



CHAPTER 12 ARTICLE II. BUILDING CODES\*
DIVISION 7. RESIDENTIAL CODE
INTERNATIONAL RESIDENTIAL CODE
APPENDIX J – EXISTING STRUCTURES

\*Cross reference(s)--Airport zoning, § 5-36 et seq.; erosion and sedimentation control, Ch. 15; fire prevention codes and standards, § 17-101 et seq.; floodplain management, Ch. 18; open housing, § 22-41 et seq.; planning and development, Ch. 34; preservation, Ch. 37; awnings, § 42-176 et seq.; subdivisions, Ch. 43; zoning, App. A. --State law reference(s)--Powers of home rule units, Ill. Const. art. VII, § 6.

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Sec. 12-17.6. 2012 IRC APPENDIX J Additions, insertions, deletions and changes.

SECTION AJ101 - PURPOSE AND INTENT

AJ101.1 General. The purpose of these provisions is to encourage the continued use or reuse of legally existing buildings and structures. These provisions are intended to permit work in existing buildings that is consistent with the purpose of the International Residential Code. Compliance with these provisions shall be deemed to meet the requirements of the International Residential Code.

AJ101.2 Classification of work. For purposes of this appendix, all work in existing buildings shall be classified into the categories of repair, renovation, alteration and reconstruction. Specific requirements are established for each category of work in these provisions.

AJ101.3 Multiple categories of work. Work of more than one category may be part of a single work project. All related work permitted within a 12-month period shall be considered a single work project. Where a project includes one category of work in one building area and another category of work in a separate and unrelated area of the building, each project area shall comply with the requirements of the respective category of work. Where a project with more than one category of work is performed in the same area or in related areas of the building, the project shall comply with the requirements of the more stringent category of work.

SECTION AJ102 - COMPLIANCE

AJ102.1 General. Regardless of the category of work being performed, the work shall not cause the structure to become unsafe or adversely affect the performance of the building; shall not cause an existing mechanical or plumbing system to become unsafe, hazardous, insanitary or overloaded; and unless expressly permitted by these provisions, shall not make the building any less conforming to this code or to any previously approved alternative arrangements than it was before the work was undertaken.

AJ102.2 Requirements by category of work. Repairs shall conform to the requirements of Section AJ301. Renovations shall conform to the requirements of Section AJ401. Alterations shall conform to the requirements of Section AJ501 and the requirements for renovations. Reconstructions shall conform to the requirements of Section AJ601 and the requirements for alterations and renovations.

AJ102.3 Smoke detectors. Regardless of the category of work, smoke-Smoke detectors shall be provided where required by Section R314.3.1-level of repair or alteration per this chapter.

AJ102.4 Replacement windows. Regardless of the category of work, when an existing window, including sash and glazed portion is replaced, the replacement window shall comply with the requirements of Chapter 11.

AJ102.5 Flood hazard areas. Work performed in existing buildings located in a flood hazard area as established by Table R301.2(1) shall be subject to the provisions of Section R105.3.1.

AJ102.6 Equivalent alternatives. These provisions are not intended to prevent the use of any alternate material, alternate design or alternate method of construction not specifically prescribed herein, provided any alternate has been deemed to be equivalent and its use authorized by the building official.

AJ102.7 Other alternatives. Where compliance with these provisions or with this code as required by these provisions is technically infeasible or would impose disproportionate costs because of structural, construction or dimensional

Comment [s22mar-1]: The following are passages from the 2012 International Residential Code that would conflict or were desired be changed with the electrical code adoption. Items in blue below are informative text from the I-series commentary. These are printed here to help inform the adoption. It is not the intent to codify this language.

Comment [JPC2]: This is replacing the currently adopted 2009 IRC Appendix J. - Note that there are NO changes in text between the 2009 and the 2012.

Comment [s22mar-3]: This section allows for residential structures to continue their existing use while permitting repair, renovation, alteration or reconstruction work that may not be in full compliance with the general provisions of the code. Although strict compliance with the general requirements in the code may be modified by the provisions of this chapter, the resultant work will be consistent with the intent and purpose criteria set forth in Chapter 1. As a rule, the general requirements of the code are applicable unless modified by the provisions of th...

Comment [s22mar-4]: This appendix chapter addresses four unique and specific types of work that may occur on an existing residential structure. Each type is regulated independently based on the provisions of the chapter. Repairs, where work is perform...

Comment [s22mar-5]: It is not uncommon for two or more types of construction activity to be taking place at the same time, all a part of a single work project. Under such conditions, there are two situations that may occur. 1) Where th...

Comment [s22mar-6]: The general limitation on any work done under the provisions of this chapter is that the level of safety, health and public welfare of the existing building must not be reduced by any work being performed. In the case of...

Comment [s22mar-7]: Depending on the category of work being performed, conformance to one or more groups of requirements is necessary. If the work is simply a repair job or a renovation, only the provisions of Section AJ301 or AJ401,...

Comment [s22mar-8]: Under all circumstances, a replacement window must comply with the energy efficiency provisions of Chapter 11 of the IRC. The provision is applicable only where the entire window is changed out, including the sash and gl...

Comment [s22mar-9]: Long-term reduction in exposure to flood hazards is one of the reasons floodplain development is regulated. If alterations or repairs of an existing building, including restoration of damage from any cause, constitute...

Comment [s22mar-10]: A comprehensive regulatory document such as a construction code cannot envision and then address all future innovations in the industry. As a result, the code must be applicable to, and provide a basis for, the approval o...

difficulties, other alternatives may be accepted by the *building official*. These alternatives may include materials, design features and/or operational features.

**AJ102.8 More restrictive requirements.** Buildings or systems in compliance with the requirements of this code for new construction shall not be required to comply with any more restrictive requirement of these provisions.

**AJ102.9 Features exceeding *International Residential Code* requirements.** Elements, components and systems of existing buildings with features that exceed the requirements of this code for new construction, and are not otherwise required as part of *approved* alternative arrangements or deemed by the *building official* to be required to balance other building elements not complying with this code for new construction, shall not be prevented by these provisions from being modified as long as they remain in compliance with the applicable requirements for new construction.

**SECTION AJ103 - PRELIMINARY MEETING**

**AJ103.1 General.** If a building *permit* is required at the request of the prospective *permit* applicant, the *building official* or his designee shall meet with the prospective applicant to discuss plans for any proposed work under these provisions prior to the application for the *permit*. The purpose of this preliminary meeting is for the *building official* to gain an understanding of the prospective applicant's intentions for the proposed work, and to determine, together with the prospective applicant, the specific applicability of these provisions.

**SECTION AJ104 - EVALUATION OF AN EXISTING BUILDING**

**AJ104.1 General.** The *building official* may require an existing building to be investigated and evaluated by a registered design professional in the case of proposed reconstruction of any portion of a building. The evaluation shall determine the existence of any potential non-conformities with these provisions, and shall provide a basis for determining the impact of the proposed changes on the performance of the building. The evaluation shall use the following sources of information, as applicable:

1. Available documentation of the existing building.
  - 1.1. Field surveys.
  - 1.2. Tests (nondestructive and destructive).
  - 1.3. Laboratory analysis.

**Exception:** Detached one- or two-family dwellings that are not irregular buildings under Section R301.2.2.2.5 and are not undergoing an extensive reconstruction shall not be required to be evaluated.

**SECTION AJ105 - PERMIT**

**AJ105.1 Identification of work area.** The work area shall be clearly identified on all *permits* issued under these provisions.

**SECTION AJ201 - DEFINITIONS** *(Category Specific Definitions have been moved into the categories below)*

**AJ201.1 General.** For purposes of this appendix, the terms used are defined as follows.

**CATEGORIES OF WORK.** The nature and extent of construction work undertaken in an existing building. The categories of work covered in this Appendix, listed in increasing order of stringency of requirements, are repair, renovation, *alteration* and reconstruction.

