

1 **BILL NO. 2009-48**

2 **ORDINANCE NO. _____**

3 AN ORDINANCE TO ADOPT THE 2009 EDITION OF THE INTERNATIONAL ENERGY
4 CONSERVATION CODE, ALONG WITH AMENDMENTS THERETO, AND TO PROVIDE FOR
OTHER RELATED MATTERS.

5 Proposed by: Christopher Knight, Director of
6 Building and Safety

Summary: Adopts the 2009 Edition of the
International Energy Conservation Code, along
with amendments thereto.

7 THE CITY COUNCIL OF THE CITY OF LAS VEGAS DOES HEREBY ORDAIN
8 AS FOLLOWS:

9 SECTION 1: Title 16, Chapter 52, Section 10, of the Municipal Code of the City of
10 Las Vegas, Nevada, 1983 Edition, is hereby amended to read as follows:

11 **16.52.010:** Those certain documents, three copies of which are on file in the Office of the City
12 Clerk and are designated as follows, are adopted by reference as if set forth herein in full:

13 (A) The publication entitled ["International Energy Conservation Code, 2006
14 Edition,"] "International Energy Conservation Code, 2009 Edition," as published by the International
15 Code Council, as Part 1 of this Chapter; and

16 (B) The document entitled ["Southern Nevada Amendments to the 2006
17 International Energy Conservation Code,"] "Southern Nevada Amendments to the 2009 International
18 Energy Conservation Code," which adds to, deletes from and amends the ["International Energy
19 Conservation Code, 2003 Edition,"] "International Energy Conservation Code, 2009 Edition," as Part
20 2 of this Chapter.

21 SECTION 2: The document entitled "Southern Nevada Amendments to the 2009
22 International Energy Conservation Code," referred to in Section 1 of this Ordinance, is attached
23 hereto.

24 SECTION 3: The documents entitled "International Energy Conservation Code, 2006
25 Edition" and "Southern Nevada Amendments to the 2006 International Energy Conservation Code,"
26 are hereby repealed.

27 SECTION 4: If any section, subsection, subdivision, paragraph, sentence, clause or
28 phrase in this ordinance or any part thereof is for any reason held to be unconstitutional or invalid or

ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this ordinance or any part thereof. The City Council of the City of Las Vegas hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase thereof irrespective of the fact that any one or more sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases be declared unconstitutional, invalid or ineffective.

SECTION 5: Whenever in this ordinance any act is prohibited or is made or declared to be unlawful or an offense or a misdemeanor, or whenever in this ordinance the doing of any act is required or the failure to do any act is made or declared to be unlawful or an offense or a misdemeanor, the doing of such prohibited act or the failure to do any such required act shall constitute a misdemeanor and upon conviction thereof, shall be punished by a fine of not more than \$1,000.00 or by imprisonment for a term of not more than six months, or by any combination of such fine and imprisonment. Any day of any violation of this ordinance shall constitute a separate offense.

SECTION 6: All ordinances or parts of ordinances or sections, subsections, phrases, sentences, clauses or paragraphs contained in the Municipal Code of the City of Las Vegas, Nevada, 1983 Edition, in conflict herewith are hereby repealed.

PASSED, ADOPTED and APPROVED this day of , 2009.

APPROVED:

By OSCAR B. GOODMAN, Mayor

ATTEST:

BEVERLY K. BRIDGES, CMC
City Clerk

APPROVED AS TO FORM:

Valsted 11-5-09
Date

1 The above and foregoing ordinance was first proposed and read by title to the City Council on the
2 ____ day of _____, 2009, and referred to the following committee composed of
3 _____ and _____ for recommendation;
4 thereafter the said committee reported favorably on said ordinance on the ____ day of
5 _____, 2009, which was a _____ meeting of said Council; that at said
6 _____ meeting, the proposed ordinance was read by title to the City Council
7 as first introduced and adopted by the following vote:

8 VOTING "AYE": _____

9 VOTING "NAY": _____

10 ABSENT: _____

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12 APPROVED:

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14 By _____
OSCAR B. GOODMAN, Mayor

15 ATTEST:

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17 BEVERLY K. BRIDGES, CMC
City Clerk

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Southern Nevada Building
Officials
c/o City of Henderson
Building & Fire Safety Dept
240 Water Street
Henderson, NV 89015

Phone: 702-267-3611
Fax: 702-267-3605
Email: Michael.Bouse@cityofhenderson.com

MEMBERS

Michael Bouse, Chair
City of Henderson

Greg Blackburn
City of North Las Vegas

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Clark County

Kurt Sawyer
City of Mesquite

Brent Steed
Pahrump Regional
Planning District
(Nye County)

Chris Knight
City of Las Vegas

Lisa Conner
Clark County School District

Southern Nevada Amendments To The 2009 International Energy Conservation Code

Chapter 1: Administration

101.1 Title

Revise Section 101.1 Title, as follows:

101.1 Title. This code shall be known as the *International Energy Conservation Code of Southern Nevada*, and shall be cited as such. It is referred to herein as “this code”.

101.4.3 Additions, alterations, renovations or repairs.

Revise Section 101.4.3, Exceptions 2, 3 and 9, as follows:

101.4.3 Additions, alterations, renovations or repairs. Additions, alterations renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Additions, alterations, renovations or repairs shall not create an unsafe or hazardous condition or overload existing building systems. The addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.

Exceptions: The following need not comply provided the energy use of the building is not increased:

1. Storm windows installed over existing fenestrations.
2. Glass only replacements in an existing sash and frame. Glass must meet or exceed the same U-value and SHGC of the glass being replaced. If U-value and SHGC of glass cannot be determined, the minimum prescriptive values of Tables 402.1.1 for residential buildings and 502.3 for commercial buildings shall be deemed compliant.
3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation. The R-values need not exceed the prescriptive values in Tables 402.1.1 for residential buildings and 502.2(1) for commercial buildings.
4. Construction where the existing roof, wall or floor cavity is not exposed.
5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below sheathing.
6. Replacement of existing doors that separate *conditioned space* from the exterior shall not require installation of the vestibule or revolving door, provided, however, that an existing vestibule that separates a *conditioned space* from the exterior shall not be removed.
7. Alterations that replace less than 50 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.
8. Alterations that replace only the bulb and ballast within the existing luminaries in a space provided that the *alteration* does not increase the installed interior lighting power.

9. Relocations only of existing luminaires within an existing area enclosed by walls or floor to ceiling partitions.

102.1.1 Above Code Programs

Revise Section 102.1.1, Above code programs, as follows:

Section 102.1.1 Above code programs. The Southern Nevada Building Officials shall be permitted to deem a national, state or local energy efficiency program to exceed the efficiency required by this code. Programs seeking approval must submit all requested supporting documentation to the Southern Nevada Building Officials for review. Buildings certified in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as “mandatory” in chapters 4 and 5 of this code, as applicable, shall be met. The list of approved energy efficiency programs, include the following:

- EPA: Energy Star (15% above Code Program)
- EPA: Home Performance with Energy Star for existing home improvements.
- Department of Energy: Builder Challenge (30% above Code Program)
- IRS: Federal Tax Credit (50% above Code Program)
- IRS: Federal Tax Credit for Homeowner Improvements
- Utility Incentive Programs for new homes (15% above Code Program)
- USGBC LEED Green Building Program (15% above Code Program)
- Build it Green (15% above Code Program)
- Build it Green for Existing Home improvements
- SNHBA Green Building Partnership (15% above Code Program)
- Environments for Living (EFL) (15% above Code Program or better)
- City of Las Vegas Green Building Program (15% above Code Program or better)

102.1.1.1 Compliance for residential tract developments. Residential tract developments, consisting of 10 homes or more, shall be deemed in compliance with this code when the following documentation is submitted to the jurisdiction by the developer:

1. Written HERS documentation, certifying compliance with an *approved* energy efficiency program using approved RESNET software
2. A copy of the contractual agreement between the developer and a certified HERS rater to perform all mandatory field testing, sampling protocols and program verifications.
3. Additional documentation as may be deemed necessary by the jurisdiction.

