Evaluation of the Cost Impact of 2015 ICC Prescriptive Code Changes

RINKER-CR-2015-101

Draft Final Report

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Mo Madani

Department of Business and Professional Development
1940 North Monroe Street
Tallahassee, FL 32399

Authors

R. Raymond Issa, Ph.D., J.D., PE, API
Mark Aaby. P.E. and Kristin Steranka (Koffel Associates)
John Chyz (Affiliated Engineers Inc.)

CACIM
Rinker School
University of Florida
Box 115703
Gainesville, FL 32611-5703
www.bcn.ufl.edu/cacim

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EXECUTIVE SUMMARY

The study examined the changes that occurred between the 2012 International Building Codes as incorporated in the 2014 Florida Building Code (effective June 30, 2015) and the 2015 International Building Codes (including: International Building Code (IBC); International Residential Code (IRC); International Energy Conservation Code; International Mechanical Code; International Plumbing Code; International Fuel Gas Code; International Code for Existing Buildings; and National Electrical Code).

The I-Codes 2015 changes that are prescriptive in nature and have the potential of changing the cost of construction were identified and used in the prototypes of two residential and five commercial/institutional building information models to determine the impact of these code changes on their construction costs.

RS Means 2016 Cost data was used to price these prototype buildings. Based on these construction cost estimates, it was determined that the relative increase in cost ranged from approximately 10% for the midrise 20-story apartment building prototype to approximately 0% for the elementary school building prototype. The estimated relative change in cost for the residences was approximately 2% for the 1-story house to approximately 1% for the 2-story house. The average changes in cost were 5.6% for the commercial/institutional buildings and 1.6% for the residences.

Future research should consider development of the models to include prospective Florida specific code changes in order to determine the cost impact of these changes. In addition, workshops should be conducted to introduce and encourage designers, builders and other code change petitioners to use the models to prospectively evaluate the cost impact of their proposed code changes. In addition, the modeling of other type of buildings should be explored to develop an even more diverse set of building models.

Overview

This research provides an assessment of the potential cost impacts of the 2015 I-Code changes to the 2012 I-Code by identifying those code changes/provisions that are prescriptive in nature and have the potential of adding cost to construction and by estimating the costs of the rest of the code changes using good engineering judgment and feedback from general contractors and consulting engineers. A standard set of baseline residential and commercial building designs were modeled using building information modeling (BIM) and are used to produce cost estimates and extract the cost impact of code changes. Figure 1 shows the general process used to conduct this research.

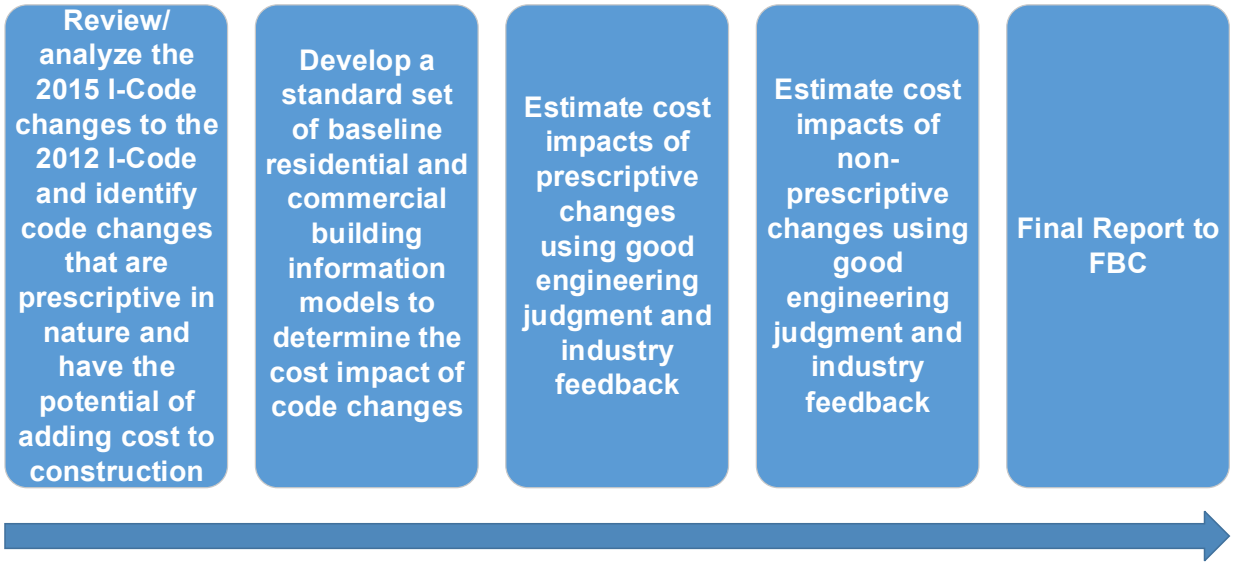

Figure 1. Research Plan

Scope of Work

(1) Review/analyze the 2015 I-Code changes to the 2012 I-Code to identify those code changes/provisions that are prescriptive in nature and have the potential of adding cost to construction.

(2) Review available literature/studies on the subject of estimating the costs of the code changes to the 2012 I-Codes including the ICC code proceedings/code hearings. Information gathered from this task will be used to document potential cost impacts for the code changes as identified in (1) and as applicable.

(3) Estimating the construction cost impacts of those provisions that are not covered under (2) using good engineering judgment and feedback from general contractors and consulting engineers.

(4) Use a standard set of baseline residential and commercial building designs for use to determine the cost impact of code changes.

(5) Building information modeling (BIM) will be used to develop digital sets of the permit-ready residential (2 houses) and five commercial/institutional buildings models.

(6) Use BIM tools to produce for each of the prototype buildings for each of the 2012 “as amended via the 5th Edition (2014) FBC” and 2015 I-Codes:

(7) Use the information in 6(a) and cost databases to produce cost estimates and extract cost impact of changes on the reference houses and commercial buildings.

Work Completed

All work has been completed on the project including contracting subcontractors, background research, soliciting and acquiring plans for 1-story and 2-story houses, middle school, small office building, small hotel and 20-story apartment building. The building information modeling (BIM) process has been completed for these plans for the 2012 and 2015 I-Codes. Figure 2 highlights the research tasks that have been completed or are in progress at the compilation of this draft final report.

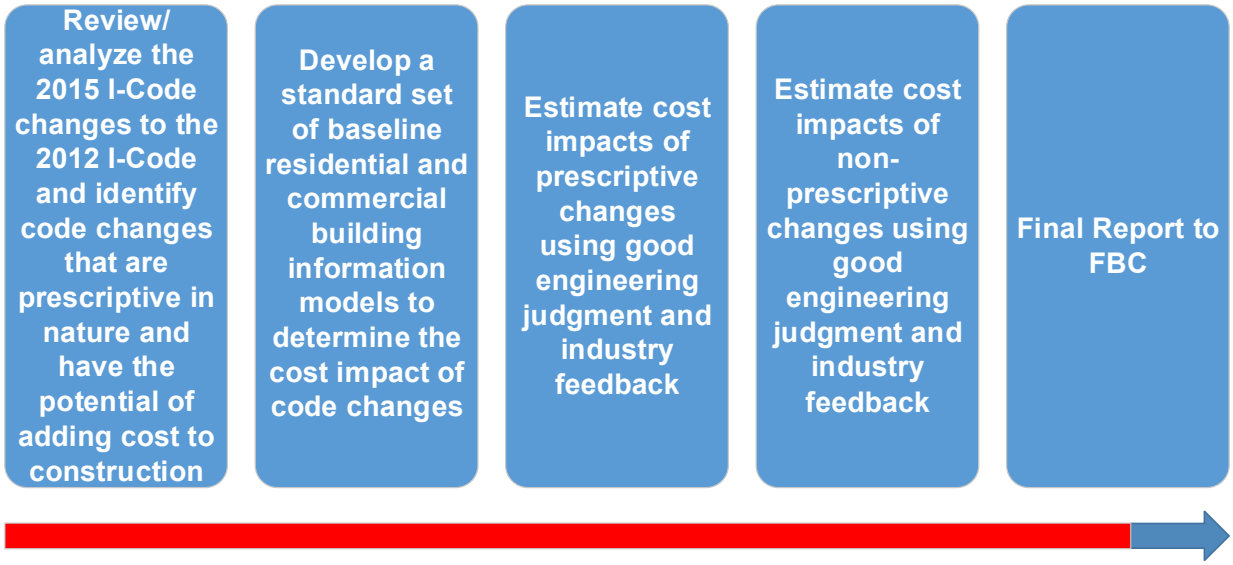

Figure 2. Research progress to date.

Task1: Review/analyze the 2015 I-Code changes to the 2012 I-Code to identify those code changes/provisions that are prescriptive in nature and have the potential of adding cost to construction.