**DANGEROUS.** Where the stresses in any member; the condition of the building, or any of its components or elements or attachments; or other condition that results in an overload exceeding 150 percent of the stress allowed for the member or material in this code.

**EQUIPMENT OR FIXTURE.** Any plumbing, heating, electrical, ventilating, air conditioning, refrigerating and fire protection *equipment*, and elevators, dumb waiters, boilers, pressure vessels, and other mechanical facilities or installations that are related to building services.

**LOAD-BEARING ELEMENT.** Any column, girder, beam, joist, truss, rafter, wall, floor or roof sheathing that supports any vertical load in addition to its own weight, and/or any lateral load.

**MATERIALS AND METHODS REQUIREMENTS.** Those requirements in this code that specify material standards; details of installation and connection; joints; penetrations; and continuity of any element, component or system in the building. The required quantity, fire resistance, flame spread, acoustic or thermal performance, or other performance attribute is specifically excluded from materials and methods requirements.

**REHABILITATION.** Any repair, renovation, *alteration* or reconstruction work undertaken in an existing building.

**WORK AREA.** That portion of a building affected by any renovation, *alteration* or reconstruction work as initially intended by the owner and indicated as such in the *permit*. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed, and portions of the building where work not initially intended by the owner is specifically required by these provisions for a renovation, *alteration* or reconstruction.

**Comment [s22mar-11]:** ☒ *The building official may accept alternative solutions involving materials, design features or operational features where compliance with the code provisions creates practical difficulties. A practical difficulty, in this context, means it is technically infeasible to meet the code requirements, or the costs involved in providing code compliance are highly disproportionate to the overall cost of the work. It is up to the building official to evaluate the legitimacy of these two exemptions from the general requirement.* ... [9]

**Comment [s22mar-12]:** ☒ *Where the existing building is in compliance with the requirements of the code for new construction, it is not necessary to co* ... [10]

**Comment [s22mar-13]:** ☒ *Unless used as a portion of an alternative solution as an equivalency, modifications to existing elements, components, or systems n* ... [11]

**Comment [s22mar-14]:** ☒ *Where the provisions of the code are performance provisions, such as those set forth in this appendix chapter for existing building* ... [12]

**Comment [s22mar-15]:** ☒ *It is possible that the nature of the reconstruction work requires an evaluation of the existing building by a registered design professional. E* ... [13]

**Comment [s22mar-16]:** ☒ *Once the limits of one or more work areas have been established based on the scope of the work involved, the work areas must be pro* ... [14]

**Comment [s22mar-17]:** ☒ *This section clarifies the terminology used in this appendix chapter. The terms take on very sped* ... [15]

**Comment [s22mar-18]:** ☒ *This term describes the four types of construction activity that are regulated by this appendix chapter. The code sets forth specific* ... [16]

**Comment [s22mar-19]:** ☒ *Although this term is recognized in general terms as a situation that is unsafe, perilous or likely to cause injury or death, for the purpose* ... [17]

**Comment [s22mar-20]:** ☒ *A multitude of building service components are included in the definition of equipment or fixtures. These include elements of the plumbing, me* ... [18]

**Comment [s22mar-21]:** ☒ *The structural components of a building that carry loads other than their own are load-bearing elements. These include members th* ... [19]

**Comment [s22mar-22]:** ☒ *Materials standards, installation details and similar specific requirements make up the materials and methods requirements. On the o* ... [20]

**Comment [s22mar-23]:** ☒ *This is the general term for describing any or all of the four categories of work involved on an existing building.* ... [21]

**Comment [s22mar-24]:** ☒ *The work area must be correctly identified to define the extent of the rehabilitation activities. Most of the requirements in this appendix cha* ... [22]

## Level 00 - REPAIR

### **SECTION AJ301 REPAIRS**

**REPAIR.** The patching, restoration and/or minor replacement of materials, elements, components, equipment and/or fixtures for the purposes of maintaining those materials, elements, components, equipment and/or fixtures in good or sound condition.

*⌘ The least stringent requirements for the four categories of work on existing building regulate repairs. Repair work maintains elements and systems of buildings in sound condition. Repair activities do not change the configuration of the space, nor do they address new construction or equipment.*

**AJ301.1 Materials.** Except as otherwise required herein, work shall be done using like materials or materials permitted by this code for new construction.

*⌘ There are two possible options for materials used in repair work on an existing building. Unless prohibited by other provisions of the section, it is acceptable to use materials consistent with those that are already present. This allowance follows the general concept that the repair work is making the building no more unsafe or hazardous than it was prior to the work being done. Instead of using the same type of materials, the code permits the use of any materials currently allowed by the code.*

**AJ301.1.1 Hazardous materials.** Hazardous materials no longer permitted, such as asbestos and lead-based paint, shall not be used.

*⌘ It is generally possible to repair a structure, its components and its systems with materials consistent with those materials that were used previously. However, where materials that are now considered hazardous are involved in the repair work, they may no longer be used. For example, the code identifies asbestos and lead-based paint as two considered hazardous materials that cannot be used in the repair process. Certain materials previously considered acceptable for building construction are now a threat to the health of the occupants.*

**AJ301.1.2 Plumbing materials and supplies.** The following plumbing materials and supplies shall not be used:

1. All-purpose solvent cement, unless listed for the specific application;
2. Flexible traps and tailpieces, unless listed for the specific application; and
3. Solder having more than 0.2 percent lead in the repair of potable water systems.

*⌘ Specific methods and materials of plumbing installations are identified as no longer acceptable because of their negative impact on public health and safety. Where such existing materials and supplies are a part of the repair of a plumbing element or system, alternate materials must be used. The use of all-purpose solvent cement is permitted for plumbing repair work only if listed for the specific application. The same is true for flexible traps and flexible tailpieces.*

**AJ301.2 Water closets.** When any water closet is replaced with a newly manufactured water closet, the replacement water closet shall comply with the requirements of Section P2903.2.

*⌘ Where a new water closet replaces an existing water closet, the new fixture must be designed for a maximum water consumption of 1.6 gallons (6 L) for each flushing cycle. Addressing environmental concerns, this limitation assists in reducing the amount of water consumed during the ongoing use of the building.*

**AJ301.3 Safety glazing.** Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Section R308.1.

*⌘ Because of the obvious hazards associated with glazing located in an area subject to human impact, glazing located in such a hazardous location must be replaced with safety glazing. The provisions of Section R308 must be referenced to fully comply with these requirements. Section R308.3 identifies the test requirements and criteria for glazing installed in hazardous locations. Typical materials meeting these requirements include tempered glass and laminated glass. Section R308.4 identifies hazardous locations where it is possible that an individual could impact the glazing, including glazing in and adjacent to doors.*

**AJ301.4 Electrical.** Repair or replacement of existing electrical wiring and equipment undergoing repair with like material shall be permitted.

**Exceptions:**

1. Replacement of electrical receptacles shall comply with the requirements of Chapters 34 through 43.
2. Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over-fusing or tampering per the applicable requirements of Chapters 34 through 43.
3. For replacement of non-grounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system, or to any accessible point on the grounding electrode conductor, as allowed and described in Chapters 34 through 43.

**Comment [13-5Apr25]:** Feel we should consider where there is work at the panel we should require Edison-Base fuses we should require Type S tamper resistant fuses. Note that frequently blown in insulation which should not be in contact with Knob and Tube is present.

