

2009 International Building Code and Commentary Errata

(Only errata to Commentary are shown-see International Building Code Errata for Code Errata)

(Portions of text and tables not shown are unaffected by the errata)

1st and 2nd PRINTING (September 7, 2011)

CHAPTER 29 PLUMBING SYSTEMS

Page 29-10, **Solution-Part II....**

1. Calculate the number of water closets for males:

~~For the first 25 males, the ratio of 1 per 25 is applied:~~

$$25 \times 1/25 = 1 \text{ water closet}$$

For the remaining 155:

The ratio of 1 per 75 is applied:

$$155 \times 1/75 = 2.07 \underline{2.4} \text{ water closets for males}$$

Therefore, ~~3.07~~ 2.4 male water closets are needed.

Because the gender distribution is equal and the water closet ratio for females is the same as for males, the number of water closets for females is also ~~3.07~~ 2.4.

2. Calculate the number of lavatories for 180 males:

~~For the first 40 males, the ratio of 1 per 40 is applied:~~

$$40 \times 1/40 = 1 \text{ lavatory}$$

~~For the remaining 140~~

The ratio of 1 per 200 is applied:

$$140 \times 1/200 = 0.7 \underline{0.9} \text{ lavatories for males are required.}$$

~~Therefore, 1.7 male lavatories are needed.~~

Because the gender distribution is equal and the lavatory ratio for females is the same as for males, the number of lavatories for females is also ~~1.7~~ 0.9.

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Page 29-11, Table 2902.1.1(2)

**Table 2902.1.1(2)
SOLUTION SUMMARY OF SAMPLE PROBLEM 2**

OCCUPANCY		WATER CLOSETS				LAVATORIES			DF	DRINKING FOUNTAINS	SERVICE SINK
USE	LOAD	RATIO	MALE	RATIO	FEMALE	RATIO	MALE	FEMALE			
Business	940	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	10.4	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	10.4	1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	6.88	6.88	1 per 100	9.4	Note 1
Business Required Totals			11		11		7	7		10	
Restaurants, banquet halls, and food courts	360	1 per 75	2.4	1 per 75	2.4	1 per 200	1.8 <u>0.9</u>	1.8 <u>0.9</u>	1 per 500	0.72	
Restaurant Required Total			3		3		2 <u>1</u>	2 <u>1</u>		1	
Building Required Totals			14		14		9 <u>8</u>	9 <u>8</u>		11	

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CHAPTER 7
FIRE AND SMOKE PROTECTION FEATURES

BIBLIOGRAPHY

ASTM E 119-00 ~~or UL 263-00~~, *Test Methods for Fire Tests of Building Construction and Materials*. West Conshohocken, PA: ASTM International, 2000.

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FIRST PRINTING (Updated July 30, 2010)

**CHAPTER 10
MEANS OF EGRESS**

Figure 1009.4.5(1) Tread/Riser Profile (Solid Riser)

Revise note –

1 ¼” Max. (¾” min. for residential) See Exception 5 to Section 1009.4.2 ~~1009.4~~

BIBLIOGRAPHY

UL 1994-04, *Standard for Luminous Egress Path Marking Systems- with revisions through February 2005*. Northbrook, IL: Underwriters Laboratories, Inc., ~~1995~~ 2005.

**CHAPTER 22
STEEL****2205.2.1 Seismic Design Category A, B or C.**

The earthquake provisions in Section 1613 require all structures to be assigned to a Seismic Design Category, which is a function of the building's Occupancy Category as well as the design earthquake ground motions. Seismic Design Category is an indicator of the seismic risk and it is used to establish, amongst other things, the complexity of the seismic analysis and the types of structural systems that may be utilized to resist the effects of earthquakes. Structures classified as Seismic Design Category A, B or C are considered to have a low to moderate seismic risk and this section of the code clarifies the options that are available in designing a seismic-force-resisting system utilizing structural steel. These options are as follows:

Option 1: The engineer is permitted to use a "structural steel system not specifically detailed for seismic resistance," as stated in ASCE 7, which is assigned a response modification coefficient, R , of 3 in Table 12.2-1 of ASCE 7. The system is then designed for the resulting earthquake load effects using only AISC 360. Under AISC 360 the assumption is elastic behavior as opposed to AISC 341 which provides for detailing that recognizes inelastic response.

