R311.7. In this case, the specific requirements of Section R311.7.9.1 take precedence

over the general requirements of Section R311.7.4.1 in those applications specific to spiral stairways.

Another example would be in relating the requirements for foam plastics to the requirements for wall and ceiling finishes. The code might be interpreted to state that foam plastic boards meeting the requirements of Section R316.3, with a maximum flame-spread rating of 75, could be used as the final surface finish for walls and ceilings because Section R302.9 allows a flame spread classification for wall and ceiling finishes with a rating of up to 200. This, however, would be a mistake. The provisions of Section R316.4 require the foam plastic to be covered by a finish material equivalent to a thermal barrier that limits the average temperature rise of the unexposed surface to no less 250°F (139°C) after 15 minutes of fire exposure in accordance with ASTM E 119 standard time-temperature curve, or to be covered with minimum $\frac{1}{2}$ -inch (12.7 mm) gypsum wallboard. In this case, the uncovered foam plastic must be covered to meet the requirements of Section R316.4 and have the thermal barrier installed. Additionally, the final surface finish material that is chosen must comply with Section R316.4, and it must also meet the required flame spread rating of 200 or less, as specified in Section R302.9.

To summarize, where several code sections apply to the use of a material or a method of construction, the most restrictive requirements apply.

R102.2 Other laws. **The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.**

❖ Compliance with the requirements of the code does not entail authorization, approval or permission to violate the regulations of other local, state or federal laws. Other laws, ordinances and regulations not administered or enforced by the building official could be in existence and enforced by another authority having jurisdiction over those provisions. Although the requirements may have similar provisions to those of the code, the work must be in conformance to the other regulations.

R102.3 Application of references. **References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.**

❖ There are many instances in the code where a reference is merely a chapter number, section number or, in some cases, a provision not specified by number. In all such situations, these references are to the code and not some other code or publication.

R102.4 Referenced codes and standards. **The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. here differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.**

Exception: **here enforcement of a code provision would violate the conditions of the listing of the element or**

ART II ADMINISTRATION AND ENFORCEMENT

SECTION 103.0 DEPARTMENT OF BUILDING SAFETY

R103.1 C . The department of building safety is hereby created and the official in charge thereof shall be known as the building official.

❖ This section establishes a building department that provides plan review and inspections for buildings regulated by the code. It also establishes the position of, the building official, who will be the administrator for the enforcement of the jurisdictional codes. The employees of the department may be given varying degrees of authority by the building official. The Department of Building Safety is charged with the responsibility for enforcing the provisions of the code.

R103.2 A . The building official shall be appointed by the chief appointing authority of the jurisdiction.

❖ The building official is an appointed officer of the jurisdiction, charged with the administrative responsibilities of the Department of Building Safety. The building official is appointed to the position by the chief appointing authority of the jurisdiction. Typically, the appointment is made by the mayor, council or commission and carried out through the city manager or other administrative authority.

R103.3 D . In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the building official shall have the authority to appoint a deputy building official, the related technical officers, inspectors, plan examiners and other employees. Such employees shall have powers as delegated by the building official.

❖ The building official has the authority, acting in conjunction and in agreement with the appointing authority of the jurisdiction, to appoint officers and employees of the department. The building official can delegate certain powers of his or her authority to a deputy building official, as well as to all technical officers and employees of the Department of Building Safety. This group of deputies typically includes inspectors and plans examiners.

SECTION 104.0 DUTIES AND POWERS OF THE BUILDING OFFICIAL

R104.1 G . The building official is hereby authorized and directed to enforce the provisions of this code. The building 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, poli-

cies and procedures shall be in conformance 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 building official is appointed by the legislative body of the jurisdiction to serve as the employee with the authority and responsibility for the proper administration of the code enforcement agency. The building official establishes policies and procedures that will clarify the applications of the code. The development of those policies and procedures should not be simply for the convenience of the jurisdiction's employees, but should be viewed as a way to effectively communicate to all interested parties involved in the construction process how the department will process applications, review construction documents, make inspections, approve projects, and determine and clarify the application of the code provisions. Properly developed, these policies and procedures can make the code enforcement department more predictable for those who are regulated and will also establish improved code compliance and public relations.

When interpretation of the code is needed, the building official is the one individual of the jurisdiction with the legal authority to interpret the code and determine how the provisions should be applied, in both general and specific cases. Some departments formalize the interpretation process and require the person with a question to submit their question in writing. Departments are encouraged to develop policies for both formal (written) and informal (verbal) requests for code interpretations. Any such interpretations must be in conformance with the intent and letter of the code and may not waive any requirements. It may be necessary in some cases for the building official to write these code interpretations into the permit.

R104.2 A . The building official shall receive applications, review construction documents and issue permits for the erection and alteration of buildings and structures, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

❖ This section states that the building official must receive applications, review construction documents, issue permits, conduct inspections and enforce the provisions of the code. She or he is to provide the services required to carry the project from application for the permit to final approval. The building official is to accept all properly completed applications and not refuse the receipt of an application that meets the policy requirements. This same principle holds for the review of the construction documents, issuance of permits, inspections and for the enforcement of the code's provisions. The requirements of the code must be met, and approval will be granted only when compliance is verified.

R104.3 N . The building official shall issue all necessary notices or orders to ensure compliance with this code.

❖ Building officials are to communicate, in writing, the disposition of their findings regarding code compliance. If an inspection shows that the work fails to comply with the code provisions, the building official or technical officer who conducted the inspection must issue a written report noting the corrections that are needed. A copy of the report is to be provided to the permit holders or their agent.

R104.4 I . The building official is authorized to make all of the required inspections, or the building official shall have the authority to 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 building official is authorized to enforce such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

❖ The code gives the building official the authority to conduct all required inspections. The building official also has the authority to accept reports from other inspection agencies or private inspectors who have been granted prior approval by the building official to conduct inspections and provide reports. The reports submitted by the approved inspection agencies or individuals must be in writing and must be certified by only those individuals who have been approved by the building official as being qualified to submit the reports. When unusual technical issues arise during the course of construction, the building official has the authority to hire the services of an expert to report on the conditions and technical issues germane to the subject at hand. Prior to hiring the expert for consultation services, the building official must seek approval from the appointing authority.

R104.5 I . The building official shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

❖ When the building official and other employees of the jurisdiction are performing their duties and inspecting structures or premises of construction, they are required to carry and display identification that will identify them as employees of the jurisdiction. Commentary Figure R104.5 is an example of the proper identification.

R104.6 R . Where it is necessary to make an inspection to enforce the provisions of this code, or where the building official has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of this code which makes the structure or premises unsafe, dangerous or hazardous, the building official or designee is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entrance requested. If such structure or premises be unoccu-

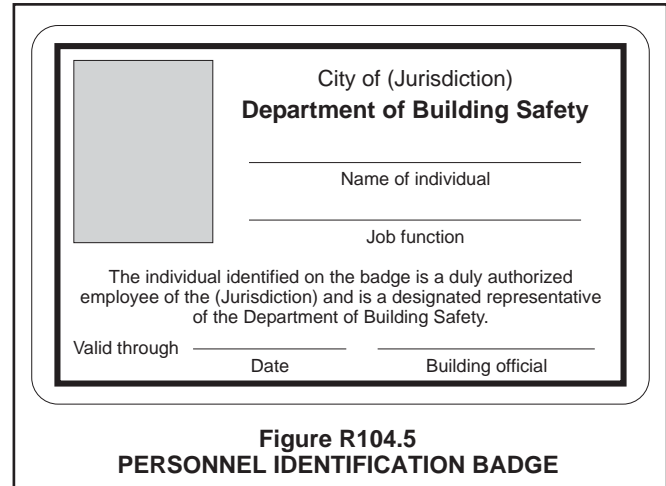


Figure R104.5
PERSONNEL IDENTIFICATION BADGE

pied, the building official shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises and request entrance. If entrance is refused, the building official shall have recourse to the remedies provided by law to secure entrance.

❖ The building official and employees of the jurisdiction are authorized to conduct inspections in order to enforce the provisions of the jurisdiction's construction codes. Section R109 identifies specific progress points for inspections that must be conducted for both the intermediate phases of the work being done and the final inspection and approval. The officials of the jurisdiction also have the authority to conduct an inspection when the building official has reasonable cause to believe that conditions exist that constitute a violation of the code. The officials of the jurisdiction must take the necessary precautions so the constitutional rights of the owner or tenants are not violated.