**Chapter 4 Equipment for General Use:** *[IRC Appendix J 301.4 shall be deleted]*

**Article 406 Receptacles, Cord Connectors, and Attachment Plugs:** *shall be amended as follows:*

**Section 406.4 (D) (2) Non-Grounding Type Receptacles.** *Where attachment to an equipment grounding conductor does not exist in the receptacle enclosure, the installation shall comply with (D)(2)(b) or (D)(2)(c). IRC E 4002.2 adding exceptions*

**Comment [23Jan12-26]:** New Item

March 27, 2014

**Section 406.4 (D) (2.1) Existing Non-Grounding Type Receptacles within area of work.** Non-grounded receptacles within rooms which are undergoing electrical work of any fashion shall be replaced. When they are permitted to remain non-grounded per 406.4 (D) (2) the replacement receptacles shall be "ungrounded" marked GFI receptacles. *IIRC E 4002.2 adding exceptions*

**Section 406.4 (D) (2.2) Existing Non-Grounding Type Receptacles at structures where remodeling work exceeds 50% of the tax assessor's valuation of the structure.** Non-grounded receptacles and circuits shall be removed in their entirety and replaced with a grounded and fully code compliant system. *IIRC E 4002.2 adding exceptions*

*Under most conditions, it is acceptable to repair existing electrical installations with the same types of wiring materials and electrical equipment as were used previously. However, this section identifies three conditions where additional criteria must be considered. Electrical receptacles must comply as for new construction as described in Chapters 33 through 42. Edison-base-type plug fuses can be replaced with like fuses only if it can be shown that no tampering or over-fusing has occurred. Alternate methods of grounding are also set forth when non-grounding-type receptacles are replaced.*

**Comment [stf26mar27]:** Verify if covered in the IRC

March 27, 2014

## **ALTERATION Level 01 - RENOVATION**

### **SECTION AJ401 RENOVATIONS**

**RENOVATION.** The change, strengthening or *addition* of load-bearing elements; and/or the refinishing, replacement, bracing, strengthening, upgrading or extensive repair of existing materials, elements, components, *equipment* and/or fixtures. Renovation involves **no reconfiguration of spaces**. Interior and exterior painting are not considered refinishing for purposes of this definition, and are not renovation.

*∩ A renovation can occur for either structural or nonstructural work. The definition includes structural members that are replaced, modified or added to a building, as well as nonstructural materials that are changed in some form. The act of renovation focuses on specific elements rather than the reconfiguration of floor area.*

**AJ401.1 Materials and methods.** The work shall comply with the materials and methods requirements of this code.

*∩ The general provisions of the code are to be used for renovation work. There are several modifications to these provisions for door and window dimensions, interior finish materials, and the parapets of unreinforced masonry buildings assigned to a high seismic design category.*

**AJ401.2 Door and window dimensions.** Minor reductions in the clear opening dimensions of replacement doors and windows that result from the use of different materials shall be allowed, whether or not they are permitted by this code.

*∩ During many renovation projects, it is common for existing doors and windows to be removed and replaced. Quite often the new doors and windows are of different materials and do not provide the same clear opening dimensions as the originals. Reductions in opening dimensions beyond those allowed by the code are permitted if they are minor. Even though not specifically defined, a minor reduction would remain consistent with the intent and purpose of the provisions.*

**AJ401.3 Interior finish.** Wood paneling and textile wall coverings used as an interior finish shall comply with the flame spread requirements of Section R302.9.

*∩ Where wood paneling or textile wall covering materials are being replaced in a renovation project, the new materials must be in compliance with the provisions of Section R315. The new interior finishes are to be regulated for flame spread and smoke development as they are for new construction.*

**AJ401.4 Structural.** Unreinforced masonry buildings located in Seismic Design Category D<sub>2</sub> or E shall have parapet bracing and wall anchors installed at the roofline whenever a reroofing *permit* is issued. Such parapet bracing and wall anchors shall be of an *approved* design.

*∩ When reroofing work requiring a building permit takes place on an unreinforced masonry building located in Seismic Design Categories D<sub>2</sub> or E, it may be necessary to strengthen the parapet by providing bracing in an approved manner. In addition, wall anchors must be provided at the roof line. The existing parapet and wall anchors should be evaluated to determine the extent of the structural strengthening needed. The scope of the structural work and the methods of compliance are to be approved by the building official.*

**AJ401.5 Electrical equipment and wiring.** Newly installed electrical equipment and wiring relating to work done in any work area shall comply with the materials and methods requirements of Chapters 34 through 43.

**Exception:** Electrical equipment and wiring in newly installed partitions and ceilings shall comply with all applicable requirements of Chapters 34 through 43.

Formatted: Font: (Default) Arial, 18 pt, Underline

Comment [s22mar-28]: Finishes removed from one side of a wall or ceiling

Comment [13-5Apr29]: Talked about the possibility of creating a tiered approach to making electrical systems safer.

Comment [s22mar-30]: Adding electrical provisions.

## ALTERATION Level 02 -- ALTERATION / RECONFIGURATION

### SECTION AJ501 ALTERATIONS

**ALTERATION.** The **reconfiguration of any space**, the *addition* or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional *equipment*.

*Where the work is extensive enough to cause a change in the layout of a building or a portion of a building, the work is an alteration. This activity could include taking an existing space and changing the configuration of the floor plan by adding or removing walls or partitions. Additional rooms may be created or multiple rooms could be transformed into a single room or area. As a result of such an alteration, the exiting system may be modified or the occupant load revised. Where an additional door or window is installed, or where an existing door or window is removed, the work is an alteration. An alteration is also an increase to any system of the building, including the expansion of any electrical wiring, plumbing piping or mechanical ducts. If additional equipment, such as another electrical panel or HVAC unit, is installed in an existing building, the installation must be regulated as an alteration.*

**AJ501.1 Newly constructed elements.** Newly constructed elements, components and systems shall comply with the requirements of this code.

**Exceptions:**

1. Openable windows may be added without requiring compliance with the light and ventilation requirements of Section R303.
2. Newly installed electrical *equipment* shall comply with the requirements of Section AJ501.5.
3. Additions to existing structures which would create a first floor total Living Space footprint of greater than the sprinklering thresholds in R313 shall not be required to be sprinklered unless more than 50 percent of the area of the dwelling unit is being remodeled.

*Where the alteration of any portion of a building includes new construction, the work must be accomplished in accordance with the requirements of the code. An exception permits the installation of openable windows as additional features without requiring adherence to the light and ventilation provisions of Section R303. In addition, new electrical components and equipment need comply only with the requirements of Section AJ501.5.*

**AJ501.2 Nonconformities.** The work shall not increase the extent of noncompliance with the requirements of Section AJ601, or create nonconformity with those requirements which did not previously exist.

*The extent of noncompliance is limited in regard to stairways, handrails, guards, interior finish materials and dwelling separation walls as addressed in Section AJ601. In addition, nonconformity must not be created regarding any requirements that did not previously exist.*

**AJ501.3 Extensive alterations.** When the total area of all the work areas included in an *alteration* exceeds 50 percent of the area of the *dwelling unit*, the work shall be considered as a reconstruction and shall comply with the requirements of these provisions for reconstruction work.

**Exception:** Work areas in which the *alteration* work is exclusively plumbing, mechanical or electrical shall not be included in the computation of total area of all work areas.

*If the amount of construction activity in a dwelling unit involves more than 50 percent of the unit's floor area, the stringency of the requirements is increased. The category of work is reconstruction, with the requirements for both alterations and reconstruction to be followed. This increase to a higher level category is not required where the alteration consists only of plumbing, mechanical or electrical work.*

**AJ501.4 Structural.** The minimum design loads for the structure shall be the loads applicable at the time the building was constructed, provided that no dangerous condition is created. Structural elements that are uncovered during the course of the *alteration* and that are found to be unsound or dangerous shall be made to comply with the applicable requirements of this code.

*As building codes have progressed over the years, structural design values have been reviewed and modified. Unless a dangerous condition will be created, it is permissible to use the minimum structural design loads in place at the time the building was constructed. As the alteration of the building is progressing, there may be occasion where structural elements are exposed and found to be damaged, unsound or otherwise dangerous. In such situations, it is mandatory that the structural integrity of the building components be achieved. All necessary steps must be taken to ensure that the applicable structural requirements of the code are met.*

**AJ501.5 Electrical equipment and wiring.**

**AJ501.5.1 Materials and methods.** Newly installed electrical *equipment* and wiring relating to work done in any work area shall comply with the materials and methods requirements of Chapters 34 through 43.