Option 2: If the engineer wishes to use a response modification coefficient, R , greater than 3 in order to lower the design earthquake forces, the AISC 341 seismic detailing provisions are mandatory. For example, a special steel concentrically braced frame (SCBF) could be utilized. ASCE 7 Table 12.2-1 specifies an R coefficient of 6 for this system. All other factors being equal, the design base shear for this system is reduced to half that required under Option 1 above. However, the design and construction requirements for SCBF members and connections in Section 13 of ~~AISC~~ AISC 341 must be satisfied.

It is also worth noting that this section actually states the minimum requirements for structural steel systems in buildings that are assigned to Seismic Design Category B or C only. For structures classified as Seismic Design Category A (i.e., low earthquake risk), compliance with this section is more correctly an alternative to the minimum earthquake requirements that are specified in Section 11.7 of ASCE 7. That section merely requires design for a minimum lateral earthquake load that is independent of the type of seismic-force-resisting system that is utilized (i.e., a Response Modification Coefficient is not applicable).

**CHAPTER 26
PLASTIC**

2603.4.1.13 Type V construction.

A thermal barrier is not required when foam plastic is spray applied to the sill plate and joist header in Type V construction when all of the conditions listed in Section 2603.4.1.13 are met. Because foam-plastic insulation in this application is left exposed, the four conditions listed limit the hazards of the spray-applied foam plastic used in this application:

- Thickness greater than or equal to 3¹/₄ inches (82.6 mm);
- Density is between 1.5 to 2.0 pcf (24 to 32 kg/m³);
- Flame spread index is less than or equal to 25; and
- Smoke-developed index is less than or equal to 450.

This particular allowance was based upon testing in a room corner fire test that compared the performance of an all-wood floor system to that of a wood floor system with foam plastic sprayed on sill plates and headers (see Figure 2603.4.1.13).

2009 INTERNATIONAL BUILDING CODE AND COMMENTARY ERRATA

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VOLUME 2 APPENDIX K ADMINISTRATIVE PROVISIONS

This Commentary Volume 2 erroneously includes the 2006 version of Appendix K to the IBC. The correct version of Appendix K in the 2009 IBC is entitled “Appendix K Administrative Provisions”.

Replace the existing Appendix K with the following Appendix K:

APPENDIX K

ADMINISTRATIVE PROVISIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

With the exception of Section K111, this appendix contains only administrative provisions that are intended to be used by a jurisdiction to implement and enforce NFPA 70, the National Electrical Code. Annex H of NFPA 70 also contains administrative and enforcement provisions, and these provisions may or may not be completely compatible with or consistent with Chapter 1 of the IBC, whereas the provisions in IBC Appendix K are compatible and consistent with Chapter 1 of the IBC and other ICC codes. Section K111 contains technical provisions that are unique to this appendix and are in addition to those of NFPA 70.

The provisions of Appendix K are specific to what might be designated as an Electrical Department of Inspection and Code Enforcement and could be implemented where other such provisions are not adopted.

SECTION K101 GENERAL

K101.1 Purpose. A purpose of this code is to establish minimum requirements to safeguard public health, safety and general welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of electrical systems and equipment.

K101.2 Scope. This code applies to the design, construction, installation, *alteration*, repairs, relocation, replacement, *addition* to, use or maintenance of electrical systems and equipment.

SECTION K102 APPLICABILITY

K102.1 General. The provisions of this code apply to all matters affecting or relating to structures and premises, as set forth in Section K101.

K102.2 Existing installations. Except as otherwise provided for in this chapter, a provision in this code shall not require the removal, *alteration* or abandonment of, nor prevent the continued utilization and maintenance of, existing electrical systems and equipment lawfully in existence at the time of the adoption of this code.

K102.3 Maintenance. Electrical systems, equipment, materials and appurtenances, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe, hazard-free condition. Devices or safeguards that are required by this code shall be maintained in compliance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for the maintenance of the electrical systems and equipment. To determine compliance with this provision, the

building official shall have the authority to require that the electrical systems and equipment be reinspected.