MEP Code Changes Cost Impact

Affiliated Engineers SE Inc. (AEI) has undertaken a study aimed at evaluating the cost impact from the state of Florida's adoption of the 2015 Edition of the International Building Code (IBC). AEI's primary responsibility resided in evaluating the applicable MEP related changes that have occurred between the 2012 Edition and the 2015 Edition of the IBC.

Findings

The results of the study reinforce the following key observations, summarized in succinct fashion as follows:

1. Of the 2015 I-Codes reviewed with respect to mechanical, electrical and plumbing (MEP) systems, the majority of impactful changes were observed in the International Energy Conservation Code (IECC).

2. A significant portion of the International Energy Conservation Code (IECC) changes have been incorporated in an effort to align the code more closely with ASHRAE 90.1-2013.

3. One change in the International Mechanical Code (IMC) was deemed impactful from a cost perspective. This change is focused entirely on supplemental equipment and controls for cooling towers.

4. The majority of cost-impactful changes to the International Residential Code (IRC) are related to equipment specific to roof-mounted solar collectors found in Chapter 23, Section M2301 (Thermal Solar Energy Systems) of the Florida Residential Building Code.

5. An analysis of the cost impact of the International Fuel-Gas Code (IFGC) was conducted and is found in Table 11 (APPENDIX K).

6. Overall trends in the commercial sector point towards the specification of mechanical and electrical equipment with more superior efficiency ratings, the addition of control points and sequences and additional commissioning requirements.

The supporting appendices (APPENDIX A-F and K) provide further detail and elaboration on the above-listed key observations.

NEC Changes Cost Impact

UF has undertaken a study aimed at evaluating the cost impact from the state of Florida's adoption of the 2014 Edition of the NEC. .

Findings

There were very few prescriptive changes with cost impact and their cost impact were mostly minimal.

Table 7 (Appendix G) provides further detail and elaboration on the cost impact observations.

IBC-Fire Safety Changes Cost Impact

Koffel Associates, Inc. has undertaken a study aimed at evaluating the cost impact that will result from the state of Florida's adoption of the 2015 Edition of the International Building Code (IBC). Koffel Associates' primary responsibility resided in evaluating the applicable Fire and Life Safety related changes that have occurred between the 2012 Edition and the 2015 Edition of the IBC. The review was limited to non-structural fire protection and life safety requirements in IBC Chapter 3 through Chapter 10.

Findings

Table 8 (Appendix H) summarizes the key fire and life safety related changes that have occurred between the 2012 and 2015 Editions of the IBC, as they relate to the five sample building types studied. As part of the study, cost impacts, with estimated construction cost amounts, are also provided. Approximately 67% of the code changes identified in Table 8 resulted in no cost impact. The remaining code changes, identified as a decrease or increase in cost impact, resulted in 12% and 21% respectively of the total code changes summarized.

Table 8 (Appendix H) has the supporting documentation for these conclusions.

Structural Code Changes Cost Impact

UF has undertaken a study aimed at evaluating the cost impact that will result from the state of Florida's adoption of the 2015 Edition of the International Building Code (IBC). UF took primary responsibility in evaluating the applicable Structural Engineering related changes that have occurred between the 2012 Edition and the 2015 Edition of the IBC.

Findings

There were very few prescriptive cost impact changes and several were related to seismic requirements

Table 9 (Appendix I) and Table 10 (Appendix J) provide further detail and elaboration on the above-listed key observations.

Building Information Models and Associated Cost Impacts

A comparison of the cost impact of changing from the 2012 to 2015 I-Codes is shown in Table B. The cost impact ranged from approximately 0% for the elementary school to approximately10% for the mid-rise apartment building with an average of 5.6% for the commercial/institutional buildings and 1.6% for the residences. Each building type is discussed and the changes modeled are listed in the subsequent subsections based on Levels 1 and 2 of the ASTM Uniformat II Standard E1557 associated with each building type. The ASTM E1557 standard provides a common structure linking the building program, specifications, and estimates.

Table B. Summary I-Codes Changes Cost Impact Comparison

	Building Type	Estimated Cost Under: *2012 Codes*	Estimated Cost Under: *2015 Codes*	Anticipated % Change in Cost
1	*Small Office*	$ 8,191,362	$ 8,676,630	**5.9%**
2	*Retail*	$ 30,973,645	$ 31,815,736	**2.7%**
3	*Elementary School*	$ 10,174,640	$ 10,212,490	**0.4%**
4	*Small Hotel*	$ 6,469,061	$ 7,062,768	**9.2%**
5	*Mid-Rise Apartment*	$ 40,988,954	$ 45,049,645	**9.9%**
6	*1-Story Residence*	$ 182,441	$ 189,355	**1.8%**
7	*2-Story Residence*	$ 272,068	$ 275,722	**1.3%**
		Average Net % Change in Cost (Entire Sample):		**6.2%**

Level 1 Major Group Elements	Level 2 Group Elements	Level 3 Individual Elements
A. SUBSTRUCTURE	A10 Foundations	A1010 Standard Foundations A1020 Special Foundations A1030 Slab on Grade
	A20 Basement Construction	A2010 Basement Excavation A2020 Basement Walls
B. SHELL	B10 Superstructure	B1010 Floor Construction B1020 Roof Construction
	B20 Exterior Closure	B2010 Exterior Walls B2020 Exterior Windows Exterior Doors
	B30 Roofing	B3010 Roof Coverings B3020 Roof Openings
C. INTERIORS	C10 Interior Construction	C1010 Partitions C1020 Interior Doors C1030 Specialties
	C20 Staircases	C2010 Stair Construction C2020 Stair Finishes
	C30 Interior Finishes	C3010 Wall Finishes C3020 Floor Finishes C3030 Ceiling Finishes
D. SERVICES	D10 Conveying Systems	D1010 Elevators D1020 Escalators & Moving Walks D1030 Material Handling Systems
	D20 Plumbing	D2010 Plumbing Fixtures D2020 Domestic Water Distribution D2030 Sanitary Waste D2040 Rain Water Drainage D2050 Special Plumbing Systems
	D30 HVAC	D3010 Energy Supply D3020 Heat Generating Systems D3030 Cooling Generating Systems D3040 Distribution Systems D3050 Terminal & Package Units D3060 Controls & Instrumentation D3070 Special HVAC Systems & Equipment D3080 Systems Testing & Balancing
	D40 Fire Protection	D4010 Fire Protection Sprinkler Systems D4020 Stand-Pipe & Hose Systems D4030 Fire Protection Specialties D4040 Special Electrical Systems
	D50 Electrical	D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring D5030 Communication & Security Systems D5040 Special Electrical Systems
E. EQUIPMENT & FURNISHINGS	E10 Equipment	E1010 Commercial Equipment E1020 Institutional Equipment E1030 Vehicular Equipment E1040 Other Equipment
	E20 Furnishings	E2010 Fixed Furnishings E2020 Movable Furnishings
F. SPECIAL CONSTRUCTION & DEMOLITION	F10 Special Construction	F1010 Special Structures F1020 Integrated Construction F1030 Special Construction Systems F1040 Special Facilities F1050 Special Controls & Instrumentation
	F20 Selective Building Demolition	F2010 Building Elements Demolition F2020 Hazardous Components Abatement

Figure 3. ASTM UNIFORMAT II Classification of Building Elements (E 1557)

Small Office Building

A typical small office building model is shown in Figures A-1 thru A-3. As shown in Table A, the 2015 ICC changes mostly impacted the Services level of the prepared cost estimate. The HVAC, fire protection and electrical systems all showed an increase in cost due to at least 6 of the proposed code changes. The design for the permitted drawings for this 7-story building were for the shell and the interior floor build outs were left for future tenants. In this regard, additional costs implications may be realized once the building is designed to completion by tenants. The proposed code changes were evaluated based solely on the approved shell and infrastructure drawings.

The HVAC systems had an increase in cost due to 2015 IECC C403.2.4.5, C403.2.7 and IMC 603.10 changes. These changes added zone isolation devices (areas over 25,000 SF, e.g. each level of the office space), insulation on supply and return air duct plenums and duct supports at no greater than 12' spacing. The fire protection system is impacted by 2015 IBC-Non-Structural Fire Protection and Life Safety Section 903.3.8 changes due to the large floor areas. The electrical systems in the building required automatic switch controls and daylight response controls based on the 2015 IECC C405.2.2 and C405.1 changes. The daylight sensing controls were estimated at a frequency of 1 per 2500 SF assuming that the building would be divided or need more than 1 device per floor. Overall the proposed electrical system changes had the largest monetary impact on the total estimated building cost.