**Exception:** Electrical *equipment* and wiring in newly installed partitions and ceilings shall comply with all applicable requirements of Chapters 34 through 43.

*In any work area, electrical equipment and wiring installed must comply with the requirements of Chapters 33 through 42. Such requirements are also applicable in the construction of new walls, partitions and ceiling systems.*

Comment [s22mar-31]: 2010 Aurora Amendment

March 27, 2014

**AJ501.5.2 Electrical service.** Service to the *dwelling unit* shall be a minimum of 100 ampere, three-wire capacity and service *equipment* shall be dead front having no live parts exposed that could allow accidental contact. Type “S” fuses shall be installed when fused *equipment* is used.

**Exception:** Existing service of 60 ampere, three-wire capacity, and feeders of 30 ampere or larger two- or three-wire capacity shall be accepted if adequate for the electrical load being served.

*It is typical that minimum 100-ampere service be provided to each dwelling unit that is undergoing alteration of electrical service. However, where it can be determined that the service loading does not exceed 60 amperes, an existing 60-ampere service is acceptable.*

**AJ501.5.3 Additional electrical requirements.** When the work area includes any of the following areas within a *dwelling unit*, the requirements of Sections AJ501.5.3.1 through AJ501.5.3.5 shall apply.

*This section sets forth additional requirements for specified enclosed spaces, kitchens, laundry rooms, ground-fault circuit interruption and lighting outlets in conjunction with work areas of dwelling units.*

**AJ501.5.3.1 Enclosed areas.** Enclosed areas other than closets, kitchens, *basements*, garages, hallways, laundry areas and bathrooms shall have a minimum of two duplex receptacle outlets, or one duplex receptacle outlet and one ceiling or wall type lighting outlet.

*Those areas and rooms typically viewed as habitable spaces must be provided with at least two duplex receptacle outlets or one duplex receptacle outlet and a ceiling- or wall-type lighting outlet. A minimum number of receptacles must be available to reduce the potential for dangerous electrical conditions.*

**AJ501.5.3.2 Kitchen and laundry areas.** Kitchen areas shall have a minimum of two duplex receptacle outlets. Laundry areas shall have a minimum of one duplex receptacle outlet located near the laundry *equipment* and installed on an independent circuit.

*To reduce the possibility that dangerous conditions are created in kitchen and laundry areas, a minimum number of receptacle outlets is mandated. In the kitchen, at least two duplex receptacle outlets are required, and a minimum of one duplex receptacle outlet is mandated near laundry equipment. The receptacle outlet in the laundry area must be located on an independent circuit.*

**AJ501.5.3.3 Ground-fault circuit-interruption.** Ground fault circuit interruption shall be provided on newly installed receptacle outlets if required by Chapters 34 through 43.

*The installation of ground-fault circuit interruption for all new receptacle outlets is covered by the provisions of Chapters 33 through 42. Those locations in new construction identified by the code to be protected by ground-fault circuit interruption are the same in alterations to existing buildings, but interruption is required only in those locations where new receptacle outlets are installed.*

**AJ501.5.3.4 Lighting outlets.** At least one lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage and detached garage with electric power to illuminate outdoor entrances and exits, and in utility rooms and *basements* where these spaces are used for storage or contain *equipment* requiring service.

*Lighting outlets are to be installed in a variety of specific locations identified by this section. Areas where at least one lighting outlet is required include bathrooms, hallways, stairways and attached garages. Detached garages provided with electrical power must have facilities for illuminating exterior entrances and exits. Basements and utility rooms used as storage areas or to house equipment that must be serviced must also be provided with at least one lighting outlet.*

**AJ501.5.3.5 Clearance.** Clearance for electrical service *equipment* shall be provided in accordance with Chapters 34 through 43.

*All electrical equipment is to be provided with the necessary working space and other clearances as set forth in Chapters 33 through 42.*

**AJ501.5.3.6 Shall be added as follows:**

**AJ501.5.3.6 Number of openings.** General purpose and lighting outlet openings on an existing residence shall not be limited to 4 receptacles on a kitchen appliance circuit or 10 on a 15-amp circuit or 13 on a 20-amp circuit. Rather, the number of openings shall be governed by the calculations in the NEC.

**Exception:** Full or partial basement finishes.

**AJ501.6 Ventilation.** All reconfigured spaces intended for occupancy and all spaces converted to habitable or occupiable space in any work area shall be provided with ventilation in accordance with Section R303.

*Adequate ventilation, by either natural or mechanical means, must be provided in occupiable spaces located within a work area. The requirement is applicable to spaces that are altered in shape or size, as well as those areas that are converted to habitable space. The ventilation requirements of Section R303 provide the minimum ventilation criteria that are to be used.*

**AJ501.7 Ceiling height.** *Habitable spaces* created in existing *basements* shall have ceiling heights of not less than 6 feet 8 inches (2032 mm). Obstructions may project to within 6 feet 4 inches (1930 mm) of the *basement* floor. Existing finished ceiling heights in non-habitable spaces in *basements* shall not be reduced.

*This section permits owners of older homes to create habitable space in basements. In existing basements, many times it is technically and structurally infeasible to modify an existing ceiling height to comply with the code for new*

Comment [JPC32]: State of Colorado

March 27, 2014

construction. This section recognizes that the minimum ceiling heights are easily achievable in new construction but often impossible to provide in basements of older homes and will allow homeowners to finish off their basements.

#### AJ501.8 Stairs.

⌘ Sections AJ501.8.1 through AJ501.8.3 permit maintaining current width, headroom and landing size on existing basement stairways when alterations are made to the stairway or to other portions of the basement. In existing basements, many times it is technically and structurally infeasible to modify an existing stairway to comply with the code for new construction. The provisions of this section do not require a homeowner to replace or modify their existing basement stairs simply because the space at the bottom of the stairs is being renovated. Because Section R102.7.1 specifically states that alterations shall not result in an unsafe building, this section does not preclude the building official from requiring the replacement of stairs considered substandard or hazardous.

**AJ501.8.1 Stair width.** Existing *basement* stairs and handrails not otherwise being altered or modified shall be permitted to maintain their current clear width at, above, and below existing handrails.

⌘ See the commentary for Section AJ501.8.

**AJ501.8.2 Stair headroom.** Headroom height on existing *basement* stairs being altered or modified shall not be reduced below the existing stairway finished headroom. Existing *basement* stairs not otherwise being altered shall be permitted to maintain the current finished headroom.

⌘ See the commentary for Section AJ501.8.

**AJ501.8.3 Stair landing.** Landings serving existing *basement* stairs being altered or modified shall not be reduced below the existing stairway landing depth and width. Existing *basement* stairs not otherwise being altered shall be permitted to maintain the current landing depth and width.

⌘ See the commentary for Section AJ501.8.

## **ALTERATION Level 03 — RECONSTRUCTION / EXTENSIVE ALTERATION**

### **SECTION AJ601 RECONSTRUCTION**

**RECONSTRUCTION.** The reconfiguration of a space that affects an exit, a renovation and/or alteration when the work area is not permitted to be occupied because existing means of egress and fire protection systems, or their equivalent, are not in place or continuously maintained; and/or there are extensive alterations as defined in Section AJ501.3.

⌘ The most stringent requirements for the four categories of work are assigned to reconstruction activities. Reconstruction causes a high level of concern because of its impact on fire safety and life safety. Where an existing exit is affected, where the existing level of egress or fire protection is not acceptable or where extensive alterations are to be undertaken, the work is considered as reconstruction.

**EXTENSIVE ALTERATION** When the total area of all the work areas included in an alteration exceeds 50 percent of the area of the dwelling unit, the work shall be considered as a reconstruction and shall comply with the requirements of alterations for reconstruction work.

**Exception:** Work areas in which the alteration work is exclusively plumbing, mechanical or electrical shall not be included in the computation of total area of all work areas.