The code authorizes the building official to enter and conduct an inspection at reasonable times.

Unless there is an immediate life-threatening condition or an immediate safety concern, the building official must secure an invitation or be requested to conduct a scheduled inspection. Additionally, the building official can conduct an inspection when permission has been granted by the person with immediate control of the premises.

When permission to conduct an inspection is denied, the building official has the authority to seek an inspection warrant.

R104.7 D . The building 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.

❖ An important function of the Department of Building Safety is the record keeping associated with the department's functions. It is the responsibility of the building official to maintain adequate and accurate records that can be referenced for a variety of reasons. For ex-

ample, staffing levels and other budgetary concerns can be better addressed through a historical review of department activity. Also, the department can provide a wealth of information to assist in community development and planning procedures, and a sound record-keeping process best supports legal actions.

Appropriate and complete department records must be maintained for an adequate period of time, based on the value of the information being retained. In all cases, those public records that must be retained by state or local law must be kept for the minimum time period required by the law. Any questions or concerns about the minimum time period for the retention of official records should be directed to the legal representative for the jurisdiction.

R104.8 L . The building 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 liable personally and is hereby relieved from personal liability for an damage accruing to persons or property as a result of an act or omission in the discharge of official duties. An action instituted against an 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 building official or an subordinate shall not be liable for cost in an action, suit or proceeding that is instituted in pursuance of the provisions of this code.

❖ The building official, members of the appeals board and other employees charged with the duty to enforce the provisions of the code are relieved from personal liability by the jurisdiction when they are acting in good faith their official duties. This provision does not grant absolute immunity from all tort liability for employees of the jurisdiction in all cases; an employee acting maliciously is not relieved from his or her personal liability and will most likely not be defended by the jurisdiction. Building officials should not fear lawsuits even if their state does not guarantee them absolute immunity for their actions. Rather, the building official should understand those elements that a plaintiff must show in a lawsuit in order to prevail.

Public officials should familiarize themselves with the laws of their state regarding their exposure to tort liability. Only a few states grant absolute immunity from liability for any actions taken by public officials when those actions are within the scope of their employment.

R104.9 A . Materials, equipment and devices approved by the building 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. Where the

building official grants approval for the use of specific materials, equipment or devices as a part of the construction process, it is important that the approved items be constructed or installed in a manner consistent with the 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 the building official is a significant responsibility and is a key to code compliance. The approval process is first technical and then administrative. For example, if data to determine code compliance are required, the data should be in the form of test reports or engineering analysis and not simply taken from a sales brochure.

R104.9.1 U . Used materials, equipment and devices shall not be reused unless approved by the building official

❖ In keeping with the authority of the building official to evaluate construction materials based on their equivalency to those specified in the code, the use of used materials and equipment is limited to those approved by the building official. Testing and materials technology has permitted the development of new criteria that old materials may not satisfy. As a result, used materials are often evaluated by the building official in the same way as new materials. It is a common practice to require that used materials and equipment be equivalent to those required by the code if they are to be used in a new installation.

R104.10 M . Whenever there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for individual cases, provided the building official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements or structural. The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

❖ The building official has the authority to accept modifications of the code provisions in specific cases. For the building official to allow a modification, he or she must first determine that the strict application of the code is impractical for a specific reason. When the building official grants a modification, it is not a waiver from the requirements. It should be thought of as fulfilling the requirements to the greatest extent possible, but deviating from the requirements slightly to satisfy the intent of the provisions. The modification must not lessen the health, fire safety, life safety or structural requirements of the code. All modification actions must be recorded in the files of the building department.

R104.10.1 A . The building official shall not grant modifications to an provision related to areas prone to flooding as established by Table R . . . without the

granting of a variance to such provisions by the board of appeals.

❖ Section R322 contains provisions for determining flood hazard areas. A modification cannot be granted by the building official for structures located in areas that are prone to flooding without the board of appeals first granting a variance to the provisions. The regulations of the National Flood Insurance Program (44 CFR 60.3) require that proposals meet or exceed the minimum provisions of the program. Requests for modifications to any provision related to flood hazard areas are to be handled as formal variances. The criteria for issuance of variances are given in Section R112.2.2.

R104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of an alternative or to prohibit an alternative design or method of construction not specifically prescribed by this code, provided that an alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the alternative material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code. Compliance with the specific performance based provisions of the International Codes in lieu of specific requirements of this code shall also be permitted as an alternative.

❖ Although the code reflects current technologies, it is impossible to foresee all potential applications of new materials, construction techniques or design methods. The code encourages the use of new materials and technologies by allowing them to be presented to the building official for approval. The building official must approve a proposed alternative when it is found to be satisfactory and in compliance with the intent of the provisions of the code and is equivalent to that prescribed by the code. Approval may also be granted for the use of any alternative that is in compliance with the performance-based provisions of the *International Codes* (I-Codes).

R104.11.1 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that an alternative or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. 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 building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.

❖ The building official has the authority to require tests to substantiate the claim that an alternative is equivalent and meets the intent of the code. Any tests must be in

compliance with those specified in the code or other recognized test standards approved by the building official. The cost of any tests will be borne by the proponent seeking the approval of the alternative.

SECTION R10 PERMITS

R10.1 Required. An owner or authorized agent who intends 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 an electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

❖ This section lists the types of work or installations of equipment or utilities that will require an owner or authorized agent to obtain permits, which are to be acquired before work begins. 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.

R10.2 Work exempt from permit. Permits shall not be required for the following. Exemption from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

Buildings:

- One-story detached accessory structures used as tool sheds and storage sheds, playhouses and similar uses, provided the floor area does not exceed 100 square feet.
- Fences not over 6 feet high.
- Retaining walls that are not over 6 feet in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
- Water tanks supported directly upon grade if the capacity does not exceed 100 gallons and the ratio of height to diameter or width does not exceed 10 to 1.
- Sidewalks and driveways.
- Paint, wallpaper, tile, carpet, cabinets, counter tops and similar finish work.
- Refabricated swimming pools that are less than 48 inches deep.
- Swimming pools and other playground equipment.
- Window awnings supported by an exterior wall which do not project more than 12 inches from the exterior wall and do not require additional support.
- Decks not exceeding 10 square feet in area, that are not more than 42 inches above grade at any point, are not attached to a dwelling and do not serve the egress door required by Section R101.2.

E

- . Listed cord and plug connected to portable decorative lighting.
- . Reinstallation of attachment plug receptacles but not the outlets therefor.
- . Replacement of branch circuit overcurrent devices of the required capacity in the same location.
- . Electrical wiring, devices, appliances apparatus or equipment operating at less than 600 volts and not capable of supplying more than 1000 watts of energy.
- . Minor repair work, including the replacement of lamps or the connection of a portable electrical equipment to a portable permanently installed receptacles.

G

- . Portable heating, cooking or clothes drying appliances.
- . Replacement of an interior part that does not alter approval of equipment or make such equipment unsafe.
- . Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

M

- . Portable heating appliances.
- . Portable ventilation appliances.
- . Portable cooling units.
- . Steam, hot or chilled water piping within a heating or cooling equipment regulated by this code.
- . Replacement of an interior part that does not alter approval of equipment or make such equipment unsafe.
- . Portable evaporative coolers.
- . Self contained refrigeration systems containing pounds or less of refrigerant or that are actuated by motors of horsepower or less.
- . Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

The stopping of leaks in drains, water, soil, waste or vent pipe provided, however, that if a 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.

The clearing of stoppages or the repair 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.

- ❖ This section of the code lists the types of work in five categories—building, electrical, gas, mechanical and plumbing—that do not require permits. However, all work, even work that does not require a permit, must be done in a manner that will comply with the code requirements.

R105.2.1 E

. Where equipment replacement and repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day to the building official.

- ❖ Occasionally repairs or replacement work must be done under emergency conditions. The code does not intend that such emergency work be held up until the necessary permits are secured. It is important, however, that the permit application be obtained as quickly as possible once the emergency has been controlled. Any required permit must be applied for within the next business day following the emergency repair or replacement.