	Table A-1. SMALL OFFICE BUILDING (138,715 SF) COST COMPARISON		
	ASTM Uniformat II Levels	**2012 FBC Estimated Cost**	**2015 FBC Estimated Cost**
A.	**Substructure**	**$ 425,105.23**	**$ 425,105.23**
	A10 - Foundations	*$ 425,105.23*	*$ 425,105.23*
	A20 - Basement Construction	*$ -*	
B.	**Shell**	**$ 2,341,953.48**	**$ 2,341,953.48**
	B10 - Superstructure	*$ 699,419.15*	*$ 699,419.15*
	B20 - Exterior Enclosure	*$ 1,606,620.63*	*$ 1,606,620.63*
	B30 - Roofing	*$ 35,913.70*	*$ 5,913.70*
C.	**Interiors**	**$ 1,432,633.05**	**$ 1,432,633.05**
	C10 - Interior Construction	*$ 679,115.09*	*$ 679,115.09*
	C20 - Stairs	*$ 116,372.51*	*$ 116,372.51*
	C30 - Interior Finishes	*$ 637,145.45*	*$ 637,145.45*
D.	**Services**	**$ 3,991,669.81**	**$ 4,476,038.15**
	D10 - Conveying	*$ 632,499.60*	*$ 632,499.60*
	D20 - Plumbing	*$ 111,213.63*	*$ 111,213.63*
	D30 - HVAC	*$ 60,321.17*	*$ 148,102.78*
	D40 - Fire Protection	*$ 1,463,407.96*	*$ 1,468,407.96*
	D50 - Electrical	*$ 1,724,227.45*	*$ 2,115,814.38*
E.	**Equipment & Furnishings**	**$ -**	**$ -**
F.	**Special Construction**	**$ -**	**$ -**
	Building Sitework	**$ -**	**$ -**
	Total Cost	**$ 8,191,361.57**	**$ 8,675,729.91**