106.1 General

Revise Section 106.1 General, as follows:

Section 106.1 General. The codes and standards referenced in this code shall be those listed in Chapter 6. Where this code refers to other codes not adopted by the jurisdiction, the applicable code adopted by the jurisdiction shall govern. Such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference.

Chapter 2: Definitions

202 Definitions, AIR BARRIER

Revise Section 202, definition of AIR BARRIER, as follows:

AIR BARRIER. An integral component of the *building thermal envelope* comprised of approved materials that are assembled and joined together to support in-contact insulating materials on one or more of its surfaces and to provide a barrier to air leakage through the building envelope. An air barrier may be comprised of, but not limited to, the exterior siding, exterior lath and stucco, rigid insulation board, exterior sheathing and sub-sheathing, water proof substrate with tiles, masonry walls, roof sheathing and drywall between conditioned and unconditioned spaces.

Revise Section 202, definition of BUILDING THERMAL ENVELOPE, as follows:

BUILDING THERMAL ENVELOPE. The basement walls, exterior walls, floor, roof and any other building air barrier element(s) that enclose *conditioned space*. This boundary also includes the air barrier between *conditioned space* and any exempt or unconditioned space.

Revise Section 202, by adding a new definition of CASINO, as follows:

CASINO. A business with a Non-restricted Gaming License from the Nevada Gaming Commission and State Gaming Control Board. It includes the gaming area(s) as well as the adjacent areas within the building envelope.

Revise Section 202 by adding a new definition for CASINO GAMING AREA, as follows:

CASINO GAMING AREA. The space within a *casino* wherein gaming is conducted. The gaming area shall also include accessory uses within the same room(s) as, or substantially open to the gaming floor(s). Such areas shall include, but not be limited to lobbies, balconies, public circulation areas, assembly areas, restaurants, bars, lounges, food courts, retail spaces, mezzanines, convention pre-function areas, cashiers' cages, players' clubs, customer support, conservatories and promenades that share the same atmosphere, spillover lighting and theme lighting with the adjacent gaming floor area..

For accessory areas situated on the perimeter of the gaming floor to be considered substantially open, the wall(s) or partition(s) separating an accessory space from the gaming area must be a minimum of 50% open, as measured from the interior side of the accessory space, with no doors, windows and other obstructions, other than roll up security grills, installed within the opening.

Revise Section 202, by revising the definition of CONDITIONED SPACE, as follows:

CONDITIONED SPACE. An area or room within the building thermal envelope being heated or cooled, containing un-insulated ducts, or with a fixed opening directly into an adjacent *conditioned space*.

An attic shall be considered conditioned space if the roof sheathing is constructed as the air barrier, with all insulation installed in direct contact with it, all exterior ventilation is eliminated and the space, including all eave framing and pipe and flue penetrations through the air barrier are tightly sealed to prevent exterior air infiltration.

Revise Section 202, by adding a new definition of INSULATION (THERMAL), as follows:

INSULATION (THERMAL). A component of the thermal energy envelope comprised of any approved material installed in substantially direct contact to either side of the air barrier that provides measurable thermal resistance (R-value) to heat flow to or from a conditioned space to which it bounds.

Revise Section 202 Definitions, by adding a new definition of LIGHTING, THEATRICAL, as follows:

LIGHTING, THEATRICAL. Lighting used to directly or indirectly illuminate performance areas, dance floors, and visual features in themed or theatrical environments. Theatrical Lighting shall include, but not be limited to: strobe lights, automated luminaries (intelligent lighting), effects projectors, lasers, and ultraviolet (UV) fixtures. In order to qualify as Theatrical Lighting, the lighting must be controlled separately from general illumination.