R105.2.2 R

. Application or notice to the building official is not required for ordinary repairs to structures, replacement of lamps or the connection of a portable electrical equipment to a portable permanently installed receptacles. Such repairs shall not include the cutting away of a wall, partition or portion thereof, the removal or cutting of a structural beam or load bearing support, or the removal or change of an required means of egress, or rearrangement of parts of a structure affecting the egress requirements nor shall ordinary repairs include addition to, alteration of, replacement or relocation of an water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

- ❖ There is a variety of ordinary repair, replacement or connection work that is exempt from the permit application process. This section identifies a number of general situations in which a permit is not required. The provisions then state the types of repairs for which a permit is required. Repair work done without a permit must still comply with the applicable provisions of the code.

R105.2.3 P

. A permit shall not be required for the installation, alteration or repair of generation, transmission, distribution, metering or other related equipment that is under the ownership and control of public service agencies established rights.

- ❖ When the ownership and control of equipment is held by a public service agency, such as a county water district, permits are not required for any work that might be done on that equipment. The scope of this provision includes not only repair activities, but also any installation or alteration work. It is clear from this section that public service agencies are self-regulating when it comes to work involving equipment used for generation, transmission, distribution and metering.

R105.3 A

. To obtain a permit, the applicant shall first file an application therefor in writing on a form furnished by the department of building safety for that purpose. Such application shall

- . Identify and describe the work to be covered by the permit for which application is made.
- . Describe the land on which the proposed work is to be done by legal description, street address or similar

description that will readily identify and definitely locate the proposed building or work.

- Indicate the use and occupancy for which the proposed work is intended.
- Be accompanied by construction documents and other information as required in Section R105.3.1.1.
- State the valuation of the proposed work.
- Be signed by the applicant or the applicant's authorized agent.
- Provide such other data and information as required by the building official.

❖ The code lists the minimum information required in an application for a permit. The owner or agent is to fully describe the location of the site, the type and nature of the work to be done and all other pertinent information regarding the job. This provides the jurisdiction with a clear understanding of what will actually be done under the permit. It is a common belief by some owners that all that is required of them is to complete an application form, and then the permit will be issued over the counter. Although issuance of over-the-counter permits may be practical when a water heater is to be installed or for other minor work, this is not the case for more complex work. The general public is often surprised when they discover a complete application includes the requirements to provide construction drawings as required by Section R106, detailed information about the property, engineering data and other information as required by the building department. The department should develop informational fliers and packets that will assist the applicant with understanding the requirements for obtaining a permit. Recognizing that incomplete applications do not serve the applicant's best interest (and create unnecessary delays with processing applications), many building departments have personnel who specialize in providing assistance to customers to ease them through the process.

R105.3.1 A . The building official shall evaluate or cause to be evaluated applications for permits and amendments thereto within a reasonable time after filing. If the application or the construction documents do not conform to the requirements of pertinent laws, the building official shall reject such application in writing stating the reasons therefor. If the building official is satisfied that the proposed work conforms to the requirements of this code and laws and ordinances applicable thereto, the building official shall issue a permit therefor as soon as practicable.

❖ When an application is determined to be incomplete, or when the construction documents do not show compliance with the code provisions or other requirements of the jurisdiction, the building official is to reject them. When the construction documents are rejected, the building official is required to list the reasons for the rejection for the applicant explaining why the plans have been rejected, so the applicant will know what action to take for subsequent approval.

When the application and construction documents are determined to be in compliance with the requirements of the code and other regulations of the jurisdiction, the building official must issue a permit. This section mandates the issuance of a permit when the plans and other data show compliance with all regulations of the jurisdiction, and it mandates that the permit be issued without delay.

R105.3.1.1 D

• For applications for reconstruction, rehabilitation, addition or other improvement of existing buildings or structures located in an area prone to flooding as established by Table R105.3.1.1, the building official shall evaluate or cause to be evaluated the construction documents and shall prepare a finding with regard to the value of the proposed work. For buildings that have sustained damage of an origin, the value of the proposed work shall include the cost to repair the building or structure to its pre-damaged condition. If the building official finds that the value of proposed work equals or exceeds percent of the market value of the building or structure before the damage has occurred or the improvement is started, the finding shall be provided to the board of appeals for a determination of substantial improvement or substantial damage. Applications determined by the board of appeals to constitute substantial improvement or substantial damage shall require all existing portions of the entire building or structure to meet the requirements of Section R105.3.1.1.

❖ The definitions of "Substantial damage" and "Substantial improvement" are included in federal regulations (see 44 CFR 59.1, Definitions). The following is from the NFIP regulations:

Substantial damage means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial improvement means any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures [that] have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary or safety code specifications that have been identified by the local code enforcement official and that are the minimum necessary to ensure safe living conditions, or
2. Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as an "historic structure."

These definitions are consistent with the definitions in Section 1612.2 of the IBC. "Substantial improvement" is also defined in Section R112.2.1 of the IBC.

Long-term reduction in exposure to flood hazards, including exposure of older buildings, is one of the purposes for regulating flood plain development. Existing buildings or structures located in flood hazard areas are to be brought into compliance with the flood-resistance provisions of Section R322 when the value of improvements or the repair of damage exceeds a certain value.

Section R105.3 requires the applicant to state the valuation of the proposed work as part of the information submitted to obtain a permit. If the proposed work will be performed on existing buildings or structures in flood hazard areas, including restoration of damage from any cause, the building official is to prepare a finding to determine the value of the proposed work, including the value of the property owner's labor, as well as the value of donated labor and materials. For damaged buildings, the value of the proposed work is the value of work necessary to restore the building to its predamage condition, even if the applicant is proposing less work.

To make a determination about whether a proposed repair, reconstruction, rehabilitation, addition or improvement of a building or structure will constitute a substantial improvement or correction of substantial damage, the cost of the proposed work is to be compared to the market value of the building or structure before the work is started. To determine market value, the building official may require the applicant to provide such information as allowed under Section R105.3. For additional guidance, refer to FEMA 213: *Answers to Questions about Substantially Damaged Buildings*, and FEMA 311: *Guidance on Estimating Substantial Damage Using the NFIP Residential Substantial Damage Estimator*.

The building official's finding is to be provided to the board of appeals if the finding is that the value of the proposed work equals or exceeds 50 percent of the market value of the building, less land value. The board of appeals is to determine whether the proposed work constitutes a substantial improvement of the existing building or whether a damaged building sustained substantial damage. If the board finds that the work is a substantial improvement, the existing building is to be brought into compliance with the flood-resistance provisions of Section R322.

R105.3.2 T . An application for a permit for an proposed work shall be deemed to have been abandoned **da s** after the date of filing unless such application has been pursued in good faith or a permit has been issued except that the building official is authorized to grant one or more extensions of time for additional periods not exceeding **da s** each. The extension shall be requested in writing and justifiable cause demonstrated.

❖ Applications for permits are considered valid for 180 days. The permit application and review process must be done in a timely manner within that period. The applicant must be responsive to requests for additional information made by the building department. The

180-day limitation is not intended to penalize an applicant for the lack of action on the part of the jurisdiction. It is merely a measure that is used to void an application when it is no longer reasonable to keep it active because the applicant is delaying the process and is not responding to legitimate requests for information. The building official can extend the time limit of an application in increments of 180 days, provided the applicant can show a valid reason for an extension. The applicant must make this request in writing.

R105.4 V . The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, an violation of any of the provisions of this code or of another ordinance of the jurisdiction. Any attempt to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the building official from requiring the correction of errors in the construction documents and other data. The building official is also authorized to prevent occupancy or use of a structure where in violation of this code or of another ordinance of this jurisdiction.

❖ A permit authorizes the permit holder to proceed with work that complies with the code requirements. A permit is not valid if it is issued for work that does not comply with the code requirements. If, after the permit has been issued, errors in the plans or construction are discovered, the building official has the authority to require the correction of the plans or the work to comply with the requirements of the code.

R105.5 E . Every permit issued shall become invalid unless the work authorized by such permit is completed within **da s** after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of **da s** after the time the work is completed. The building official is authorized to grant, in writing, one or more extensions of time, for periods not more than **da s** each. The extension shall be requested in writing and justifiable cause demonstrated.