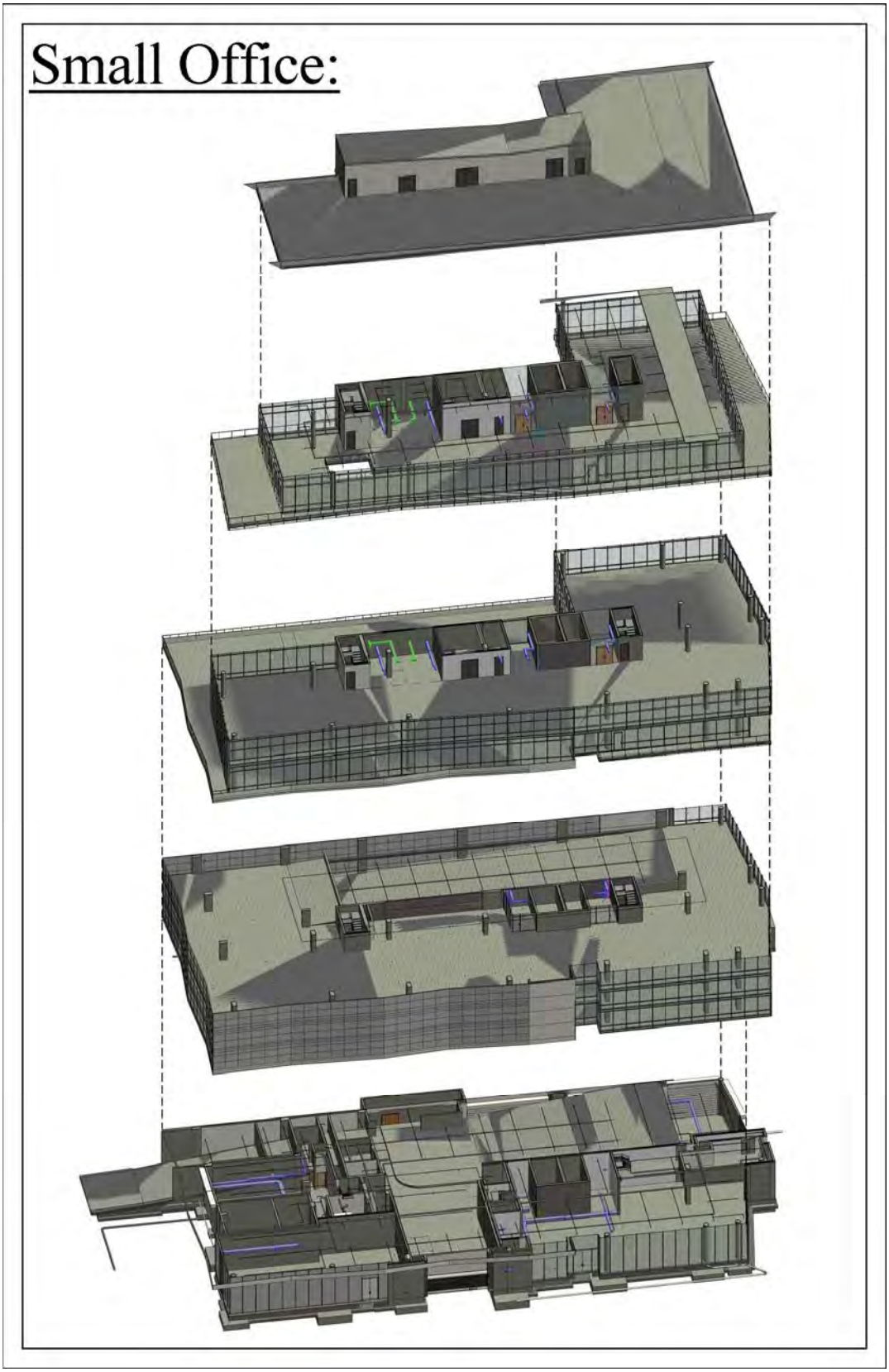

Figure A-1. 3D sections of Small Office Building

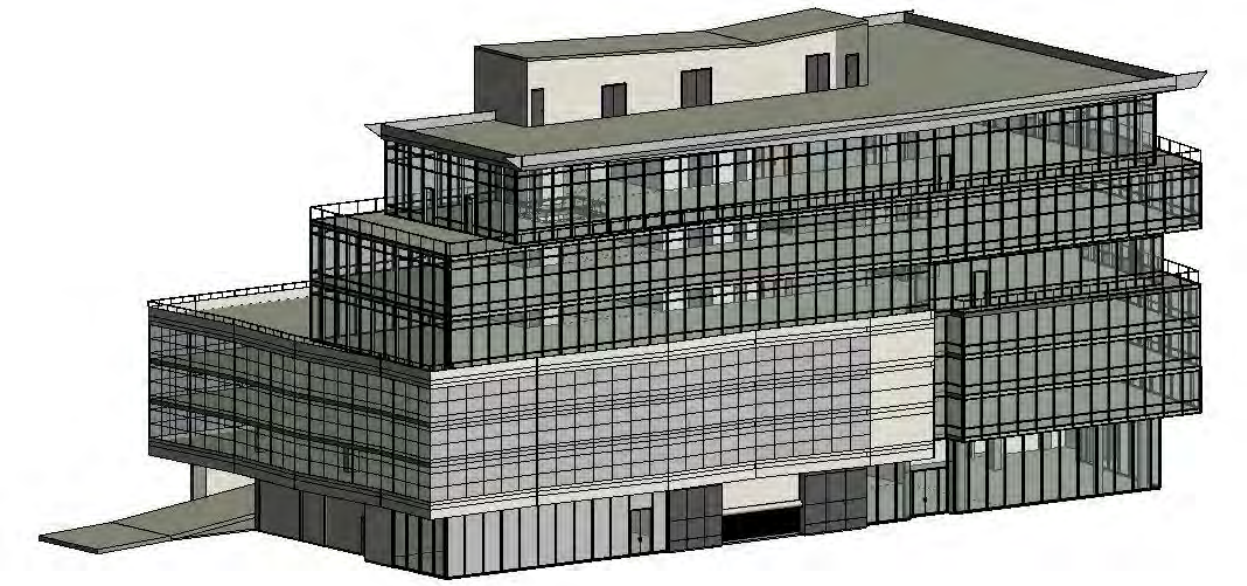

Figure A-2. 3D Model of Small Office Building

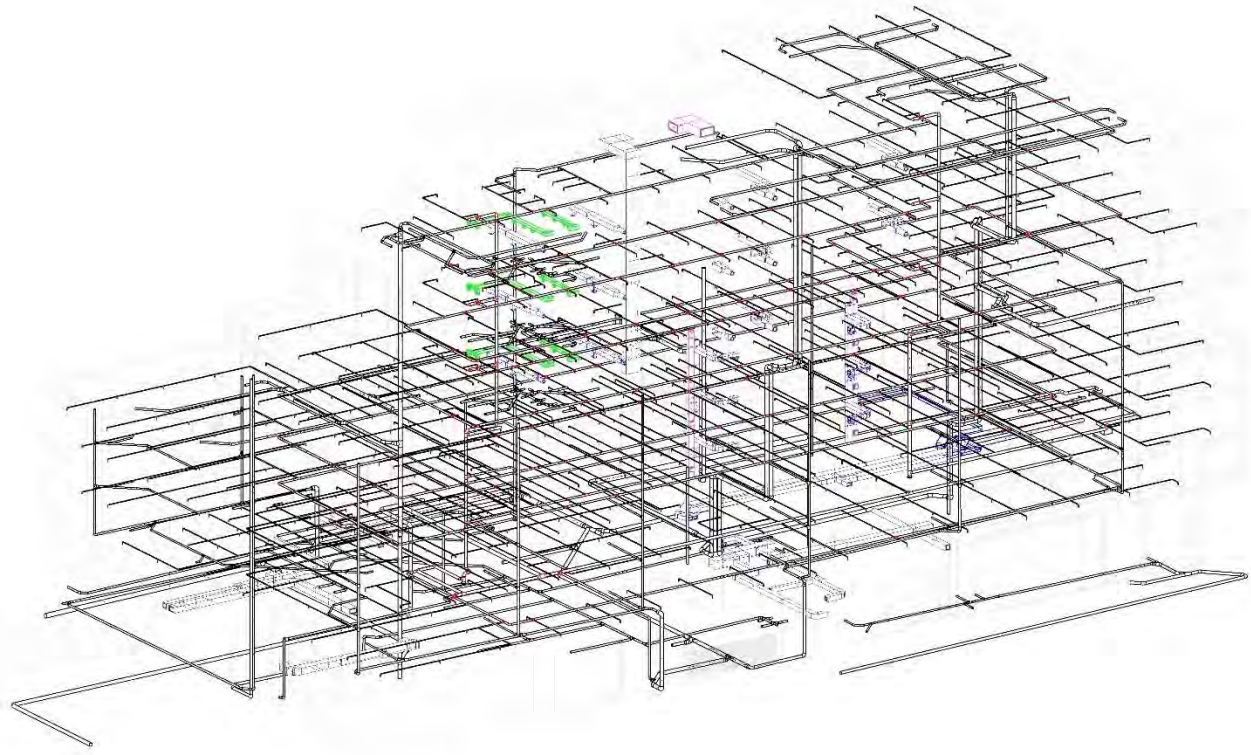

Figure A-3. 3D Model of MEP systems for Small Office Building

Retail Space

Typical retail spaces are shown in Figures B-1 thru B-3. The retail spaces modeled and utilized to develop this estimate have a parking structure on the lower level with large open areas above, from which the retail spaces can be accessed. It is an “open-air” style retail plaza and the retail spaces themselves are to be built out by the tenants. Due to this, major utility connections were made available in the approved drawings but there were limited MEP finishes as it was assumed that the tenants would complete this work and get it approved separately. The 2015 ICC changes mostly impacted the retail building at the Services level of the prepared cost estimate. The plumbing, HVAC, fire protection and electrical sub levels of the estimate all saw impacts from the proposed 2015 ICC code changes. The proposed code changes were applied to the drawing set for the main retail space and the tenant built-outs were not evaluated.

The plumbing system saw a minor decrease in cost due to 2015 IPC 1002.1 changes, eliminating the need for traps in the parking garage floor drains. The HVAC systems saw an increase in cost due to the 2015 IECC C403.2.7 and IMC 603.10 changes. These changes would add insulation to the supply and return air duct plenums and duct supports at no greater than 12’ spacing. The fire protection system would be impacted by the 2015 IBC-Non-Structural Fire Protection and Life Safety Section 903.3.8 change due to the large floor areas. The electrical systems in the spaces will require automatic switch controls and daylight response controls based on the 2015 IECC C405.2.2 and C405.1 changes. The daylight sensing controls were estimated at a frequency of 1 per 2500 SF assuming an average size for the retail locations. Overall the light switch and daylight control changes accounted for the largest impact on cost.

Table B-1. RETAIL SPACE (409,933SF) COST COMPARISON

	ASTM Uniformat II Levels	2012 FBC Estimated Cost	2015 FBC Estimated Cost
A.	**Substructure**	**$ 1,161,722.94**	**$ 1,161,722.94**
	A10 - Foundations	*$ 1,161,722.94*	*$ 1,161,722.94*
	A20 - Basement Construction	*$ -*	*$ -*
B.	**Shell**	**$ 10,187,301.41**	**$ 10,187,301.41**
	B10 - Superstructure	*$ 3,357,980.49*	*$ 3,357,980.49*
	B20 - Exterior Enclosure	*$ 6,631,250.37*	*$ 6,631,250.37*
	B30 - Roofing	*$ 198,070.55*	*$ 198,070.55*
C.	**Interiors**	**$ 1,429,573.71**	**$ 1,429,573.71**
	C10 - Interior Construction	*$ 268,322.75*	*$ 268,322.75*
	C20 - Stairs	*$ 187,914.18*	*$ 187,914.18*
	C30 - Interior Finishes	*$ 973,336.77*	*$ 973,336.77*
D.	**Services**	**$ 18,195,047.28**	**$ 19,037,138.28**
	D10 - Conveying	*$ 1,293,147.66*	*$ 1,293,147.66*
	D20 - Plumbing	*$ 10,481,550.55*	*$ 10,480,230.55*
	D30 - HVAC	*$ 120,841.14*	*$ 370,896.44*
	D40 - Fire Protection	*$ 2,431,064.21*	*$ 2,436,064.21*
	D50 - Electrical	*$ 3,868,443.72*	*$ 4.456.799.42*
E.	**Equipment & Furnishings**	**$ -**	**$ -**
F.	**Special Construction**	**$ -**	**$ -**
	Building Sitework	**$ -**	**$ -**
	Total Cost	**$ 30,973,645.34**	**$ 31,815,736.34**