K102.4 Additions, alterations and repairs. Additions, alterations, renovations and repairs to electrical systems and equipment shall conform to that required for new electrical systems and equipment without requiring that the existing electrical systems or equipment comply with all of the requirements of this code. Additions, alterations and repairs shall not cause existing electrical systems or equipment to become unsafe, hazardous or overloaded.

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

K102.5 Subjects not regulated by this code. Where no applicable standards or requirements are set forth in this code, or are contained within other laws, codes, regulations, ordinances or bylaws adopted by the jurisdiction, compliance with applicable standards of nationally recognized standards as are *approved* shall be deemed as prima facie evidence of compliance with the intent of this code. Nothing herein shall derogate from the authority of the *building official* to determine compliance with codes or standards for those activities or installations within the building official's jurisdiction or responsibility.

SECTION K103 PERMITS

K103.1 Types of permits. An owner, authorized agent or contractor who desires to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace electrical systems or equipment, the installation of which is regulated by this code, or to cause such work to be done, shall first make application to the *building official* and obtain the required *permit* for the work.

Exception: Where repair or replacement of electrical systems or equipment must be performed in an emergency situation, the *permit* application shall be submitted within the next working business day of the department of electrical inspection.

K103.2 Work exempt from permit. The following work shall be exempt from the requirement for a *permit*:

1. Listed cord- and plug-connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles, but not the outlets therefor.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.

4. Temporary wiring for experimental purposes in suitable experimental laboratories.
5. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.

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

SECTION K104 CONSTRUCTION DOCUMENTS

K104.1 Information on construction documents. *Construction documents* shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted where *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 such work will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *building official*.

K104.2 Penetrations. *Construction documents* shall indicate where penetrations will be made for electrical systems and shall indicate the materials and methods for maintaining required structural safety, *fire-resistance rating* and *fireblocking*.

K104.3 Load calculations. Where an *addition* or *alteration* is made to an existing electrical system, an electrical load calculation shall be prepared to determine if the existing electrical service has the capacity to serve the added load.

SECTION K105 ALTERNATIVE ENGINEERED DESIGN

K105.1 General. The design, documentation, inspection, testing and approval of an alternative engineered design electrical system shall comply with this section.

K105.2 Design criteria. An alternative engineered design shall conform to the intent of the provisions of this code and shall provide an equivalent level of quality, strength, effectiveness, *fire-resistance*, durability and safety. Materials, equipment or components shall be designed and installed in accordance with the manufacturer's installation instructions.

K105.3 Submittal. The *registered design professional* shall indicate on the *permit* application that the electrical system is an alternative engineered design. The *permit* and permanent *permit* records shall indicate that an alternative engineered design was part of the *approved* installation.

K105.4 Technical data. The *registered design professional* shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this code.

K105.5 Construction documents. The *registered design professional* shall submit to the *building official* two complete sets of signed and sealed *construction documents* for the alternative

engineered design. The *construction documents* shall include floor plans and a diagram of the work.

K105.6 Design approval. Where the *building official* determines that the alternative engineered design conforms to the intent of this code, the electrical system shall be *approved*. If the alternative engineered design is not *approved*, the *building official* shall notify the *registered design professional* in writing, stating the reasons therefor.

K105.7 Inspection and testing. The alternative engineered design shall be tested and inspected in accordance with the requirements of this code.

SECTION K106 REQUIRED INSPECTIONS

K106.1 General. The *building official*, upon notification, shall make the inspections set forth in this section.

K106.2 Underground. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping and conductors installed, and before backfill is put in place. Where excavated soil contains rocks, broken concrete, frozen chunks and other rubble that would damage or break the raceway, cable or conductors, or where corrosive action will occur, protection shall be provided in the form of granular or selected material, *approved* running boards, sleeves or other means.

K106.3 Rough-in. Rough-in inspection shall be made after the roof, framing, *fireblocking* and bracing are in place and all wiring and other components to be concealed are complete, and prior to the installation of wall or ceiling membranes.

K106.4 Contractors' responsibilities. It shall be the responsibility of every contractor who enters into contracts for the installation or repair of electrical systems for which a *permit* is required to comply with adopted state and local rules and regulations concerning licensing.

SECTION K107 PREFABRICATED CONSTRUCTION

K107.1 Prefabricated construction. Prefabricated construction is subject to Sections K107.2 through K107.5.