❖ Once a permit has been issued, the permit holder has 180 days to begin the construction work; otherwise, the permit will become invalid. If at any time the work stops for a period of 180 days or more, the permit is invalid. Extensions can be granted by the building official, in writing, in increments of 180 days when the applicant makes a written request.

R105.6 S . The building official is authorized 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 an ordinance or regulation or any of the provisions of this code.

❖ Any permit that has been issued based on false, misleading or incorrect information can be revoked or suspended by the authority of the building official. The building official also has the authority to suspend or revoke any permit issued when a violation exists with re-

ward to the code or any other ordinance, code, law or regulation that is legally in effect in the jurisdiction.

R105.7 P . The building permit or copy thereof shall be kept on the site of the work until the completion of the project.

❖ The permit must be displayed at the work site until the certificate of occupancy has been issued. Because paperwork at a job site is sometimes lost, the code allows a copy of the permit to be kept at the site and the original to be retained in a more secure place. Keeping a record of permits at the project location satisfies the legal requirements set forth in the code, and any interested party can verify that a valid permit has been obtained.

R105.8 R . It shall be the duty of every person who performs work for the installation or repair of building, structure, electrical, mechanical or plumbing systems, for which this code is applicable, to comply with this code.

❖ This is one of several code provisions that emphasize the required compliance for every aspect of the project. Although the permit holder is designated as having the primary responsibility for overall code compliance, it is the responsibility of each and every person working on the job to adhere to the requirements of the code.

R105.9 P . Before issuing a permit the building official is authorized to evaluate or cause to be evaluated buildings, structures and sites for which an application has been filed.

❖ This section provides the building official with a useful tool in the permit process, especially in cases of permits being issued for an existing building. While the construction documents may show the scope and nature of work to be done, there may be other existing conditions in the building that could affect the continued safety profile of the building and the approval of a permit, which could only be discovered by inspection.

SECTION R 0 CONSTRUCTION DOCUMENTS

R106.1 S . Submittal documents consist in of construction documents, and other data shall be submitted in two or more sets with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such

that review of construction documents is not necessary to obtain compliance with this code.

❖ This section provides the minimum requirements for construction documents that an applicant must provide along with the permit application form for the application package to be considered complete. Construction documents are not just a set of drawings. Construction documents are the entire set of all submitted forms and information necessary to accurately communicate the scope of the construction. The submittals may include written special inspection and structural observation programs, construction drawings, and details, reports, calculations, specifications, shop drawings, manufacturer's installation instructions, site plans, and other graphic and written forms that will describe the proposed work in detail. The building official can waive the submission of construction documents for types of work where the review of documents is not necessary to show compliance with the requirements of the code.

The code is prescriptive and makes possible the design of a dwelling or townhouse without the requirement for a licensed design professional. However, the construction documents must be prepared by a licensed design professional when required by the statutes of the state or jurisdiction. Additionally, the building official has the authority to require that plans be prepared by licensed design professionals when not otherwise required by the statutes of the jurisdiction if, in the opinion of the building official, special or unique conditions exist or if the design of a building does not meet the prescriptive provisions of the code.

R106.1.1 I . Construction documents shall be drawn upon suitable material. Electronic media documents are permitted to be submitted when approved by the building official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the building official. Where required by the building official, all braced wall lines, shall be identified on the construction documents and all pertinent information including, but not limited to, bracing methods, location and length of braced wall panels, foundation requirements of braced wall panels at top and bottom shall be provided.

❖ The emphasis of this section is on the clarity, completeness and accuracy of the construction documents. A wide variety of individuals will be using the construction documents to perform their specific tasks. Therefore, it is critical that there be no confusion about the intent of the designer based on the information in the plans and other documents.

Electronic submittal of construction documents is rapidly gaining popularity. Where the Department of Public Safety has the means to review plans electronically, it may request such submittals. Many depart-

ments continue to use hard-copy documents for the plan review process, with a request for electronic media copies of documents for archival purposes.

This section also requires that the relevant wall bracing information required in Section R602.10 be clearly marked on the construction drawings. Those parts of the wall system that are designated bracing panels have potentially different panel attachment schedules, foundation requirements and specific connection requirements to other parts of the building than do other exterior and interior walls. Not only are braced walls often different from other walls, they are always required in every code-conforming structure. An extra burden is placed on our building officials and plan checkers when they have to try to figure out which walls the designer has intended for use as bracing. Requiring such details, as many professional home designers already provide, on all submittals will ensure that bracing is being considered during the design process. It will further ensure that the building's structural detailing is being done by the person who draws the plans and not by the plan checker. It will also make it easier for the builder to properly construct the required bracing on the job site when the details are clearly spelled out on the drawings.

R106.1.2 M . Manufacturer's installation instructions, as required by this code, shall be available on the job site at the time of inspection.

❖ Throughout the code, it directs that materials or equipment be installed in accordance with the manufacturer's installation instructions. An example is the installation of modified bitumen roofing, as set forth in Section R905.11.3. The code recognizes that the manufacturer can best relate the specific installation requirements applicable to its specific product. Where the code mandates that the manufacturer's installation instructions be followed, those instructions must be available at the job site. In this way, both the installers and inspector are able to see that the directives of the manufacturer are being followed.

R106.1.3 I . For buildings and structures located in whole or in part in flood hazard areas as established by Table R106.1, construction documents shall include

- . Delineation of flood hazard areas, floodway boundaries and flood zones and the design flood elevation, as appropriate
- . The elevation of the proposed lowest floor, including basement in areas of shallow flooding AO zones, the height of the proposed lowest floor, including basement, above the highest adjacent grade
- . The elevation of the bottom of the lowest horizontal structural member in coastal high hazard areas one and
- . If design flood elevations are not included on the county's Flood Insurance Rate Map (FIRM), the building official and the applicant shall obtain and reasonable utilize any design flood elevation and floodway data available from other sources.

❖ This section details the information to be included in an application for a permit to build within a flood hazard area. The site plan is to show sufficient detail and information about the designated flood hazard area, including floodway and flood zones, to allow for a complete review of the proposed activities. Flood Insurance Rate Maps (FIRMs) are flood hazard maps prepared by the Federal Emergency Management Agency (FEMA). FIRMs may show specific base flood elevations (BFE). If the community adopts a flood hazard map other than the FIRM, the design flood elevations (DFE) must be at least as high as the BFEs [see Table R301.2(1)].

Construction documents are to include the proposed elevation of the lowest floor and the elevation of the bottom of the lowest horizontal structural member, which is to be at or above the minimum as given in Section R322. In flood hazard areas except coastal high-hazard areas, applicants may propose placing fill with the intent of later constructing buildings with excavated basements. When excavated into fill, basements may be subject to damage, especially where waters remain high for more than a few hours. Fill materials can become saturated and provide inadequate support, or water pressure can collapse below-grade walls. Basements below residential buildings are not to be constructed below the DFE, even if excavated into fill that is placed above the DFE.

If elevated on individual fill pads in flood hazard areas, buildings will be surrounded by water during general conditions of flooding. Local emergency personnel responsible for evacuations should be consulted during the subdivision approval process. Many states and communities have provisions that require uninterrupted access to all buildings during a flood. These requirements may be administered by agencies responsible for permitting the construction of public rights-of-way or may be imposed as part of subdivision approval.

Many FIRMs show flood hazard areas without specifying the BFEs, indicating that FEMA has not prepared engineering analyses for those areas. These flood hazard areas are often referred to as unnumbered A Zones. An important step in regulating the development of these areas is the determination of the DFE. The building official and applicant are to search for, and use data from, other sources, which may include the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, the state, a local flood control agency or district, or historical records. If flood elevation information is not available, the building official may require the applicant to develop the DFE in accordance with accepted engineering practices. Local officials unfamiliar with establishing DFEs are encouraged to contact the NFIP State Coordinator or the appropriate FEMA regional office. For additional guidance, refer to FEMA 265: *Managing Floodplain Development in Approximate Zone A Areas: A Guide for Obtaining and Developing Base (100-Year) Flood Elevations*.

R106.2 S . The construction documents submitted with the application for permit shall be accompanied by a site plan showing the site and location of new construction and existing structures on the site and distances from lot lines. In the case of demolition, the site plan shall show construction to be demolished and the location and site of existing structures and construction that are to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan when the application for permit is for alteration or repair or when otherwise warranted.