Figure B-1. 3D sections of Retail Space

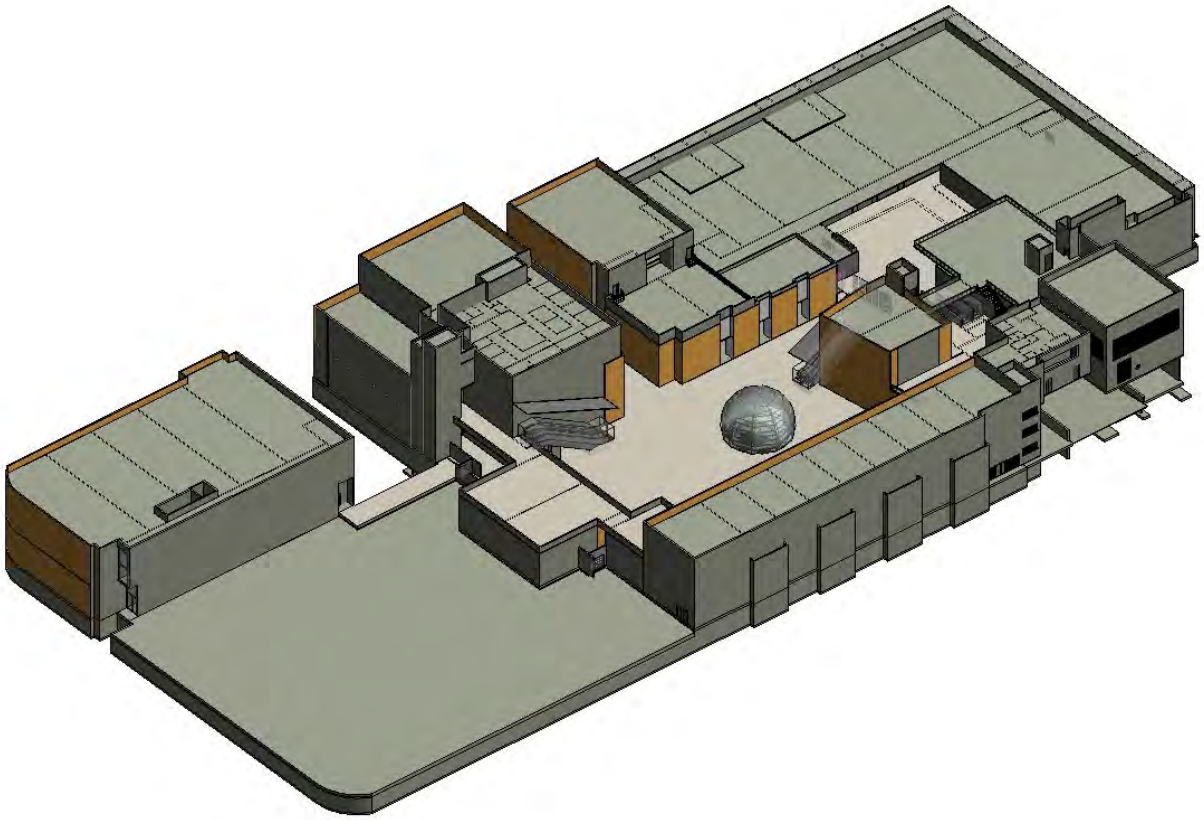

Figure B-2. 3D model of Retail Spaces

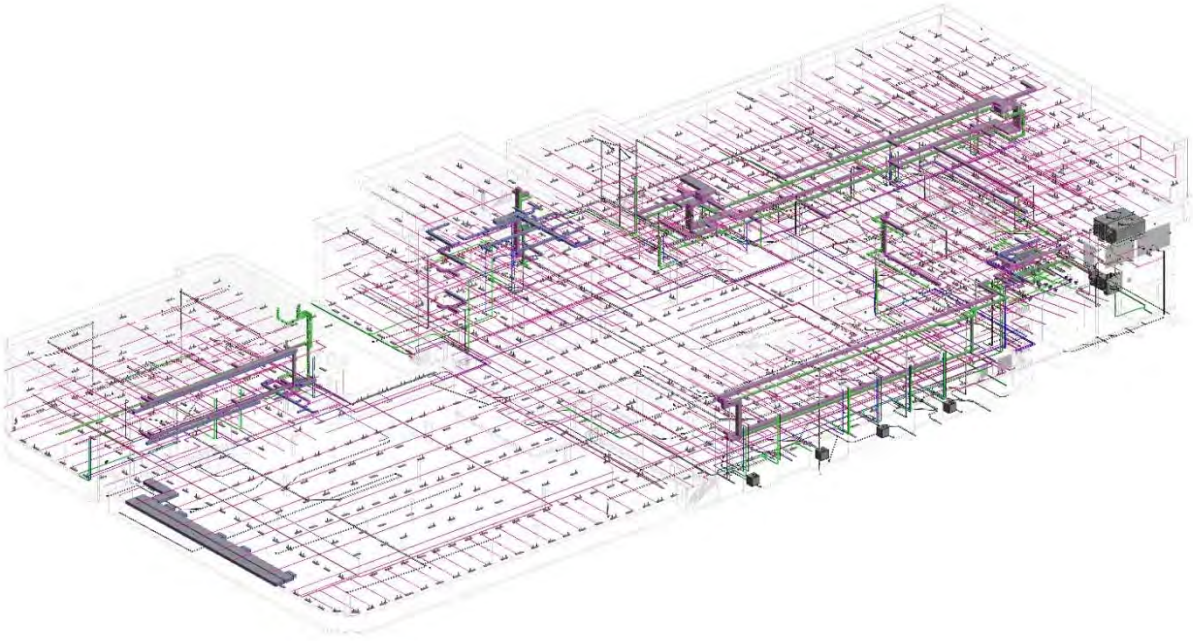

Figure B-3. 3D Model of MEP systems for Retail Spaces

Elementary School

As shown in Figures C-1 thru C-3, the elementary school building has two levels in the classroom areas and one level near the cafeteria and auditorium spaces. The building is a public school building with largely standard materials and was designed with performance and longevity in mind. The 2015 ICC changes mostly impacted the elementary school building at the Services level of the prepared cost estimate.

The HVAC had an increase in cost due to the 2015 IECC C403.4.2.1, C404.2, C403.2.7 and IMC 603.10 changes. These changes would add static pressure sensors for VAV's, increased water heater performance, insulation on supply and return air duct plenums and duct supports at no greater than 12 FT spacing. The fire protection system would be impacted by the 2015 change IBC-Non-Structural Fire Protection and Life Safety Section 903.3.8 changes due to the large cafeteria and circulation spaces. The electrical systems in the building will require automatic switch controls and daylight response controls based on the 2015 IECC C405.2.2 and C405.1 changes. The daylight sensing controls were estimated at a frequency of 1 per 2500 SF assuming an average area. The proposed 2015 IBC-Non-Structural Fire Protection and Life Safety Section 423.4 change related to the need for a storm shelter in Group E buildings where 250 MPH tornado winds are possible is not necessary because Florida is classified below those maxima. The HVAC related code changes accounted for the largest increase in cost for this building type.

Table C-1. ELEMENTARY SCHOOL (90,726 SF) COST COMPARISON

	ASTM Uniformat II Levels	2012 FBC Estimated Cost	2015 FBC Estimated Cost
A.	**Substructure**	**$ 559,421.84**	**$ 559,421.84**
	A10 - Foundations	*$ 559,421.84*	*$ 559,421.84*
	A20 - Basement Construction	*$ -*	*$ -*
B.	**Shell**	**$ 3,154,520.95**	**$ 3,154,520.95**
	B10 - Superstructure	*$ 1,287,117.53*	*$ 1,287,117.53*
	B20 - Exterior Enclosure	*$ 1,017,792.77*	*$ 1,017,792.77*
C.	*B30 - Roofing*	*$ 849,610.65*	*$ 849,610.65*
	Interiors	**$ 1,233,857.73**	**$ 1,233,857.73**
	C10 - Interior Construction	*$ 450,065.31*	*$ 450,065.31*
	C20 - Stairs	*$ 32,104.50*	*$ 32,104.50*
D.	*C30 - Interior Finishes*	*$ 751,687.92*	*$ 751,687.92*
	Services	**$ 5,226,839.89**	**$ 5,264,689.89**
	D10 - Conveying	*$ 10,157.78*	*$ 10,157.78*
	D20 - Plumbing	*$ 699,487.97*	*$ 699,487.97*
	D30 - HVAC	*$ 1,526,858.78*	*$ 1,564,708.78*
	D40 - Fire Protection	*$ 1,974,668.69*	*$ 1,974,668.69*
	D50 - Electrical	*$ 1,015,666,67*	*$ 1,015,666.67*
E.	**Equipment & Furnishings**	**$ -**	**$ -**
F.	**Special Construction**	**$ -**	**$ -**
	Building Sitework	**$ -**	**$ -**
	Total Cost	**$ 10,174,640.41**	**$ 10,212,490.41**