Revise Section 202 Definitions, by adding a new definition of LUMINAIRE, as follows:

LUMINAIRE. A complete lighting unit consisting of a light source, such as a lamp or lamps, together with the parts designed to position the light source and connect it to the power supply. It may also include parts to protect the light source, ballast, or distribute the light. A lampholder itself is not a luminaire.

Revise Section 202 Definitions, by adding a new definition of OCCUPANT SENSOR, LIGHTING, as follows:

OCCUPANT SENSOR (LIGHTING). A device that detects the presence or absence of people within an area and causes lighting to be regulated accordingly. The term "occupant sensor" applies to a device that controls indoor lighting systems. When the device is used to control outdoor lighting systems, it is defined as a motion sensor. This definition also applies to "occupancy sensor" and "occupant-sensing device." When used with a manual device for initial activation, an occupant sensor may be called a "vacancy sensor."

Revise Section 202, Definitions, by adding a new definition of SIGN (SIGNAGE), as follows:

SIGN (SIGNAGE). An interior or exterior lighted device used to impart way-finding, identifications or promotional information to the viewer. Signs include, but are not limited to, business identification, location maps and directories, gaming boards, sports scoreboards, and slot carousel identifiers.

Chapter 3: Climate Zones

301.1 General

Revise Section 301.1 General and add a new Exemption, as follows:

301.1 General. The jurisdictions of the City of Boulder City, the County of Clark County, the Clark County School District, the City of Henderson, the City of Las Vegas, the City of Mesquite and the City of North Las Vegas shall meet the requirements of this code for Climate Zone 3B.

Exception: Areas within these jurisdictions above altitudes of 4000 ft and the Town of Pahrump shall be considered in Climate Zone 5B.

303.1.3 Fenestration product rating.

Revise Section 301.1.3 Fenestration product rating, as follows:

303.1.3 Fenestration product rating. *U*-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled *U*-factor shall be assigned a default *U*-factor from Table 303.1.3(1) or 303.1.3(2), or Table 4 of the 2009 ASHRAE Fundamentals Handbook (with the exclusion of the "glass only" columns).

The solar heat gain coefficient (SHGC) of glazed fenestration products (windows, doors, and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory and labeled and certified by the manufacturer. Products lacking such a labeled SHGC shall be assigned a default SHGC from Table 303.1.3(3) or from Table 10 of the 2009 ASHRAE Fundamentals Handbook center-of-glazing properties--normal incidence angle 0.00 column only).

NOTE: When the 2009 ASHRAE Fundamentals Handbook simulation tables are used, all information must be provided as prescribed in amended subsections 303.1.3.1 and 303.1.3.2. This amended provision, allowing plans to be submitted to the building department for approval using the ASHRAE simulation tables, will expire after December 31, 2010.

303.1.3 Fenestration Product Rating

Add two (2) new Subsections, 303.1.3.1 Fenestration rating documentation and 303.1.3.2 Construction site rating documentation, as follows:

303.1.3.1 Fenestration rating documentation. All fenestration products to be used in a project must be listed in a fenestration schedule on the approved plans. This schedule shall include all of the following:

1. A list of all fenestrations, including, but not limited to, fixed and operable windows, skylights, sliding, swinging and overhead doors and glass block.
2. The manufacturer and model numbers for all non-default fenestration products, including NFRC CDP numbers.
3. For site-built windows, simulation report reference numbers provided by an NFRC accredited simulation laboratory, for each type of product to be used in the project.
4. The fenestration type, size, quantity, NFRC 100 certified *U*-factor or default *U*-factor. (If default *U*-factor is used, the schedule must also include a description of the key energy-efficiency features that are necessary to achieve that default *U*-factor.)
5. The solar heat gain coefficient for each fenestration proposed, using either the NFRC 200 certified value or the default value.