❖ One valuable part of the construction documents is the site plan. As a part of reviewing the building's location on the site for conformance with the code, the building official must know the size and location of any other structures on the lot, as well as their physical relationship to the new structure. The proximity of the new structure to lot lines and any public ways must also be shown. The distance between a building and the lot lines may trigger a variety of code requirements, the most notable being exterior wall fire-resistance rating and opening prohibition (see Section R302).

The code also requires that a site plan be submitted when a building or structure is to be demolished. The plan must identify the location of the building to be demolished, as well as any surrounding structures that will remain in place.

R106.3 E . The building official shall enforce or cause to be enforced construction documents for code compliance.

❖ The building official must review the construction documents, or have qualified employees or consultants examine the plans, to determine whether they comply with the requirements of the jurisdiction.

R106.3.1 A . When the building official issues a permit, the construction documents shall be approved in writing or by a stamp which states "REVIEWED FOR CODE COMPLIANCE." One set of construction documents so reviewed shall be retained by the building official. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the building official or his or her authorized representative.

❖ Approval of the construction documents is the first in a series of reviews and approvals throughout the design and construction process. The building official or authorized representative must indicate that the construction documents are approved for construction, in writing or by a stamp, which specifically states "APPROVED PLANS PER IRC R106.3.1" and including any additional information that is necessary for the project. A set of the documents must be retained by the building department as its record for the life of the project. It is not uncommon throughout the job for questions to arise that require referencing the approved set of plans in the office. An efficient filing system should be developed to make the retrieval of construction documents a simple process.

In addition to the set of construction documents retained by the Department of Building Safety, at least

one set of approved plans is to be returned to the permit holder. These construction documents must be maintained at the job site for reference purposes throughout the project. To avoid confusion, they must duplicate the documents that were approved and stamped. They must be available for review by building department personnel during the numerous inspections that may take place. Additionally, the contractor cannot determine compliance with approved construction documents unless those approved documents are available. Another reason to have the documents available is that these plans will generally indicate any special items or issues identified by the plans examiner that may not be shown on any other construction documents. The approved plans usually must be available at the job site prior to an inspection.

R106.3.2 P . This code shall not require changes in the construction documents, construction or designed 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.

❖ The code does not require work to be brought up to the requirements of a code that was adopted since the edition of the code under which the existing valid permit was issued. If the work is abandoned for 180 days or more, and an extension of the permit is not granted, the original permit is no longer valid, and a new permit must be sought under the provisions of the latest edition of the code.

R106.3.3 P . The building official is authorized to issue a permit for the construction of foundations or another part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed compliant with pertinent requirements of this code. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

❖ Phased approval is needed for projects that use the "fast track" construction method, which allows construction to begin before completion of all of the plans and specifications. Although it is preferable to issue permits for projects in their entirety, the building official has the authority to issue, at his or her discretion, a permit for a portion of the construction. The building official must be satisfied that the information provided shows, in satisfactory detail, that the partial construction will conform to the requirements of the code. In such a case, the permit holder proceeds at his or her own risk with the construction and has no assurance of the entire permit ever being issued.

R106.4 A . Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall

be resubmitted for approval as an amended set of construction documents.

- ❖ The code requires that all work to be done in accordance with the approved plans and other construction documents. Where the construction will not conform to the approved construction documents, the documents must be revised, and they must be resubmitted to the building official for review and approval. The building official must retain one set of the amended and approved plans. The other set is to be kept at the construction site, ready for use by the jurisdiction's inspection staff.

R10 . Retention of construction documents. One set of approved construction documents shall be retained by the building official for a period of not less than 30 days from date of completion of the permitted work, or as required by state or local laws.

- ❖ Construction documents must be retained in case a dispute arises after the completion of the project. Unless modified because of state or local statutes, the retention period for the approved construction documents is a minimum of 10 days following the completion of the work, typically the date the certificate of occupancy is issued. Any further retention of plans by the jurisdiction as an archival record of construction activity in the community is not required by the code.

SECTION R10

TEMPORARY STRUCTURES AND USES

R10 .1 General. The building official is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 30 days. The building official is authorized to grant extensions for demonstrated cause.

- ❖ The building official can authorize temporary use permits when the applicant has met all regulations governing such use. Permits for temporary structures may also be granted subject to the provisions of this section. Although the permit is to be granted for a time period consistent with the temporary use, 10 days is the maximum period of time for which a temporary use or structure can be valid. This code section often applies to structures that are commonly used for a short duration of time at a specific location, then easily dismantled and removed, often to be reconstructed at a different site. It is common for this type of structure to be used at events like street fairs, carnivals, circuses, parades, sporting events, weddings, concerts or revivals, or they may also be used to house construction offices. These structures range in size from small tents or shade structures, which may house a vendor at a street fair, to large tents for circuses or religious revivals. Because of the large size, large occupant load and complexity that can result from smaller structures being grouped together, the fire safety and life safety concerns as covered in Section R107.2 must be duly considered before a permit is issued.

R10 .2 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, lighting, ventilation and sanitation requirements of this code as necessary to ensure the public health, safety and general welfare.

- ❖ This section gives the building official discretion in determining the specific criteria for conformance. The issues of structural strength, fire safety, egress, light, ventilation and sanitation are mentioned in this section as the key areas of concern for temporary structures or uses. The levels of required conformance must be determined by the building official to achieve the jurisdiction's required level of safety, health and welfare. Full compliance with the code is not required for a temporary structure or temporary use, but it is clear that the level of performance set forth by the code must be considered in the development of the requirements.

R10 .3 Temporary power. The building official is authorized to give permission to temporarily supply and use power in part of an electric installation before such 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 NFPA 70.

- ❖ The NFPA 70 is referenced regarding temporary lighting, heat and power. The code allows temporary electrical service to be provided prior to the completion of the entire electrical system if the building official approves such a connection.

R10 .4 Termination of approval. The building official is authorized to terminate such permit for a temporary structure or use and to order the temporary structure or use to be discontinued.

- ❖ Where the use of a temporary structure is not consistent with that approved by the building official, or where an unsafe condition exists, the building official is authorized to terminate the temporary permit.

SECTION R10

FEES

R10 .1 Payment of fees. A permit shall not be valid until the fees prescribed by law have been paid. Nor shall an applicant to a permit be released until the additional fee, if any, has been paid.

- ❖ This section addresses the costs necessary to operate a department of Building Safety by creating a mechanism for fee collection. Such fees are typically set to provide enough funds to adequately pay for the costs of operating the various department functions, including administration, plans examination and inspection. All fees, including those for changes to the permit, are to be collected before a valid permit is issued.

R10 .2 Scheduled fee of permit fees. On buildings, structures, electrical, mechanical and plumbing systems or alterations requiring a permit, a fee for each permit shall be paid as

required, in accordance with the schedule as established by the applicable governing authority.

❖ The code states that fees for activities regulated by the jurisdiction and administered by the building official should be equitably assessed and adequate to fund the administration, inspection and plan review services required by the code. Exorbitant fees are unreasonable and can often be a basis for some citizens' distrust of government agencies, while unrealistically low fees serve little purpose. In either situation, the effectiveness of the department suffers from either distrust and poor relations with the public or undertrained and understaffed departments that are hopelessly unable to retain the best-qualified employees. Either fee schedule does not serve the best interests of the public, which depends on the jurisdiction to enforce the code provisions effectively to maintain a minimum level of safety in the built environment. An example of a building department fee schedule is shown in Appendix L.

R108.3 B . Building permit valuation shall include total value of the work for which a permit is being issued, such as electrical, mechanical, plumbing and other permanent systems, including materials and labor.

❖ Most jurisdictions develop a fee schedule based on the projected construction cost of the work to be done. Two methods are used to determine this cost valuation: 1) a "per-square-foot" factor based on the use or occupancy of the building and the type of construction involved, or 2) the "bid cost" factor based on the total accepted bid price for doing the work. The valuation is determined by including the value of the construction process, including both materials and labor. It is important that a realistic valuation be determined for every project so that permit fees are applied fairly and accurately.

R108.4 R . The payment of the fee for the construction, alteration, removal or demolition for work done in connection with or concurrent with the work authorized by a building permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

❖ A building permit and the fees attached to that permit do not necessarily cover all aspects of the work to be performed. All fees of the jurisdiction, including those for additional permits, re-inspections, investigations or other departmental functions, must be paid along with those for a building permit.