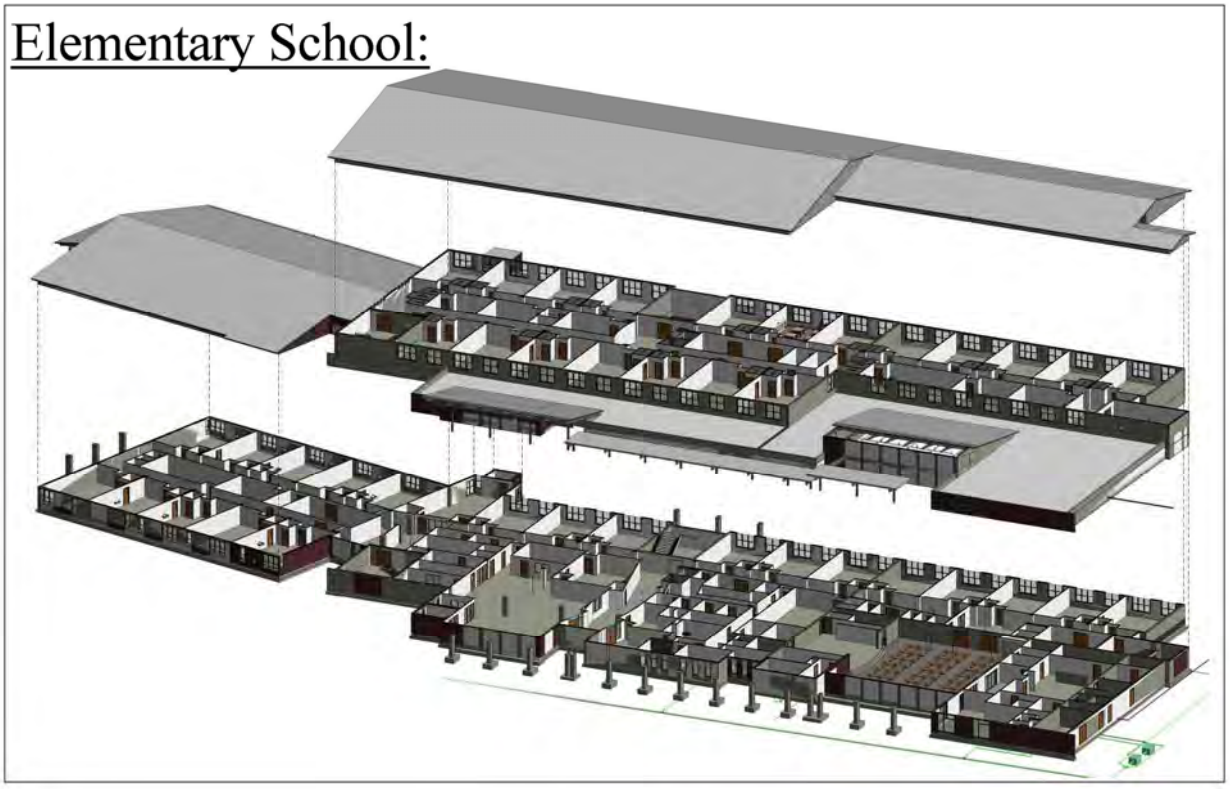

Figure C-1. 3D sections of Elementary School

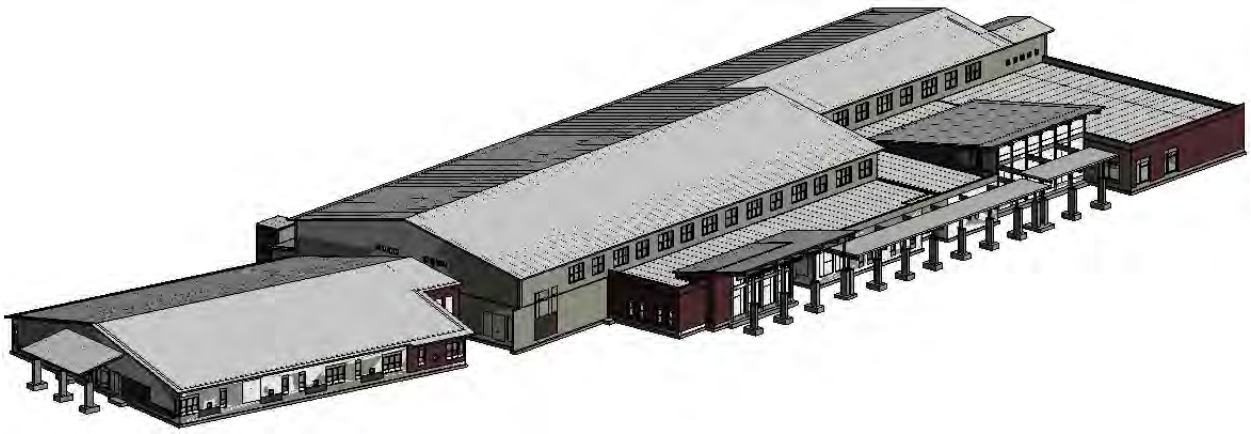

Figure C-2. 3D model of Elementary School

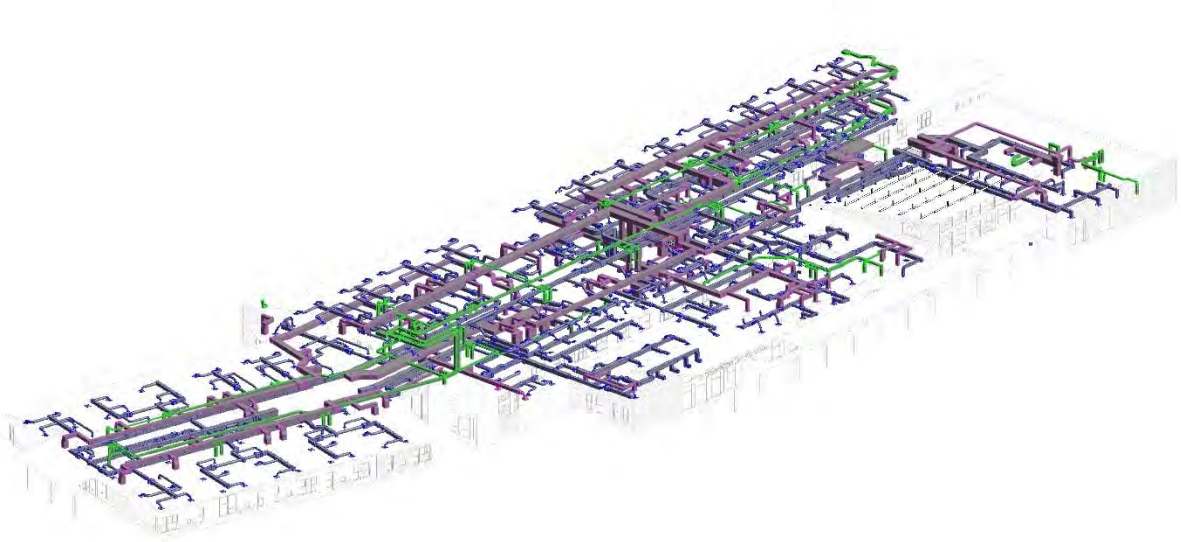

Figure C-3. 3D model of MEP systems for Elementary School

Small Hotel

As shown in Figures D-1 thru D-3, the hotel modeled for this estimate is a three level building with 128 hotel rooms, a full service kitchen and lobby area with standard hotel amenities. Each room has its own dedicated package HVAC unit and exhaust system.

The HVAC, fire protection and electrical systems in the building had increases in cost due to the proposed 2015 ICC changes. The HVAC systems increased in cost due to proposed 2015 IMC 507.2, IECC C403.2.7 and IMC 603.10 changes. These changes would add a Type I exhaust hood over cooking equipment in the kitchen, insulation on supply and return air duct plenums and duct supports at no greater than 12 FT spacing. The fire protection system would be impacted by the 2015 IBC-Non-Structural Fire Protection and Life Safety Section 903.3.8 change due to the large lobby and circulation spaces. The electrical systems in this small hotel increased due to the 2015 IECC C405.2.2 and C405.2.3 changes. These changes call for the addition of manual lighting controls for the hotel and master switches for each hotel room. The proposed changes related to the electrical system accounted for the largest portion of the cost increase for the small hotel building.

Table D-1. SMALL HOTEL (72,024 SF) COST COMPARISON			
	ASTM Uniformat II Levels	**2012 FBC Estimated Cost**	**2015 FBC Estimated Cost**
A.	**Substructure**	**$ 301,320.51**	**$ 301,320.51**
	A10 - Foundations	*$ 301,320.51*	*$ 301,320.51*
	A20 - Basement Construction	*$ -*	*$ -*
B.	**Shell**	**$ 1,763,260.05**	**$ 1,763,260.05**
	B10 - Superstructure	*$ 1,181,579.40*	*$ 1,181,579.40*
	B20 - Exterior Enclosure	*$ 512,667.60*	*$ 512,667.60*
	B30 - Roofing	*$ 69,013.04*	*$ 69,013.04*
C.	**Interiors**	**$ 1,151,698.97**	**$ 1,151,698.97**
	C10 - Interior Construction	*$ 1,104,148.79*	*$ 1,104,148.79*
	C20 - Stairs	*$ 47,550.18*	*$ 47,550.18*
	C30 - Interior Finishes	*$ -*	*$ -*
D.	**Services**	**$ 3,252,781.66**	**$ 3,846,488.40**
	D10 - Conveying	*$ 316,249.80*	*$ 316,249.80*
	D20 - Plumbing	*$ 279,303.48*	*$ 279,303.48*
	D30 - HVAC	*$ 905,013.34*	*$ 1,069,775.71*
	D40 - Fire Protection	*$ 843,634.57*	*$ 848,634.57*
	D50 - Electrical	*$ 908,580.47*	*$ 1,332,524.84*
E.	**Equipment & Furnishings**	**$ -**	**$ -**
F.	**Special Construction**	**$ -**	**$ -**
	Building Sitework	**$ -**	**$ -**
	Total Cost	**$ 6,469,061.19**	**$ 7,062,767.93**