⌘ If the amount of construction activity in a dwelling unit involves more than 50 percent of the unit's floor area, the stringency of the requirements is increased. The category of work is reconstruction, with the requirements for both alterations and reconstruction to be followed. This increase to a higher level category is not required where the alteration consists only of plumbing, mechanical or electrical work.

#### **AJ601.1 Stairways, handrails and guards.**

**AJ601.1.1 Stairways.** Stairways within the work area shall be provided with illumination in accordance with Section R303.6.

⌘ Stairways located in the work area of a building undergoing reconstruction activities must be illuminated in accordance with Section R303.6. The provisions set forth two options for locating the light sources. In addition, the required locations of the control switches for the lighting are specified.

**AJ601.1.2 Handrails.** Every required exit stairway that has four or more risers, is part of the means of egress for any work area, and is not provided with at least one handrail, or in which the existing handrails are judged to be in danger of collapsing, shall be provided with handrails designed and installed in accordance with Section R311 for the full length of the run of steps on at least one side.

⌘ The handrail requirements of Section R311 apply to reconstruction work only in certain circumstances. The stairway under consideration must be a required exit element for a work area of the building and consist of at least four risers. Either there are no handrails provided for the stairway, or the existing rail or rails are unsafe because of the possibility of collapse. If all of these conditions exist, a complying handrail is to be installed on at least one side of the stairway.

March 27, 2014

*Handrail height, continuity, termination, clearance, and gripping surface must all be reviewed for conformance with the provisions of Section R311.*

**AJ601.1.3 Guards.** Every open portion of a stair, landing or balcony that is more than 30 inches (762 mm) above the floor or grade below, is part of the egress path for any work area, and does not have guards or in which the existing guards are judged to be in danger of collapsing, shall be provided with guards designed and installed in accordance with Section R312.

*∩ The guard requirements of Section R312 apply to reconstruction work only in certain circumstances. The guard under consideration must be serving a walking surface at least 30 inches (762 mm) above the floor below and located along an exit path for a work area of the building. Either there is no guard provided, or the existing guard creates an unsafe condition because of the potential for collapse. If all of these conditions exist, a complying guard is to be installed as protection at the elevation change. Guard height and opening limitations must be reviewed for compliance with the provisions of Section R312.*

**AJ601.2 Wall and ceiling finish.** The interior finish of walls and ceilings in any work area shall comply with the requirements of Section R302.9. Existing interior finish materials that do not comply with those requirements shall be removed or shall be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to secure compliance with the requirements of this section.

*∩ In a reconstruction work area, all wall and ceiling finish materials must be in compliance with the flame spread and smoke-development limitations of Section R315. The flame spread classification is limited to 200, with a maximum smoke-developed index of 450. Where the existing interior finish materials do not comply with these requirements, the materials are to be removed or treated with an approved fire retardant coating. Where the treatment method is used to obtain compliance, the manufacturer's instructions must be followed.*

**AJ601.3 Separation walls.** Where the work area is in an attached *dwelling unit*, walls separating *dwelling units* that are not continuous from the foundation to the underside of the roof sheathing shall be constructed to provide a continuous fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. Performance of work shall be required only on the side of the wall of the *dwelling unit* that is part of the work area.

*∩ Where reconstruction work takes place in a dwelling unit that is attached to one or more additional dwelling units, the wall or walls separating the units are to be continuous from the foundation to the underside of the roof deck. If such conditions do not exist, the wall must be extended to the roof sheathing to maintain the necessary separation of the units. The materials used in the wall construction must be at least equivalent to those of the existing wall, or alternatively, as required for new construction. There is no requirement for work to be done outside the work area; therefore, the wall construction need be provided only on the side of the dwelling where the actual work area occurs.*

**AJ601.4 Ceiling height.** *Habitable spaces* created in existing *basements* shall be permitted to have ceiling heights of not less than 6 feet 8 inches (2032 mm). Obstructions may project to within 6 feet 4 inches (1930 mm) of the *basement* floor. Existing finished ceiling heights in non-habitable spaces in *basements* shall not be reduced.

*∩ This section permits owners of older homes to create habitable space in basements. In existing basements, many times it is technically and structurally infeasible to modify an existing basement ceiling height to comply with the code for new construction. This section recognizes that the minimum ceiling heights are easily achievable in new construction but often impossible to provide in basements of older homes and will allow homeowners to finish off their basements.*

March 27, 2014

**FOLLOWING ITEMS NEED CONSIDERATION AND COLLATING INTO THE APPENDIX J SECTIONS ABOVE**

1. When installing a new electrical service, building an addition, or rewiring with three (3) or more additional circuits, the following shall apply:

**Comment [JPC33]:** From Decatur  
**Comment [JPC34]:** This needs to square with Appendix J in the IRC

- a. Service: Size and usage of appliance and equipment shall be used as the basis for determining the need for additional facilities in accordance with this code.
- b. Receptacles: Every habitable space in a dwelling shall contain at least two separate and remote receptacle outlets. Every laundry area shall contain at least one grounded receptacle. Every bathroom shall contain at least one GFCI protected duplex receptacle.
- c. Lighting fixtures: Every public hall, interior stairway, bathroom, laundry room, furnace room, basements, and attics or utility rooms used for storage or containing equipment requiring servicing shall contain at least one electric lighting fixture controlled by a switch at the usual point of entry.

**Comment [JPC35]:** This needs to match the occupancy standards in IPMC

2. Additions, Alterations, or Repairs. Additions, alterations, or repairs to any building, structure, or premises shall conform to that required of a new building without requiring the existing building to comply with all of the requirements of this code. Additions, alterations, installation, or repairs shall not cause an existing building to become unsafe or to adversely affect the performance of the building as determined by the authority having jurisdiction. Electrical wiring added to an existing service, feeder, or branch circuit shall not result in an installation that violates the provisions of the code in force at the time the additions are made. For One & Two family structures additionally refer to the International Residential Code – Appendix J.

**Comment [JPC36]:** Decatur

3. Smoke alarms shall not be placed on branch circuits protected by arc-fault circuit interrupter. All smoke alarms shall be supplied by branch circuits dedicated to smoke alarm equipment. The connection of the smoke alarm branch circuit to the power service shall be mechanically protected by utilizing lock-on devices.

**Comment [JPC37]:** From the State of Delaware

**4. 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.**

(A) Dwelling Units. shall be amended as follows:

(4) Crawl Spaces. Exception shall be added:

**Exception:** Receptacle ground-fault protection shall not be required for a dedicated branch circuit serving a single receptacle (simplex) for sewage or sump pumps.

**Comment [13-5Apr38]:** Considered GFCI Provisions from OR, NJ and CO state adoptions. Good added simplex 5Apr13

(5) Unfinished Basements. Exceptions shall be added:

**Exception:** Receptacle ground-fault protection shall not be required for a dedicated branch circuit serving a single receptacle (simplex) for sewage or sump pumps.

**Comment [13-5Apr39]:** Considered GFCI Provisions from OR, NJ and CO state adoptions. Decided not necessary, definition of readily accessible would not allow an appliance in front of the GFCI recept.

**(E) Outdoor Outlets.**

(3) Balconies, Decks or Porches. Exception shall be added as follows:

**Exception to (3):** Balconies, Decks or porches located at grade level with a usable area of less than 20 s.f. are not required to have an additional receptacle installed.

**Comment [13-5Apr40]:** Considered GFCI Provisions from OR, NJ and CO state adoptions. Good added simplex 5Apr13

**210.63 Heating, Air-Conditioning, and Refrigeration Equipment Outlet.** An additional Exception shall be added as follows:

**Exception No. 2:** An additional outlet shall not be required to be installed when replacing existing HVAC equipment if a receptacle outlet is on the same level and within 75 feet.