R108.5 R . The building official is authorized to establish a refund policy.

❖ The building official has the authority to develop policies for refunding permit fees. The refund policy should retain fees for which the jurisdiction has provided services; only that portion of a fee for which no service has been rendered should be refunded.

R108.6 W . An person who commences work requiring a permit on a building,

structure, electrical, mechanical or plumbing system before obtaining the necessary permits shall be subject to a fee established by the applicable governing authority that shall be in addition to the required permit fees.

❖ The purpose of the permit process is to insure that the proposed building complies with the law before funds are expended toward actual construction. If construction is completed before a noncomplying element is found on the plans, costly repairs or some unsafe condition could be created. This section provides for a penalty fee to be imposed when construction is started before approval.

SECTION R 09 INSPECTIONS

R109.1 T . For onsite construction, from the time the building official, upon notification from the permit holder or his agent, shall make or cause to be made the necessary inspections and shall either approve that portion of the construction as completed or shall notify the permit holder or his agent wherein the same fails to comply with this code.

❖ Inspections are necessary to verify that the construction conforms to the code requirements, and this section outlines the minimum required inspections. Besides the minimum required inspections that are specifically listed, the building official has the authority to require additional inspections so that compliance with the code can be determined. It is the duty of the permit holder or an authorized agent of the permit holder to notify the building department that some or all of the work covered by the permit is ready and available for inspection. At that point, the appropriate jurisdictional inspector performs the necessary on-site inspection. The inspector then must inform the permit holder or agent that the work has been inspected. This may be by a telephone call, an electronic message or, in many cases, a written record of the inspection posted at the job site.

R109.1.1 F . Inspection of the foundation shall be made after poles or piers are set or trenches or basement areas are excavated and are required for structures erected and are required reinforcing steel is in place and supported prior to the placement of concrete. The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or elements and special requirements for wood foundations.

❖ The foundation inspection is typically the first inspection of the job site by a representative of the Building Safety Department. At that time, the inspector will verify that the foundation is located as shown on the approved plans and in accordance with the jurisdictional requirements for building setbacks and easements. Where a footing system is to be used, the footing trenches must be excavated and any required reinforcing steel must be in place. For foundation walls, the wall forms must be completely erected with the appropriate steel reinforcement placed within the forms.

Column pads, thickened slabs and other foundation work must also be ready for inspection prior to concrete placement.

R109.1.2 P

Final rough inspection of plumbing, mechanical, gas and electrical systems shall be made prior to covering or concealing, before fixtures or appliances are set or installed, and prior to framing inspection.

Each backfill of round source heat pump loop systems tested in accordance with Section M shall be inspected prior to inspection shall be permitted.

❖ The various trade rough-in inspections must be completed prior to the framing inspection. The electrical, gas, mechanical and plumbing systems that are to be concealed must be inspected and approved prior to their concealment. In addition, the effect of these systems on the structural integrity of the building must be reviewed after they are completed and ready to be covered. All of the trades inspections must be completed and approvals granted prior to the inspection of the framing system.

R109.1.3 F

For construction in areas prone to flooding as established by Table R302.1, upon placement of the lowest floor, including basement, and prior to further vertical construction, the building official shall require submission of documentation, prepared and sealed by a registered design professional, of the elevation of the lowest floor, including basement, required in Section R302.1.

❖ For any building constructed in a flood-prone area, the elevation of the lowest floor level must be established immediately after the placement of the floor. Documentation of the elevation of the lowest floor is evidence of compliance (see commentary, Section R322.3.6). If the documentation is submitted when the lowest floor level is established and before further vertical construction, errors in elevation may be corrected at the least cost. The elevation of the lowest floor is used by insurance agents to compute flood insurance premium costs. An error in the minimum required elevation may significantly increase the cost of flood insurance, which may be required by mortgage lenders. If the elevation of the lowest floor goes uncorrected, all future owners will incur the additional increase in cost.

R109.1.4 F

Inspection of framing and masonry construction shall be made after the roof, masonry, all framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are approved.

❖ The framing inspection is usually the final opportunity for the inspector to view all of the items that will be concealed within the structure. The inspection includes the structural framework of the building, as well as any fireblocking or draftstopping that will be contained within concealed spaces. All of the electrical, mechanical, gas and plumbing inspections must be completed and approved prior to the framing inspection. This al-

lows any framing members to be repaired while they are accessible.

R109.1.5 O

In addition to the called inspections above, the building official shall make or require other inspections to ascertain compliance with this code and other laws enforced by the building official.

❖ A variety of other inspections, such as those for gypsum board or insulation, may be mandated by the building department to verify compliance with the code or other city ordinances. These inspections are generally established as a result of local concern regarding a specific portion of the construction process. The procedure for these inspections should be consistent with the other provisions of this section.

R109.1.5.1 F

Where fire resistance rated construction is required between dwelling units or due to location on property, the building official shall require an inspection of such construction after all lath and or wallboard is in place, but before any plaster is applied, or before wallboard joints and fasteners are taped and finished.

❖ There are a limited number of situations in which fire-resistance-rated construction is required by the code. For example, where two or more dwelling units are located within the same structure, they are required by Section R302 to be completely separated from each other by a specified level of fire resistance. This is the case for both two-family dwellings and townhouses. A second example would be the proximity of the building to an adjoining property line. Section R302 requires exterior walls located less than 3 feet (914 mm) from a property line (unless abutting a public way) to be of minimum 1-hour fire-resistance-rated construction. If either of these conditions should occur, an inspection of the fire-resistance-rated construction is required.

The inspection for compliance with the fire-resistance requirements of the code should be made at a point of construction when the membrane materials are in place, but the fasteners are still exposed. This allows the inspector to verify the appropriate fastener type and location based on the specific fire-resistance listing of the portion of the building under consideration.

R109.1.6 F

Final inspection shall be made after the permitted work is complete and prior to occupancy.

❖ The final inspection should occur after all of the work addressed by the code is complete, but prior to occupancy of the building. The issues addressed in the final inspection cover all aspects of construction, including fire safety, life safety and structural safety, as well as electrical, plumbing, gas and mechanical items. The final inspection must be approved before a certificate of occupancy can be issued.

R109.2.1

The building official is authorized to accept reports of approved agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

❖ It is not uncommon for the building official to rely on other agencies for informational or inspection reports

regarding various aspects covering methods of the construction process materials. This reliance should be based on the building official's approval of the qualifications and reliability possessed by the third-party inspection or testing service.

R109.3 I . It shall be the duty of the permit holder or their agent to notify the building official that such work is ready for inspection. It shall be the duty of the person requesting inspections required by this code to provide access to and means for inspection of such work.

❖ The individual doing the authorized work has the responsibility for notifying the building department when the work is ready for inspection. Each building department establishes its own procedures on how and when requests should be made. Once an inspection has been scheduled, access to the area ready for inspection must be provided. The individuals performing the work should make the inspection process run as smoothly as possible.

R109.4 A . Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the building official. The building official upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or shall notify the permit holder or an agent of the permit holder 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 building official.

❖ Work must not continue past the point of a required inspection until that inspection has been approved by the building department. It is possible that if the work progresses beyond this point and is not in total compliance with the code, some of the work may have to be removed. It is critical that each individual stage of the project be approved prior to continuance of construction.

As indicated in Section R109.1, inspections must be performed when requested, and the inspector must indicate whether the construction is satisfactory or is not compliant. If the work is not approved, it must be corrected, and a reinspection must be requested. No work may be concealed until the building department approves it.

SECTION R 10 CERTIFICATE OF OCCUPANCY

R110.1 U . No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made until the building official has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Certificates presumed to give authority to violate

or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid.

E

. Certificates of occupancy are not required for work exempt from permits under Section R 105.0 .

. Accessory buildings or structures.

❖ The tool the building official employs to control the uses and occupancies of the various buildings in a jurisdiction is the certificate of occupancy. This section establishes the conditions of a certificate of occupancy and identifies the information the certificate must contain. The building official must be satisfied that the structure meets the requirements of the code before a certificate of occupancy can be given, and the structure cannot be legally occupied until a certificate has been issued. If the occupancy classification of an existing building has changed, such as changing an old Victorian home to a small office building, a new certificate of occupancy must be issued. The certificate of occupancy is the legal notification from the Department of Building Safety that the building may be occupied for its intended purpose.