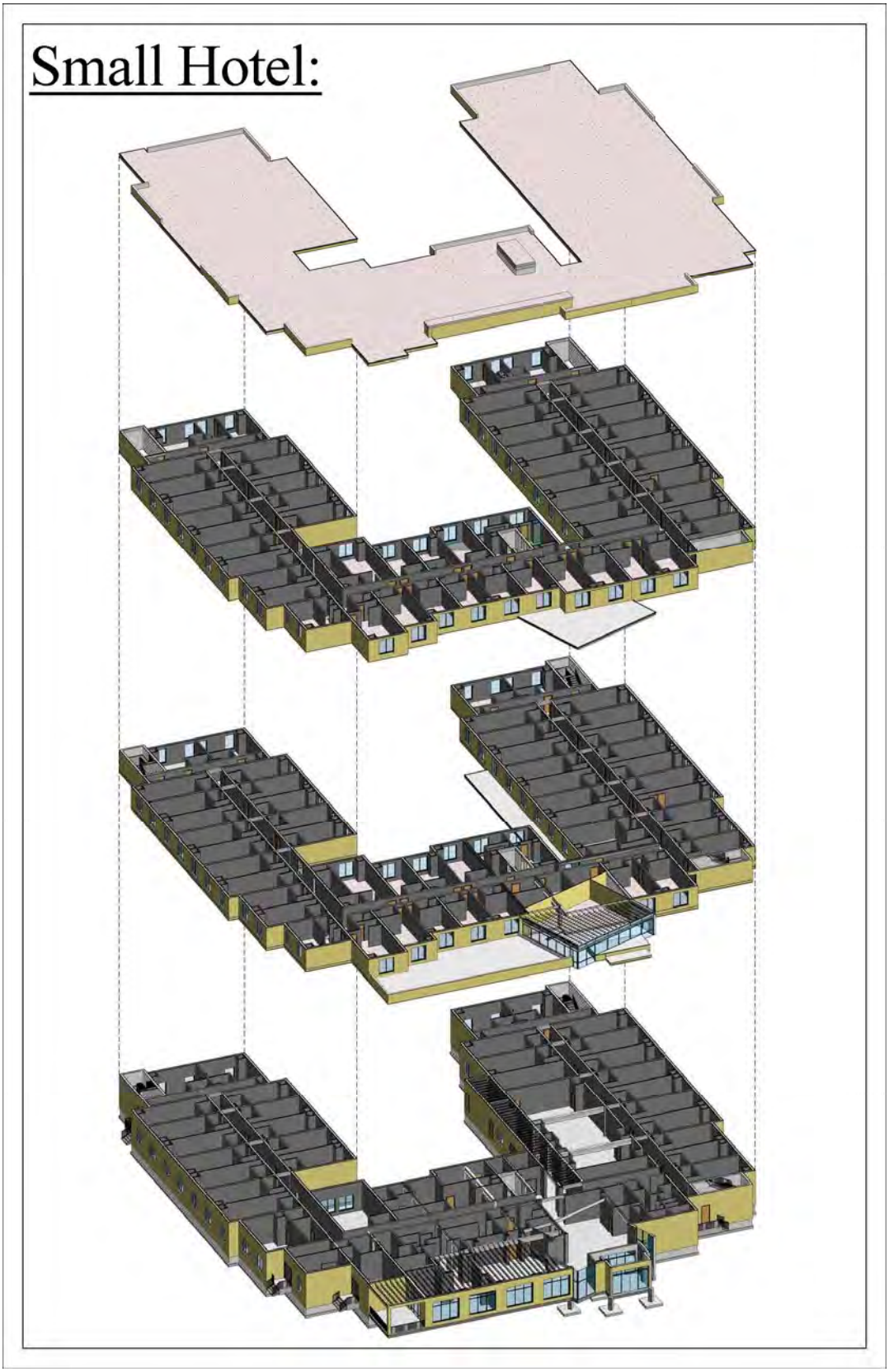

Figure D-1. 3D sections of Small Hotel

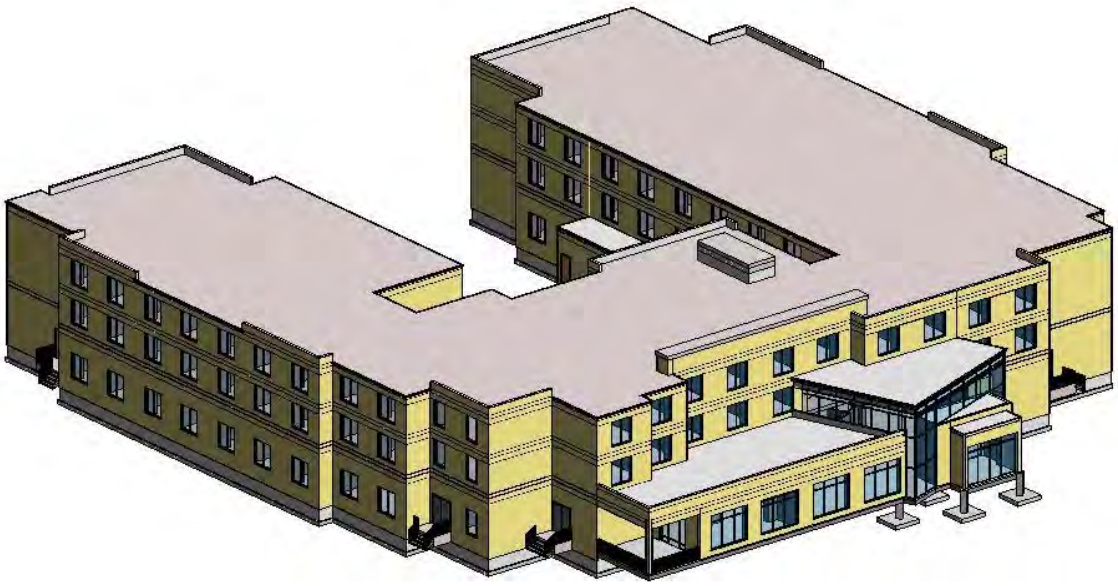

Figure D-2. 3D model of Small Hotel

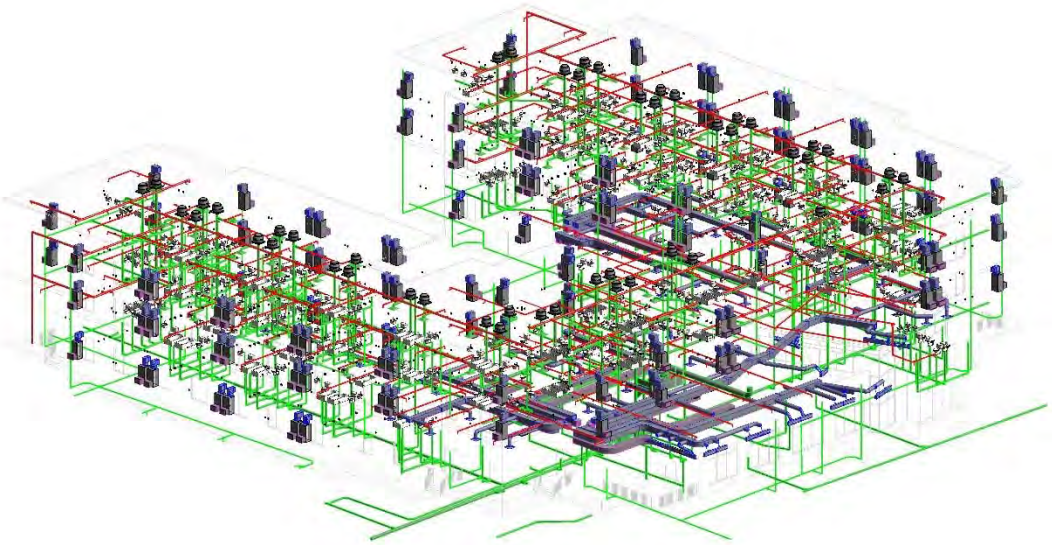

Figure D-2. 3D model of MEP systems for Small Hotel

Mid-Rise Apartment Building

As shown in Figures E-1 thru E-3, the midrise apartment building has a 20 level residential tower and an attached 7 level parking structure. It is a concrete structure building with a largely curtain wall façade system. The residential tower reaches an overall height of 209' with the highest occupied level at 197' 10". The proposed code changes impacted the midrise apartment building at the Services level of the prepared estimate.

The plumbing system had a minor decrease in cost due the 2015 IPC 1002.1 change, eliminating the need for traps in the parking garage floor drains. There was a cost increase in plumbing due to the 2015 IECC C404.2 change related to increased water heater performance. The HVAC systems saw an increase in cost due to the 2015 IECC C403.2.7 and IMC 603.10 changes. These changes would add insulation to supply and return air duct plenums and duct supports at no greater than 12 FT spacing. The fire protection system is impacted by the 2015 IBC-Non-Structural Fire Protection and Life Safety Section 903.3.8 change due to the large common and circulation spaces. The electrical systems in the building requires automatic switch controls and daylight response controls based on the 2015 IECC C405.2.2 and C405.1 changes. The daylight sensing controls were estimated at a frequency of 1 per 2500 SF assuming an average area.

With its highest occupied level at 197' 10" this building is the only one out of the seven representative samples that meets the requirements for proposed code change IBC-Non-Structural Fire Protection and Life Safety Section 403.6.1 for a second fire service access elevator. This cost was added to Services level of the estimate as a lump sum of $50,000 for fire rating upgrades based on the report of the consultants. Overall cost changes related to code changes are evenly distributed between MEP systems with the largest single change being the water heater performance upgrade (IECC 6404.2).