**Comment [13-5Apr41]:** Considered GFCI Provisions from OR, NJ and CO state adoptions. Good added simplex 5Apr13

**Comment [2013Apr42]:** OR and CO state adoptions. For New we feel we should require the outlet. We will consider an exception for remodeling work. 05Apr13

**Comment [2013Apr43]:** OR state For New we feel we should require the outlet. We will consider an exception for remodeling work. 05Apr13

March 27, 2014

Arlington Heights – No tandems or mini breakers

Arlington Heights – All residential remodeling requires upgrade 50% of ceiling OR 50% of wall OR 50% of space OR 50% of equipment service.

Bolingbrook – AC may be extended when originally AC & EMT not practical.

DesPlaines – Existing EM lights/Exit not separated & lockout required unless per original construction

DesPlaines – Service Upgrade. FMS, AC, NM, K&T entering the panel shall be removed and replaced to the point where spliced connection can be made without removal of finished walls or ceilings. All new Bonding and grounding codes shall apply to the new panel.

**Comment [JPC44]:**

1. In addition to further determination of the authority having jurisdiction, the following are hereby determined to constitute an imminent danger to occupants.

**Comment [JPC45]:** These examples are from Decatur

a. Inadequate Service Capacity

b. Inadequate Service Grounding

**Comment [JPC46]:** Aurora Staff suggestion - this topic though has varied through past code editions.

i. Grounding location more than 5 feet from water service entry and per Art 250.68 (C).

ii. Grounding or bonding locations where non-conductive materials interrupt the required conductive path per Art 250.68 (B).

**Comment [StfMar14-47]:** Referencing these sections seems prudent to staff.

c. Improper fusing

d. Improper wiring or installation that was not installed per the applicable code at the date of the installation.

e. Deterioration or Damage

f. Corroded, Rusted Switchgear, Bussing, Branch Circuit Panelboards

**Comment [JPC48]:** Arlington Heights, DesPlaines

g. Electrical wiring, of all types, not supported in an approved manner.

h. Splices unenclosed in approved boxes other than knob & tube wiring in areas where Knob and Tube are permitted to remain.

i. Absence of or use of unapproved connectors for splices and termination into boxes or cabinets.

j. Wiring with insulation deterioration or other damaged conditions.

**Comment [JPC49]:** Should mention be made of condition of K&T AND/OR where inappropriately buried in insulation materials.

k. Flexible cords used as a substitute for fixed wiring.

l. Flexible cords where running through or concealed within walls, ceilings, dropped-ceilings, baseboard and floors.

m. Boxes or conduit with excessive numbers of conductors based upon permitted installation date.

**Comment [JPC50]:** Has this been pretty constant through the years?

n. Knob and Tube wiring in areas other than concealed within framing cavities or within limited access or lockable attics.

**Comment [StfMar14-51]:** Some fill requirements have modestly changed since '75 #6 & #8.

o. Exposed fuse blocks or exposed terminal-cleat type light fixtures in areas where Knob and Tube would not be permitted to remain.

**Comment [E12Mar14-52]:** Staff will research

p. Other items determined imminently dangerous by the Authority Having Jurisdiction.

**Comment [JPC53]:** Suggest adding additional definition to what Decatur has here--See the exception in NEC 410.5

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations						
IRC Chap#	IRC Elect Sec#	Legend R = Required regardless of location relationship to the area of work A = Required when in wall or in ceiling cavity immediately adjacent and exposed by the opening of a wall or ceiling cavity in the area of work. W = Required when in the area of work E = Required when exposed in the area of work NR = Not Required	Level of Repair or Alteration			
			Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration	Level 03 - Reconstruction/ Extensive Alteration
	<b>App. J 102.3</b>	<b>Retroactive Smoke detection requirements</b>				
		Repair	NR			
		Level 01 Renovation – min DC units in the area of work if required by IRC R314.3.1		R		
		Level 02 Alteration/Reconfiguration min AC/DC RF bridge unit in the area of work or elsewhere in home and upgrade of RF battery units in home at locations indicated by IRC R314.3.1			R	
		Level 03 Reconstruction or extensive alterations - AC/DC Hardwired Interconnected per IRC R314.3.1				R
E34 General Requirements	<b>E3403</b>	<b>Inspection and Approval</b>				
		E3403.3 Listing and Labeling				
	<b>E3404</b>	<b>General Equipment Requirements</b>				
		E3404.6 Unused Openings	R	R	R	R
		E3404.7 Integrity of electrical equipment				
		E3404.8 Mounting				
		E3404.9 Energized parts guarded against contact				
		E3404.10 Prevent physical damage				
		E3404.11 Equipment Identification				
		E3404.12 Identification of disconnecting means				
	<b>E3405</b>	<b>Equipment Locations and Clearances</b>				
		E3405.1 Working space and clearances				
		E3405.2 Working clearances for energized equipment and panelboards				
		E3405.3 Dedicated panelboard space				
		E3405.4 Location of working space and equipment				
		E3405.5 Access to working space				
		E3405.6 Illumination at working space				
	<b>E3406</b>	<b>Electrical Conductors and Connections</b>				
		E3406.5 Minimum Size of Conductor				
		E3406.6 Conductors in Parallel				
		E3406.7 Conductors on the same circuit				
		E3406.8 Aluminum and copper connections				
		E3406.10 Terminals				
		E3406.11 Splices				
		E3406.12 Grounded conductor continuity				
	<b>E3407</b>	<b>Conductor and Terminal Identification</b>				
		E3407.1 Grounded Conductors				
		E3407.2 Equipment grounding conductors				

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations				
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		Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration
IRC Elect Sec#				
	E3407.3 Ungrounded conductors			
	E3407.4 Identification of terminals			
E36 Services	<b>E3601 General Services</b>			
	E3601.2 Number of Services			
	E3601.3 One Building not supplied through another			
	E3601.4 Other conductors in raceway			
	E3601.5 Raceway seal			
	E3601.6 Service disconnect required			
	E3601.7 Maximum number of disconnects			
	<b>E3602 Service Size and Rating</b>			
	E3602.1 Ampacity of ungrounded conductors			
	E3602.2 Service Load			
	E3602.3 Rating of service disconnect			
	E3602.4 Voltage rating			
	<b>E3603 Service, Feeder and Grounding Electrode Conductor Sizing</b>			
	E3603.1 Grounded and ungrounded service conductor			
	E3603.2 Ungrounded service conductors for accessory			
	E3603.3 Overload protection			
	E3603.4 Grounding electrode conductor size			
	<b>E3604 Overhead Services and Service-entrance Conductor Installations</b>			
	E3604.1 Clearances on Buildings			
	E3604.2 Vertical Clearances			
	E3604.3 Point of attachment			
	E3604.4 Means of attachment			
	E3604.5 Service Masts as supports			
	E3604.6 Supports over buildings			
	<b>E3605 Service-entrance Conductors</b>			
	E3605.1 Insulation of service-entrance conductors			
	E3605.2 Wiring methods of service			
	E3605.3 Spliced Conductors			
	E3605.4 Protection of underground service entrance			
	E3605.5 Protection of all other service cables			
	E3605.6 Locations exposed to direct sunlight			
	E3605.7 Mounting supports			
E3605.8 Raceways to drain				
E3605.9 Overhead service locations				
<b>E3606 Service Equipment – General</b>				
E3606.1 Service Equipment enclosures				
E3606.2 Working space				