303.1.3.2 Construction site rating documentation. In addition to the approved plans described above, the following documentation shall be provided at the construction site prior to inspection of the thermal energy envelope:

1. All NFRC certified factory-built fenestration products shall be labeled with the NFRC certification label. This label is to remain intact on the fenestration unit until inspected by the jurisdiction having authority.
2. For rated site-built fenestration products, there shall be a separate NFRC label certificate for each type of fenestration product used in the project, signed by an independent, NFRC certified inspection agency. The label will display the following information:
 - a) The NFRC certification logo.
 - b) The name, address and authorized NFRC license number of the approved inspection agency.
 - c) The product ratings (U-factor, solar heat gain coefficient and visible light transmittance).
 - d) The name, address, and permit number of the project.
 - e) The product line information.
 - f) The names, addresses and contractors/business license numbers for the suppliers of the frame, the glazing and the contractor.
 - g) The printed name and signature of the inspector for the certified inspection agency.
3. For site-built fenestration products where default values were listed on the approved plans, the glazing contractor of record will provide the jurisdiction, a letter on company stationary, containing the following information:
 - a) The name, address and permit number of the project.
 - b) An itemized list of documentation describing specific components used to construct each type of fenestration.
 - c) The signature of the principal owner of the glazing company, attesting to the fact that all products described and documentation submitted were used on that jobsite.
 - d) A statement taking full legal and financial responsibility for the correct installation of the fenestration products.
 - e) Attached copies of all packing slips for all fenestration components used on the project. This documentation shall bear the job site address or specifically referencing the project.

Chapter 4: Residential Energy Efficiency

401.3 Certificate.

Revise Section 401.3 Certificate, as follows:

401.3 Certificate. A permanently installed certificate approved by the jurisdiction shall be posted on a wall adjacent to the water heater. The certificate shall be completed by the builder or registered design professional. The certificate shall have a heading stating "DO NOT REMOVE" in ½" minimum bold face letters and shall list the predominant R-values of the insulation installed in or on ceiling/roof, walls, foundation (slab, *basement wall*, crawlspace wall and/or floor) and ducts outside conditioned spaces; U-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall list the value covering each area or component separately. The certificate shall list the types and efficiencies of heating, cooling and service water heating equipment.

Section. 403.2.2 Sealing (Mandatory)

Revise Section 403.2.2 Sealing (Mandatory), as follows:

403.2.2 Sealing (Mandatory). All ducts, air handler connections at the plenum, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with the currently adopted mechanical code. Duct assemblies shall be verified for tightness by either of the following methods:

The remainder of this Section remains unchanged

403.4 Circulating hot water systems (Mandatory)

Delete Section 403.4 Circulating hot water systems (Mandatory) in its entirety and replace, as follows:

403.4 Service hot water systems (Mandatory). All service hot water heating systems shall meet the requirements of Sec. 403.4.1 or 403.4.2.

403.4.1 Non-circulating hot water systems. All service hot water piping installed in unconditioned spaces, including under-slab piping, shall be insulated to at least R-2.

403.4.2 Circulating hot water systems. All circulating service hot water piping, including under-slab piping, shall be insulated to at least R-2. Circulating hot water systems shall include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not used.

401.5 Mechanical ventilation (Mandatory)

Add a new exception to Section 403.5 Mechanical ventilation (Mandatory), as follows:

403.5 Mechanical ventilation (Mandatory). Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

Exception: Where clothes dryer exhaust vents terminate vertically at the roof, back draft dampers are not required.

403.6 Equipment Sizing (Mandatory).

Revise Section 403.6 Equipment Sizing (Mandatory), as follows:

403.6 Equipment sizing (Mandatory). Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculations methodologies.

405.6.1 Minimum Capabilities.

Revise Section 405.6.1, Item 2, as follows:

2. Calculation of whole-building (as a single zone) sizing for the heating and cooling equipment in the standard reference design residence in accordance with ACCA Manual S based on building loads

calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.

Chapter 5: Commercial Energy Efficiency

502.4.5 Outdoor air intakes and exhaust openings.

Revise Section 502.4.5, by adding new exceptions 2 through 6, as follows:

502.4.5 Outdoor air intakes and exhaust openings. Stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be equipped with not less than a Class I motorized, leakage-rated damper with a maximum leakage rate of 4 cfm per square foot (6.8 L/s · Cm²) at 1.0 inch water gauge (w.g.) (250 Pa) when tested in accordance with AMCA 500D.