K107.2 Evaluation and follow-up inspection services. Prior to the approval of a prefabricated construction assembly having concealed electrical work and the issuance of an electrical *permit*, the *building official* shall require the submittal of an evaluation report on each prefabricated construction assembly, indicating the complete details of the electrical system, including a description of the system and its components, the basis upon which the system is being evaluated, test results and similar information, and other data as necessary for the *building official* to determine conformance to this code.

K107.3 Evaluation service. The *building official* shall designate the evaluation service of an *approved* agency as the evaluation agency, and review such agency's evaluation report for adequacy and conformance to this code.

K107.4 Follow-up inspection. Except where ready access is provided to electrical systems, service equipment and accessories for complete inspection at the site without disassembly or

dismantling, the *building official* shall conduct the in-plant inspections as frequently as necessary to ensure conformance to the *approved* evaluation report or shall designate an independent, *approved* inspection agency to conduct such inspections. The inspection agency shall furnish the *building official* with the follow-up inspection manual and a report of inspections upon request, and the electrical system shall have an identifying label permanently affixed to the system indicating that factory inspections have been performed.

K107.5 Test and inspection records. Required test and inspection records shall be available to the *building official* at all times during the fabrication of the electrical system and the erection of the building; or such records as the *building official* designates shall be filed.

SECTION K108 TESTING

K108.1 Testing. Electrical work shall be tested as required in this code. Tests shall be performed by the *permit* holder and observed by the *building official*.

K108.1.1 Apparatus, material and labor for tests. Apparatus, material and labor required for testing an electrical system or part thereof shall be furnished by the *permit* holder.

K108.1.2 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the *building official* for inspection and testing.

SECTION K109 RECONNECTION

K109.1 Connection after order to disconnect. A person shall not make utility service or energy source connections to systems regulated by this code, which have been disconnected or ordered to be disconnected by the *building official*, or the use of which has been ordered to be discontinued by the *building official* until the *building official* authorizes the reconnection and use of such systems.

SECTION K110 CONDEMNING ELECTRICAL SYSTEMS

K110.1 Authority to condemn electrical systems. Wherever the *building official* determines that any electrical system, or portion thereof, regulated by this code has become hazardous to life, health or property, the *building official* shall order in writing that such electrical systems either be removed or restored to a safe condition. A time limit for compliance with such order shall be specified in the written notice. A person shall not use or maintain a defective electrical system or equipment after receiving such notice.

Where such electrical system is to be disconnected, written notice as prescribed in this code shall be given. In cases of

immediate danger to life or property, such disconnection shall be made immediately without such notice.

SECTION K111 ELECTRICAL PROVISIONS

K111.1 Adoption. Electrical systems and equipment shall be designed, constructed and installed in accordance with the *International Residential Code* or NFPA 70 as applicable, except as otherwise provided in this code.

[F] K111.2 Abatement of electrical hazards. All identified electrical hazards shall be abated. All identified hazardous electrical conditions in permanent wiring shall be brought to the attention of the *building official* responsible for enforcement of this code. Electrical wiring, devices, appliances and other equipment which is modified or damaged and constitutes an electrical shock or fire hazard shall not be used.

[F] K111.3 Appliance and fixture listing. Electrical appliances and fixtures shall be tested and *listed* in published reports of inspected electrical equipment by an *approved* agency and installed in accordance with all instructions included as part of such listing.

K111.4 Nonmetallic-sheathed cable. The use of Type NM, NMC and NMS (nonmetallic sheathed) cable wiring methods shall not be limited based on height, number of stories or construction type of the building or structure.

K111.5 Cutting, notching and boring. The cutting, notching and boring of wood and steel framing members, structural members and engineered wood products shall be in accordance with this code.

K111.6 Smoke alarm circuits. Single- and multiple-station smoke alarms required by this code and installed within *dwelling* units shall not be connected as the only load on a branch circuit. Such alarms shall be supplied by branch circuits having lighting loads consisting of lighting outlets in habitable spaces.

K111.7 Equipment and door labeling. Doors into electrical control panel rooms shall be marked with a plainly visible and legible sign stating ELECTRICAL ROOM or similar *approved* wording. The disconnecting means for each service, feeder or branch circuit originating on a switchboard or panelboard shall be legibly and durably marked to indicate its purpose unless such purpose is clearly evident.