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations					
IRC Chap#	IRC Elect Sec#	Level of Repair or Alteration			
		Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration	Level 03 - Reconstruction/ Extensive Alteration
	<p>Legend R = Required regardless of location relationship to the area of work                      A = Required when in wall or in ceiling cavity immediately adjacent and exposed by the opening of a wall or ceiling cavity in the area of work.                      W = Required when in the area of work                      E = Required when exposed in the area of work                      NR = Not Required</p>				
	<b>E3606.4 Marking</b>				
	<b>E3607 System Grounding</b>				
	E3601.1 System service ground				
	E3601.2 Location of grounding electrode conductor				
	E3601.3 Buildings or structures supplied by feeders or branch circuits				
	E3601.4 Grounding Electrode conductor				
	E3601.5 Main Bonding Jumper				
	E3607.6 Common grounding electrode				
	<b>E3608 Grounding Electrode System</b>				
	E3608.1 Grounding electrode system				
	E3608.2 Bonding Jumper				
	E3608.3 Rod, Pipe and plate electrode requirements				
	E3608.4 Supplemental electrode required				
	E3608.5 Aluminum electrodes				
	E3608.6 Metal underground gas piping system				
	<b>E3609 Bonding</b>				
	E3609.2 Bonding of equipment of services				
	E3609.3 Bonding for other systems				
	E3609.4 Method of bonding at the service				
	E3609.5 Sizing supply-side bonding jumper and main bonding jumper				
	E3609.6 Metal water piping bond				
	E3609.7 Bonding other metal piping				
	<b>E3610 Grounding Electrode Conductor</b>				
	E3610.1 Continuous				
	E3610.2 Securing against damage				
	E3610.3 Enclosures for grounding electrode conductors				
	E3610.4 Prohibited use				
	<b>E3611 Grounding Electrode Conductor Connection to the Grounding Electrodes</b>				
	E3611.1 Method of grounding conductor connection to electrodes				
	E3611.2 Accessibility				
	E3611.3 Effective grounding path				
	E3611.4 Interior metal water piping				
	E3611.5 Protection of ground clamp and fitting				
	E3611.6 Clean surfaces				
	<b>E3701 General</b>				
	E3701.2 Branch-circuit and feeder ampacity				

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations					
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		Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration	Level 03 - Reconstruction/ Extensive Alteration
<b>E3702</b>	<b>Branch Circuit Ratings</b>				
	E3702.1 Branch-circuit voltage limitations				
	E3702.2 Branch-circuit ampere rating				
	E3702.3 15-20 amp branch circuits				
	E3702.4 30 amp branch circuits				
	E3702.5 Branch Circuits serving multiple loads or outlets				
	E3702.6 Branch Circuits serving a single motor				
	E3702.7 Branch Circuits serving motor-operated and combination loads				
	E3702.8 Branch-circuit inductive and LED lighting loads				
	E3702.9 Branch-circuit load for ranges and cooking appliances.				
	E3702.10 Branch circuits serving heating loads				
	E3702.11 Branch circuits for air-conditioning and heat pump equipment				
	E3702.12 Branch circuits serving room air conditioners				
	E3702.13 Branch-circuit requirement-summary				
<b>E3703</b>	<b>Required Branch Circuits</b>				
	E3703.1 Branch circuits for heating				
	E3703.2 Kitchen and dining area receptacles				
	E3703.3 Laundry circuit				
	E3703.4 Bathroom branch circuits				
	E3703.5 Number of branch circuits				
	E3703.6 Branch-circuit load proportioning				
<b>E3704</b>	<b>Feeder Requirements</b>				
	E3704.1 Conductor size				
	E3704.2 Feeder loads				
	E3704.3 Feeder neutral load				
	E3704.4 Lighting and general use receptacle load				
	E3704.5 Ampacity and calculated loads				
	E3704.6 Equipment grounding conductor				
<b>E3705</b>	<b>Conductor Sizing and Overcurrent Protection</b>				
	E3705.1 General – Allowable Ampacities				
	E3705.5 Overcurrent protection required				
	E3705.6 Fuses and fixed trip circuit breakers				
	E3705.7 Location of overcurrent devices in or on premises				
	E3705.8 Ready access for occupants				
	E3705.9 Enclosures for overcurrent devices				
<b>E3706</b>	<b>Panelboards</b>				
	E3706.1 Panelboard rating				

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations				
IRC Chap#	Legend R = Required regardless of location relationship to the area of work A = Required when in wall or in ceiling cavity immediately adjacent and exposed by the opening of a wall or ceiling cavity in the area of work. W = Required when in the area of work E = Required when exposed in the area of work NR = Not Required  IRC Elect Sec#	Level of Repair or Alteration		
		Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration
	E3706.2 Panelboard circuit identification			
	E3706.3 Panelboard overcurrent protection			
	E3706.4 Grounded conductor terminations			
	E3706.5 Back-fed devices			
E38 Wiring Methods	<b>E3801 General Requirements</b>			
	E3801.2 Allowable wiring methods			
	<b>E3802 Above-ground Installation Requirements</b>			
	E3802.2 Cables in accessible attics			
	E3802.3 Exposed cables			
	E3802.4 In unfinished basements and crawlspaces			
	E3802.5 Bends			
	E3802.6 Raceways exposed to different temperatures			
	E3802.7 Raceways in wet locations above grade			
	<b>E3803 Underground Installation Requirements</b>			
	E3803.1 Minimum cover requirements			R
	E3803.2 Warning ribbon			R
	E3803.3 Protection from damage			R
	E3803.4 Splices and Taps			R
	E3803.5 Backfill			R
E3803.6 Raceway seal			R	
E3803.7 Bushing			R	
E3803.8 Single conductor			R	
E3803.9 Ground Movement			R	
E3803.10 Wet locations			R	
E3803.11 Under Buildings			R	
E39 Power and Lighting Distribution	<b>E3901 Power and Lighting Distribution</b>			
	E3901.2 Receptacle Spacing	NR		R
	E3901.3 Small Appliance Receptacles	NR		R
	E3901.4 Countertop Receptacles	NR		R
	E3901.5 Large Appliance Receptacles	NR		R
	E3901.6 Bathroom Receptacles	NR		R
	E3901.7 Outdoor Outlets	NR		R
	E3901.8 Laundry Areas	NR		R
	E3901.9 Basements, Garages, and Accessory	NR		R
	E3901.10 Hallways	NR		R
	E3901.11 Foyers	NR		R
	E3901.12 HVAC Outlet	NR		R
	<b>E3902 Ground-fault and Arc-fault Circuit-interrupter</b>			

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations				
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		Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration
IRC Elect Sec#				
<b>Protection</b>				
	E3902.1 Bathroom Receptacles	NR		
	E3902.2 Garage and Accessory Buildings	NR		
	E3902.3 Outdoor Receptacles	NR		
	E3902.4 Crawl Space Receptacles	NR		
	E3902.5 Unfinished Basement Receptacles	NR		
	E3902.6 Kitchen Receptacles	NR		
	E3902.7 Sink Receptacles	NR		
	E3902.12 Arc-fault Circuit-interrupter Protection	NR		
<b>E3903</b>	<b>Lighting Outlets</b>			
	E3903.2 Habitable Rooms			
	E3903.3 Additional Locations			
	E3903.4 Storage or Equipment Spaces			
<b>E3904</b>	<b>General Installation Requirements</b>			
	E3904.1 Electrical Continuity			
	E3904.2 Mechanical Continuity			
	E3904.4 Securing and Supporting			
	E3904.5 Raceway Installation			
	E3904.6 Conduit and Tubing Fill			
<b>E3905</b>	<b>Boxes, Conduit Bodies and Fittings</b>			
	E3905.1 Box, Conduit body or fitting			
	E3905.6 Boxes at luminaire outlets			
	E3905.7 Floor Boxes			
	E3905.8 Boxes at Fan Outlets			
	E3905.9 Utilization Equipment			
	E3905.10 Conduit bodies, and junction, pull and outlet box accessibility			
	E3905.11 Damp or Wet Locations			
	E3905.12 Number of Conductors in boxes			
<b>E3906</b>	<b>Installation of Boxes, Conduit and Fittings</b>			
	E3906.1 Conductor protection			
	E3906.2 Openings			
	E3906.3 Metal Boxes and Conduit Bodies			
	E3906.4 Unused Openings			
	E3906.5 In Wall or Ceiling			
	E3906.6 Noncombustible Surfaces			
	E3906.7 Surface Extensions			