Exceptions:

1. Gravity (non-motorized) dampers are permitted to be used in buildings less than three stories in height above grade.
2. Supply and exhaust ducts or shafts integral to the smoke management system as required by Sec. 909 of the International Building Code.
3. Type I and Type II fume hoods in commercial kitchens and the make-up air units that are required for the operation of these fume hoods.
4. All vents used for conveying products of combustion.
5. Clothes dryer vents that terminate vertically through a roof.
6. Explosion venting.

503.2.2.1 Demand controlled ventilation.

Revise Section 503.2.2.1 Demand controlled ventilation, as follows:

503.2.5.1 Demand controlled ventilation: Demand control ventilation (DCV) is required for spaces larger than 500 ft² (50m²) and with an average occupant load of 40 people per 1000 ft² (93 m²) of floor area) as established in Table 4-1 of the *Uniform Mechanical Code* and served by systems with on or more of the following:

505 Electrical power and lighting systems

Revise the title of Section 505, as follows:

SECTION 505 ELECTRICAL POWER AND LIGHTING SYSTEMS

505.2.1 Interior Lighting Controls

Revise Section 505.2.1 Interior lighting controls, by adding a new exception #3, as follows:

505.2.1 Interior lighting controls. (...)

Exceptions:

3. Normally unoccupied areas, such as restrooms, janitor closets, storage closets and similar spaces, controlled by local occupancy sensors.

505.2.2 Additional Controls.

Revise Section 505.2.2 Additional controls, as follows:

505.2.2 Additional controls. Each area that is required to have a manual control shall have additional controls that meet the requirements of Sections 505.2.2.1, 505.2.2.2, and 505.2.2.3.

505.2.2.3 Daylight zone control.

Revise Section 505.2.2.3 Daylight zone control, as follows:

505.2.2.3 Daylight zone control. Daylight zones, as defined by this code, shall be provided with controls that control the lights independent of general area lighting. Contiguous daylight zones adjacent to vertical fenestration are allowed to be controlled by a single controlling device provided that they do not include zones facing more than two adjacent cardinal orientations (i.e., north, east, south, and west). Daylight zones under skylights more than 15 feet (4572 mm) from the perimeter shall be controlled separately from daylight zones adjacent to vertical fenestration.

Exceptions:

1. Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

2. Where automatic dimming controls are provided for the electric lighting within the daylight zones, no separate manual control for the daylight zone shall be required.
3. In areas where daylight zones overlap, only one control shall be required to control both zones, unless the areas include more than two adjacent cardinal orientations.

505.5.1 Total connected interior lighting power.

Revise Section 505.5.1 by revising exception #7 and adding a new exception #15, as follows:

505.5.1 Total connected interior lighting power. (...)

Exceptions:

(...)

7. Advertising signage or directional signage, including signage for business identification or promotion, location maps and directories, sports or gaming scoreboards, and slot carousel identifiers.

(...)

15. Theme elements in theme/amusement parks and casino gaming areas.

505.6.2 Exterior building lighting power.

Revise Section 505.6.2, by revising exceptions #2 and #8, as follows:

505.6.2 Exterior building lighting power. (...)

Exceptions:

2. Advertising signage or directional signage, including signage for business identification and promotion, location maps and directories, and sports scoreboards;
8. Theme elements in theme/amusement parks and casinos; and

Chapter 6: Reference Standards

Chapter 6: Reference Standards

Revise the reference standards to include the organization ACCA (Air Conditioning Contractors of America) and the following manuals: Manual J and Manual S as follows:

ACCA	Air Conditioning Contractors of America 2800 Shirrlington Road, Suite 300 Arlington, VA 22206
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Standard reference number	Title	Referenced in code section number
Manual D--95	Residential Duct Systems	
Manual J--02	Residential Load Calculations—Eight Edition	403.6 amend.
Manual S	Residential Equipment Selection	