The granting of a certificate of occupancy does not necessarily indicate that no violations of the code or other jurisdictional laws exist. The building official should make every effort to determine compliance with all applicable code provisions and other ordinances of the jurisdiction. It is important that violations be corrected. It is possible that the certificate of occupancy will be revoked if it is found that the certificate was issued in error.

R110.2 C . Changes in the character or use of an existing structure shall not be made except as specified in Sections 105.0 and 105.1 of the International Building Code.

❖ When an existing building's character or use is modified, the provisions of Sections 3408 and 3409 of the IBC dealing with change of occupancy and historic buildings must be met. Because the code is limited in scope to specific residential occupancies, any change of occupancy to a use beyond the scope of Section R101.2 will be governed by the IBC.

R110.3 C . After the building official inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the department of building safety, the building official shall issue a certificate of occupancy which shall contain the following

. The building permit number.

. The address of the structure.

. The name and address of the owner.

. A description of that portion of the structure for which the certificate is issued.

. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code.

. The name of the building official.

- . The edition of the code under which the permit was issued.
- . If an automatic sprinkler system is provided and whether the sprinkler system is required.
- . Any special stipulations and conditions of the building permit.

❖ Prior to the use or occupancy of the building, the building official shall perform a final inspection as addressed in Section R109.1.6. If the official finds no violations of the code and other laws enforced by the department of Building Safety, the building official is required to issue a certificate of occupancy. Commentary Figure R110.3 illustrates the information that must be provided on the certificate of occupancy.

R110.4 Temporary occupancy. The building official is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. The building official shall set a time period during which the temporary certificate of occupancy is valid.

❖ Where a portion of a building is intended to be occupied prior to the occupancy of the entire structure, the building official may issue a temporary certificate of occupancy. Prior to the issuance of a temporary certificate of occupancy, it is critical that the building official determine that the portions to be occupied provide the minimum levels of safety required by the code. In addition, the building official must establish a definitive length of time for the temporary certificate of occupancy to be valid.

R110. Re-occupation. The building official shall, in writing, suspend or revoke a certificate of occupancy issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of an ordinance or regulation or any of the provisions of this code.

❖ In essence, the certificate of occupancy certifies that the described building or portion of that building complies with the requirements of the code for the intended use. However, any certificate of occupancy may be suspended or revoked by the building official under one of three conditions (1) when the certificate is issued in error, (2) when incorrect information is supplied to the building official, or (3) when it is determined that the building or a portion of the building is shown to be in violation of the code or any other ordinance or regulation of the jurisdiction.

SECTION R111
SERVICE UTILITIES

R111.1 Connection of service utilities. No person shall make connections from a utility, source of energy, fuel or power to a building or structure that is regulated by this code for which a permit is required, until authorized by the building official.

❖ This section addresses the connection and disconnection, either permanent or temporary, of any utilities that service a building or structure regulated by the code. The building official is authorized to control the connection for any service utility when the connection



is to a building that is regulated by the code and requires a permit. Prior to the connection of a utility, source of energy, fuel or power, all conditions for the connection must be met and verified by required inspections.

R111.2 T . The building official shall have the authority to authorize and approve the temporary connection of the building or structure to the utility, source of energy, fuel or power.

- ❖ Temporary service utility connections, such as for temporary electrical service during the construction process, are permitted when approved by the building official after the necessary inspections have been performed and any additional conditions met.

R111.3 A . The building official shall have the authority to authorize disconnection of utility service to the building, structure or service store related by this code and the referenced codes and standards set forth in Section R . . . in case of emergency where necessary to eliminate an immediate hazard to life or property or when such utility connection has been made without the approval required by Section R . . . or R . . . The building official shall notify the serving utility and whenever possible the owner and occupant of the building, structure or service store of the decision to disconnect prior to taking such action if not notified prior to disconnection. The owner or occupant of the building, structure or service store shall be notified in writing as soon as practical thereafter.

- ❖ When an immediate hazard to life or property exists, the building official has the authority to order disconnection of the utility services. This can also occur when the utility service has been connected without the necessary approvals required by the code. Whenever possible, the building owner and the building occupant or occupants should be notified prior to the disconnection of the services. Then at the first practical opportunity, the building official is to formally notify the building owner in writing of the disconnection activities. As with all administrative functions, all aspects of due process must be followed.

SECTION R 2 BOARD OF APPEALS

R112.1 G . In order to hear and decide appeals of orders, decisions or determinations made by the building official relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The building official shall be an ex officio member of said board but shall have no vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the building official.

- ❖ This section holds that any aggrieved party with a material interest in the decision of the building official may appeal such a decision before a board of appeals. This provides a forum other than the court of the jurisdiction in which the building official's action can be reviewed.

A board of appeals is to be created by the jurisdiction. The primary function of the board of appeals is hearing and acting on the appeal of orders or decisions the building official has made on the application or interpretation of the code. The building official is an ex officio member of the board of appeals, but he or she has no vote on any issue that comes before the board. The appellant is to be provided with a written copy of the board's findings and decisions, with a duplicate copy sent to the building official. Appendix B of the IBC supplies example rules of the procedure.

R112.2 L . An application for appeal shall be based on a claim that the true intent of this code or the rules hereby adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equal or better method of construction is proposed. The board shall have no authority to waive requirements of this code.

- ❖ The code does not grant authority to the board to hear appeals regarding the administrative provisions of the code, nor does it grant the board the authority to waive any code requirements. An appeal must be based on the claim that the provisions of the code have been misinterpreted, that the provisions do not apply to the appellant's circumstances, or that where an alternative method or technique of construction is used it has been shown to be at least equal to the code requirements.

R112.2.1 D

When the building official provides a finding required in Section R . . . , the board of appeals shall determine whether the value of the proposed work constitutes a substantial improvement. A substantial improvement means a repair, reconstruction, rehabilitation, addition or improvement of a building or structure, the cost of which equals or exceeds a percentage of the market value of the building or structure before the improvement or repair is started. If the building or structure has sustained substantial damage, all repairs are considered substantial improvements regardless of the actual repair work performed. The term does not include

- Improvements of a building or structure required to correct existing health, sanitary or safety code violations identified by the building official and which are the minimum necessary to assure safe living conditions or
- An alteration of an historic building or structure, provided that the alteration will not preclude the continued designation as an historic building or structure. For the purpose of this exclusion, an historic building is
 - . . . listed or preliminarily determined to be eligible for listing in the National Register of Historic Places or
 - . . . Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district or

- Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

❖ Substantial improvement, found in Sections R105.3.1.1 and R112.2.1, is defined in this section and is consistent with the definition used by the FFI and Section 1612.2 of the IBC. One of the long-range objectives of the FFI is to reduce the exposure of older buildings that were built in flood hazard areas before local jurisdictions adopted flood hazard area maps and regulations. Section R105.3 of the code directs the applicant to state the valuation of the proposed work as part of the application for a permit. To determine whether a proposed alteration, repair, addition or improvement of a building or structure constitutes a substantial improvement, the cost of the proposed work is to be compared to the market value of the building or structure before the work is started. To determine market value, the building official may require the applicant to provide the information listed in Section R105.3. For additional guidance, refer to FEMA 213 *Answers to Questions About Substantially Damaged Buildings*, and FEMA 311 *Guidance on Estimating Substantial Damage Using the NFIP Residential Substantial Damage Estimator*.

When the board of appeals makes its determination, certain items are not included in the valuation of proposed work. Specifically, if certain health-, sanitation- or safety-code violations have been cited previously, the cost of the minimum repairs required to correct those violations is not included in the determination.

Alteration of a historic structure is not considered a substantial improvement or repair of substantial damage, provided the proposed work does not alter the building to the extent that it would no longer qualify as a historic structure. The building official may require applicants to consult an appropriate historic preservation authority to determine whether a proposed alteration would jeopardize a structure's historic designation. The exception for historic structures does not apply to structures located within designated historic districts, unless those structures are individually listed as historic structures.