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations					
IRC Chap#	Legend R = Required regardless of location relationship to the area of work A = Required when in wall or in ceiling cavity immediately adjacent and exposed by the opening of a wall or ceiling cavity in the area of work. W = Required when in the area of work E = Required when exposed in the area of work NR = Not Required	Level of Repair or Alteration			
		Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration	Level 03 - Reconstruction/ Extensive Alteration
IRC Elect Sec#					
	E3906.8 Supports				
	E3906.9 Covers and canopies				
	E3906.10 Metal covers and plates				
<b>E3907</b>	<b>Cabinets and Panelboards</b>				
	E3907.1 Switch and overcurrent device enclosures with splices, taps, and feed-through conductors.				
	E3907.2 Damp and wet locations				
	E3907.3 Position in wall				
	E3907.4 Repairing noncombustible surfaces				
	E3907.5 Unused openings				
	E3907.6 Conductors entering cabinets				
	E3907.8 Cables				
<b>E3908</b>	<b>Grounding</b>				
	E3908.1 Metal enclosures				
	E3908.2 Fixed Equipment				
	E3908.3 Specific Fixed Equipment				
	E3908.4 Effective Ground-fault path				
	E3908.6 Load-side grounded conductor neutral				
	E3908.7 Load-side equipment				
	E3908.8 Types of equipment grounding conductors				
	E3908.9 Equipment fastened in place				
	E3908.10 Methods of Equipment Grounding				
	E3908.11 Equipment grounding conductor insulation				
	E3908.12 Equipment grounding conductor size				
	E3908.13 Continuity				
	E3908.14 Connecting receptacle ground				
	E3908.15 Metal boxes				
	E3908.16 Nonmetallic boxes				
	E3908.17 Clean Surfaces				
	E3908.18 Bonding other enclosures				
	E3908.19 Size of Equipment bonding jumper				
	E3908.20 Installation equipment bonding jumper				
<b>E3909</b>	<b>Flexible Cords</b>				
	E3909.1 Where permitted				
	E3909.2 Loading and protection				
	E3909.3 Splices				
	E3909.4 Attachment Plug				

Proportional Limitations on the Extent of Retroactive ELECTRICAL Construction Requirements for Existing Buildings undergoing Repairs or Alterations					
IRC Chap#	Legend R = Required regardless of location relationship to the area of work A = Required when in wall or in ceiling cavity immediately adjacent and exposed by the opening of a wall or ceiling cavity in the area of work. W = Required when in the area of work E = Required when exposed in the area of work NR = Not Required  IRC Elect Sec#	Level of Repair or Alteration			
		Level 00 - Repair	Level 01 - Renovation	Level 02 - Alteration / Reconfiguration	Level 03 - Reconstruction/ Extensive Alteration
E40 Devices and Luminaires	<b>E4001 Switches</b>				
	E4001.1 Rating and application				
	E4001.7 Damp or wet locations				
	<b>E4002 Receptacles</b>				
	E4002.1 Rating and type				
	E4002.8 Damp locations				
	E4002.9 Wet locations				
	E4002.10 Other wet locations				
	E4002.11 Bathtubs and Showers				
	E4002.13 Exposed Terminals	R	R	R	R
	E4002.14 Tamper-resistant receptacles	NR	E	E	W
	<b>E4003 Fixtures</b>				
	E4003.1 Energized parts exposed	R	R	R	R
	E4003.3 Screw-shell type				
	E4003.9 Wet or Damp locations				
	E4004.10 Lampholders in wet or damp locations				
	E4003.11 Bathtub and Shower area				
	E4003.12 Luminaires in clothes closets				
	<b>E4004 Luminaire Installation</b>				
	E4004.3 Access				
	<b>E4005 Track Lighting</b>				
	E4005.1 Installation				
	E4005.2 Fittings				
E4005.3 Connected load					
E4005.4 Prohibited locations					
E4005.5 Fastening					
E4005.6 Grounding					
E41 Appliance Installation	<b>E4101 General</b>				
	<b>E4103 Flexible Cords</b>				
<b>E4104 Overcurrent Protection</b>					

Page 1: [1] Comment [s22mar-3] stf22MAR- 3/22/2014 4:29:00 PM

⌘ This section allows for residential structures to continue their existing use while permitting repair, renovation, alteration or reconstruction work that may not be in full compliance with the general provisions of the code. Although strict compliance with the general requirements in the code may be modified by the provisions of this chapter, the resultant work will be consistent with the intent and purpose criteria set forth in Chapter 1. As a rule, the general requirements of the code are applicable unless modified by the provisions of this chapter. Upon compliance with the provisions of this appendix chapter, the work meets the requirements of the IRC.

Page 1: [2] Comment [s22mar-4] stf22MAR- 3/22/2014 4:30:00 PM

⌘ This appendix chapter addresses four unique and specific types of work that may occur on an existing residential structure. Each type is regulated independently based on the provisions of the chapter. Repairs, where work is performed to restore a building element or system back to working order, are regulated by Section AJ301. Renovation, the act of restoring a building element to its original condition, is addressed in Section AJ401. Section AJ501 deals with alterations, where elements, components or systems of the building are modified using new materials and methods, and Section AJ601 addresses reconstruction of existing building elements. Although these areas seem to overlap in their scope, each has unique characteristics that are identified and regulated by this chapter.

Page 1: [3] Comment [s22mar-5] stf22MAR- 3/22/2014 4:30:00 PM

⌘ It is not uncommon for two or more types of construction activity to be taking place at the same time, all a part of a single work project. Under such conditions, there are two situations that may occur. 1) Where the categories of work are isolated in different areas of the building and unrelated to each other, each project area is regulated by the specific requirements of the work being performed. 2) Where the multiple categories of work occur in the same project area, the more restrictive provisions of the categories apply.

Page 1: [4] Comment [s22mar-6] stf22MAR- 3/22/2014 4:31:00 PM

⌘ The general limitation on any work done under the provisions of this chapter is that the level of safety, health and public welfare of the existing building must not be reduced by any work being performed. In the case of structural stability, the existing degree of structural strength must be maintained or increased. In general terms, the structure is not to be made unsafe. This requirement can be broadly interpreted because its application can vary case by case. To the extent that existing mechanical and plumbing systems are involved, the level of protection or sanitation must not be reduced. Where this appendix chapter does not specifically modify the general provisions of the code, such provisions are applicable and conformance is required. Only in those areas where this chapter addresses specific materials or methods for specific elements, components or systems do the general code requirements not apply.

Page 1: [5] Comment [s22mar-7] stf22MAR- 3/22/2014 4:31:00 PM

⌘ Depending on the category of work being performed, conformance to one or more groups of requirements is necessary. If the work is simply a repair job or a renovation, only the provisions of Section AJ301 or AJ401, respectively, are applicable. If the building is to undergo an alteration, the requirements of both Sections AJ401 and AJ501 must be applied. Section AJ601 must be used for reconstruction work.

Page 1: [6] Comment [s22mar-8] stf22MAR- 3/22/2014 4:32:00 PM

⌘ Under all circumstances, a replacement window must comply with the energy efficiency provisions of Chapter 11 of the IRC. The provision is applicable only where the entire window is changed out, including the sash and glazing. Where such conditions exist, the new window is to have a maximum fenestration U-factor in compliance with Chapter 11 of the IRC. If the replacement window is in a hazardous location, safety glazing complying with Section R308 of the IRC must be installed.

Page 1: [7] Comment [s22mar-9] stf22MAR- 3/22/2014 4:34:00 PM

⌘ Long-term reduction in exposure to flood hazards is one of the reasons floodplain development is regulated. If alterations or repairs of an existing building, including restoration of damage from any cause, constitute substantial improvement, the existing building is to be brought into compliance as required in Section R105.3.1.1. See the commentary for that section. Improvements are deemed to be "substantial" if





⚡ *The work area must be correctly identified to define the extent of the rehabilitation activities. Most of the requirements in this appendix chapter are applicable only to the work area under consideration and do not apply to other portions of the building. The work area, determined at the time of permitting, is limited to that part of the building affected by the rehabilitation work.*