R112.2.2 Criteria for issuance of a variance for areas prone to flooding. A variance shall be issued only upon

- A showing of good and sufficient cause that the unique characteristics of the site, configuration or topography of the site render the elevation standards in Section R112.2.1 inappropriate.
- A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
- A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

- A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
- Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

❖ All the criteria set forth in this section must be met in order for the board of appeals to (1) consider granting a variance for construction in flood-prone areas, and (2) provide relief from selected provisions for flood-resistant construction. Granting of the variance must not cause additional public safety concerns beyond those already present.

The board of appeals is empowered to hear requests for variances from the flood hazard provisions of the code. Variances from these provisions may place people and property at significant risk. Therefore, communities are cautioned to carefully evaluate the impacts of issuing a variance, particularly variances to the requirements for elevating buildings to the BFE. The elements that are to be evaluated include impacts on the site, the applicant and other parties who may be affected such as adjacent property owners and the community as a whole. Flood plain development that is not undertaken in accordance with the flood-resistance provisions of the code will be exposed to increased flood damages. As a consequence, flood insurance premium rates will be significantly higher. Variance decisions made by the board of appeals are to be based solely on technical justifications outlined in this section and not on the personal circumstances of an owner or applicant.

Applicants sometimes request variances to the minimum elevation requirements for the lowest floor of buildings in flood hazard areas to improve access for the disabled and elderly. Generally, variances of this nature are not to be granted because these are personal circumstances that will change as the property changes ownership. Not only would persons of limited mobility be at risk from flooding, but a building built below the BFE would continue to be exposed to flood damage long after the personal need for a variance ends. More appropriate alternatives are to be considered to serve the needs of disabled or elderly persons, such as varying setbacks to allow construction on less flood-prone portions of sites or the installation of personal elevators.

All variances are to be the minimum necessary to afford relief. The board of appeals will address each listed condition for a variance, especially the requirement that it determine whether the failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable. By itself, this determination may be insufficient to result in an exceptional hardship if other conditions for issuing a variance cannot be met. The determination of hardship is to be

based on the unique characteristics of the site and not on the personal circumstances of the applicant.

In guidance materials, FEMA cautions that economic hardship alone is not an exceptional hardship. Building officials and boards of appeals are cautioned that granting a variance does not affect how the building will be rated for the purposes of NFIP flood insurance. Even if circumstances justify granting a variance to build a lowest floor that is below the DFE, the rate used to calculate the cost of a flood insurance policy will be based on the risk to the building. Flood insurance, required by certain mortgage lenders, may be extremely expensive. Although the applicant may not be required to purchase flood insurance, the requirement may be imposed on subsequent owners. The building official is to provide the applicant a written notice to this effect, along with the other cautions listed in this section.

R112.3 . The board of appeals shall consist of members who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the jurisdiction.

❖ The members of the board of appeals are to be selected by the appointing authority of the jurisdiction; the members must be qualified to pass judgment on appeals associated with building construction. The purpose of the board is to provide a review of the appeal independent from that of the building department, so no jurisdictional employee is permitted to be a member. Additional information on suggested qualifications of members of the board of appeals is contained in Appendix B of the IBC.

R112.4 A . The building official shall take immediate action in accordance with the decision of the board.

❖ Decisions made by the board of appeals must be enacted as quickly as possible. The building official is to take whatever action is necessary to see that the orders of the board are carried out.

SECTION R VIOLATIONS

R113.1 U . It shall be unlawful for any person, firm or corporation to erect, construct, alter, extend, repair, move, remove, demolish or occupy any building, structure or element regulated by this code, 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 to be taken when code violations are found.

R113.2 N . The building official is authorized to serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, removal, demolition or occupancy of a building or structure in violation of the provisions of this code, or in violation of a detail statement or a plan approved 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 building official is required to notify the person responsible for the construction or use of a building found to be in violation of the code. The section of the code that is being violated must be cited so that the responsible party can respond to the notice.

R113.3 P . If the notice of violation is not complied with in the time prescribed by such notice, the building official is authorized to 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 building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

❖ When the building owner, owner's agent or tenant does not correct the condition causing the violation as directed, the building official must pursue, through the use of legal counsel of the jurisdiction, legal means to correct the violation. This is not optional.

Any extensions that allow the violations to be corrected voluntarily must be for a reasonable, bona fide cause, or the building 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.

R113.4 V . An person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or directive of the building official or of a permit or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law.

❖ The jurisdiction must establish penalties for a variety of violations that may occur. Violations specifically addressed by the code include failure to comply with the (1) code, (2) approved plans or (3) directives of the building official.

SECTION R STOP WORK ORDER

R114.1 N . Upon notice from the building official that work on any building or structure is being prosecuted contrary to the provisions of this code or in an unsafe and dangerous manner, such work shall be immediately stopped. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent or to the person doing the work and shall state the conditions under which work will be permitted to resume.

❖ The stop work order is a tool authorized by the code that enables the building official to demand that work on a building or structure be temporarily suspended. Typically used under rare circumstances, this order may be issued where the work being performed is

dangerous, unsafe or significantly contrary to the provisions of the code.

The stop work order is to be a written document indicating the reason or reasons for the suspension of work, identifying those conditions where compliance is necessary before work is allowed to resume. All work addressed by the order must cease immediately. The stop work order must be presented to either the owner of the subject property, the agent of the owner or the individual doing the work. Commentary Figure R114.1 is an example of a stop work order.

R114.2 U . An person who shall continue an work in or about the structure after havin been served with a stop work order, e cept such work as that person is directed to perfor to re ove a violation or unsafe condition, shall be sub ect to penalties as prescribed b law.

- ❖ The only activity permitted in a building or a portion of a building subject to a stop work order is that work necessary to eliminate the violation or unsafe condition. Otherwise, penalties prescribed by laws of the jurisdiction must be imposed for illegal construction activity in defiance of a stop work order.

Bibliography

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

ASTM 266-06, *Specification for Asphalt-saturated (Organic Felt) Used in Roofing and Waterproofing*. est Conshohocken, A ASTM International, 2006.

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II D i i i

Chapter : Definitions

General Comments

The code user should be familiar with the terms in this chapter because (1) the definitions are essential to the correct interpretation of the *International Residential Code*® (IRC®), and (2) the user might not be aware that a particular term encountered in the text has the special definition found herein.

Section R201.1 contains the scope of the chapter. Section R201.2 establishes the interchangeability of the terms in the code. Section R201.3 establishes the use of terms defined in other chapters. Section R201.4 establishes the use of undefined terms, and Section R202 lists terms and their definition according to this code.

Purpose

Codes are technical documents, so literally every word, term and punctuation mark can add to or change the meaning of the provision. Furthermore, the IRC, 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 IRC. Chapter 2 performs this function by stating clearly what specific terms mean for the purpose of this code.

SECTION R20 GENERAL

R201.1 **S** . Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings indicated in this chapter.

❖ This section clarifies the terminology used in the IRC. The terms defined in the IRC often have very specific meanings, which can be different from their typical meanings. This section gives guidance to the use of the defined words relative to tense and gender and also provides the means to resolve those terms not defined.

R201.2 **I** . Words used in the present tense include the future words 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; thus, any gender and tense inconsistencies within the code text should not hinder the understanding or enforcement of the requirements.

R201.3 **T** . Where terms are not defined in this code such terms shall have meanings ascribed to them as in other code publications of the International Code Council.

❖ When a word or term appears in the code that is not defined in this chapter, other code publications of the

International Code Council® (ICC®) may be used to find its definition. These code documents include the *International Building Code*® (IBC®), *International Mechanical Code*® (IMC®), *International Plumbing Code*® (IPC®), *International Fuel Gas Code*® (IFGC®), *International Fire Code*® (IFC®) and others. These codes contain additional definitions (some parallel and duplicated) which may be used in the enforcement of this code or in the enforcement of the other ICC codes by reference. When using a definition from another code, keep in mind the admonition from "Purpose": "These terms can often have multiple meanings depending on the context or discipline being used at the time."

R201.4 **T** . 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 possible source for the definitions of words or terms not defined in this code or in other codes is their "ordinarily accepted meanings." Dictionary definitions may suffice, provided that the definitions are in context.

Sometimes construction terms used throughout the code may not be defined in Chapter 2, in another code, or in a dictionary. In such cases, one would first turn to the definitions contained in the referenced standards (see Chapter 43) and then to textbooks on the subject in question.