Table E-1. MID-RISE APARTMENT BUILDING (589,555 SF) COST COMPARISON

	ASTM Uniformat II Levels	2012 FBC Estimated Cost	2015 FBC Estimated Cost
A.	**Substructure**	**$ 1,057,244.50**	**$ 1,057,244.50**
	A10 - Foundations	*$ 1,057,244.50*	*$ 1,057,244.50*
	A20 - Basement Construction	*$ -*	*$ -*
B.	**Shell**	**$ 12,048,802.41**	**$ 12,048,802.41**
	B10 - Superstructure	*$ 10,943,459.39*	*$ 10,943,459.39*
	B20 - Exterior Enclosure	*$ 987,862.11*	*$ 987,862.11*
	B30 - Roofing	*$ 117,480.90*	*$ 117,480.90*
C.	**Interiors**	**$ 9,165,379.03**	**$ 9,165,379.03**
	C10 - Interior Construction	*$ 2,948,845.64*	*$ 2,948,845.64*
	C20 - Stairs	*$ 64,713.12*	*$ 64,713.12*
	C30 - Interior Finishes	*$ 6,151,820.27*	*$ 6,151,820.27*
D.	**Services**	**$ 18,717,527.77**	**$ 22,778,218.71**
	D10 - Conveying	*$ 1,411,422.00*	*$ 1,511,422.00*
	D20 - Plumbing	*$ 7,348,888.32*	*$ 8,332,288.32*
	D30 - HVAC	*$ 4,543,027.98*	*$ 5,852,632.10*
	D40 - Fire Protection	*$ 212,061.65*	*$ 217,061.65*
	D50 - Electrical	*$ 5,202,127.82*	*$ 6,864,814.64*
E.	**Equipment & Furnishings**	**$ -**	**$ -**
F.	**Special Construction***	**$ -**	**$ -**
	Building Sitework	**$ -**	**$ -**
	Total Cost	**$ 40,988,953.71**	**$ 45,049,644.65**

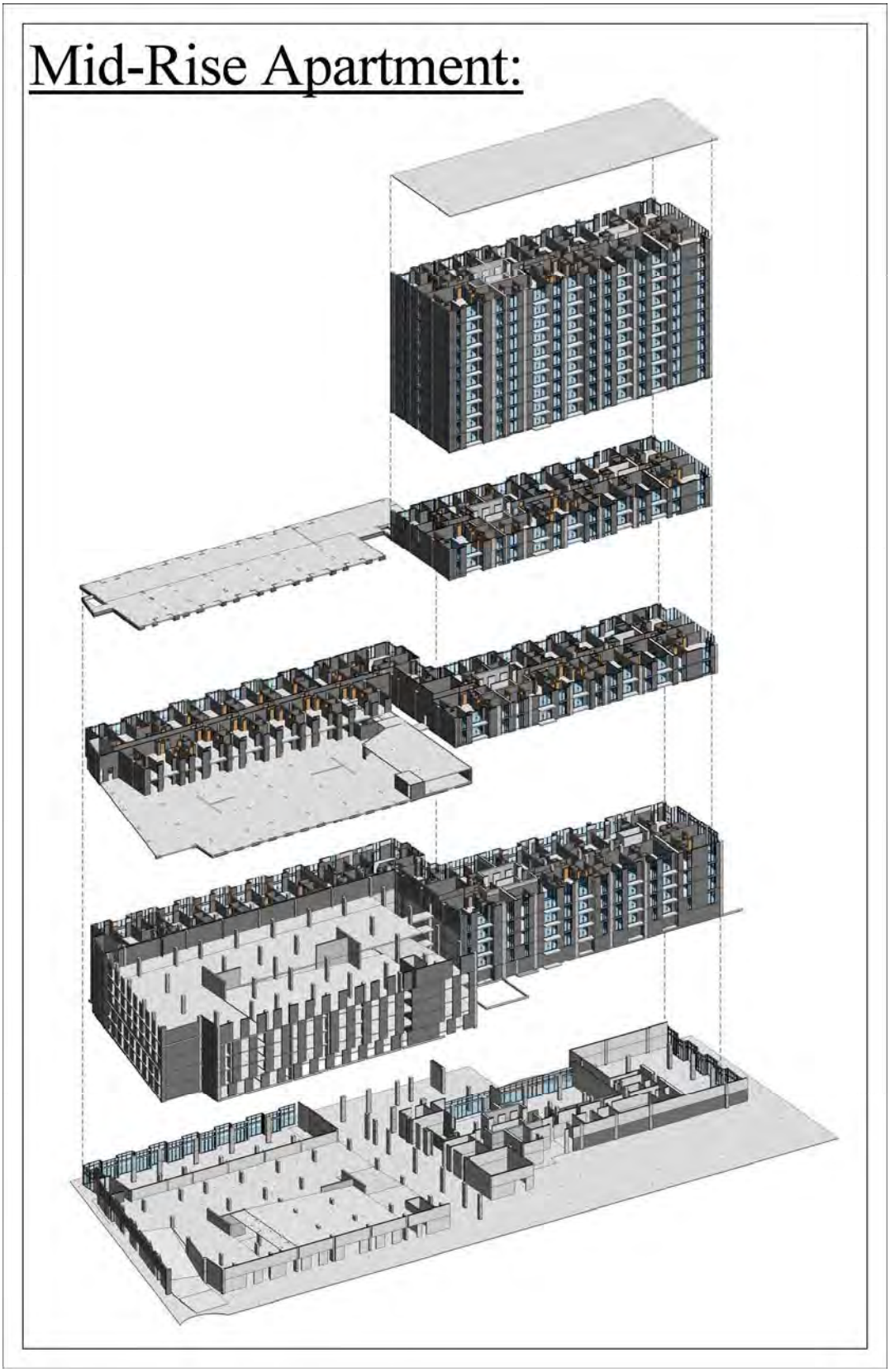

Figure E-1. 3D sections of Mid-Rise Apartment Building

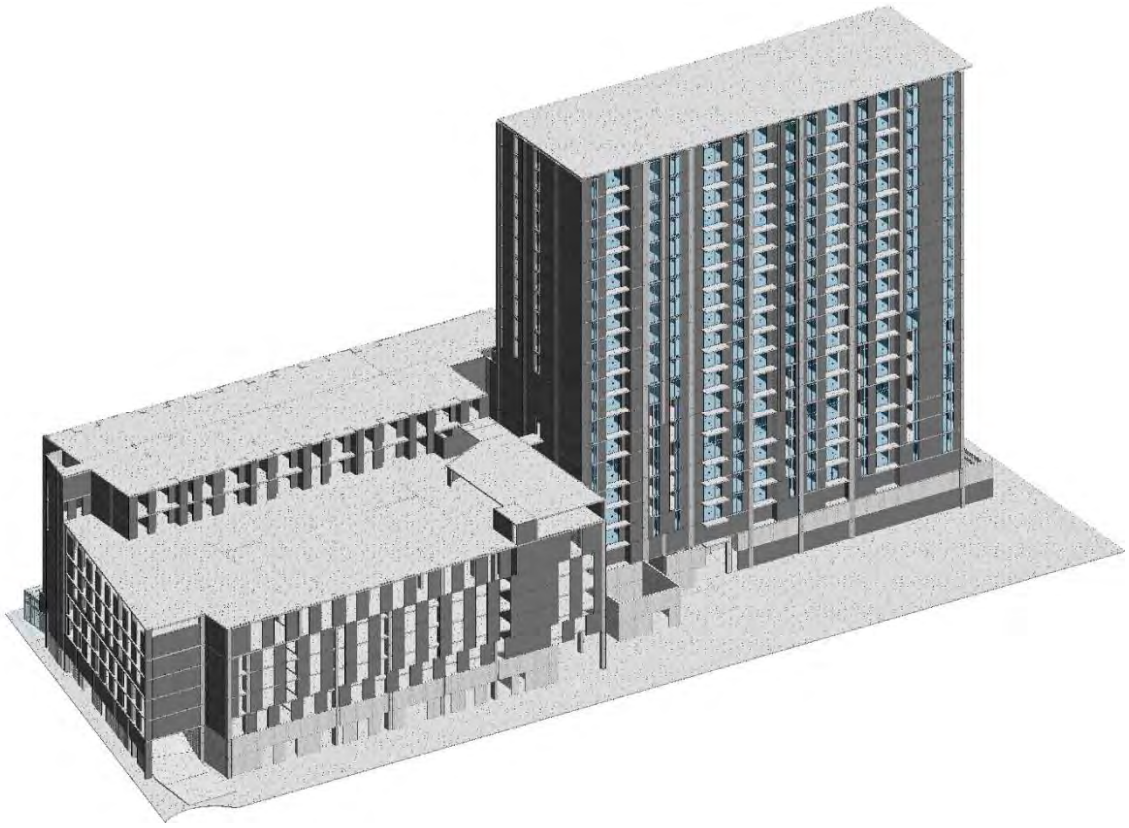

Figure E-2. 3D model of Mid-Rise Apartment Building

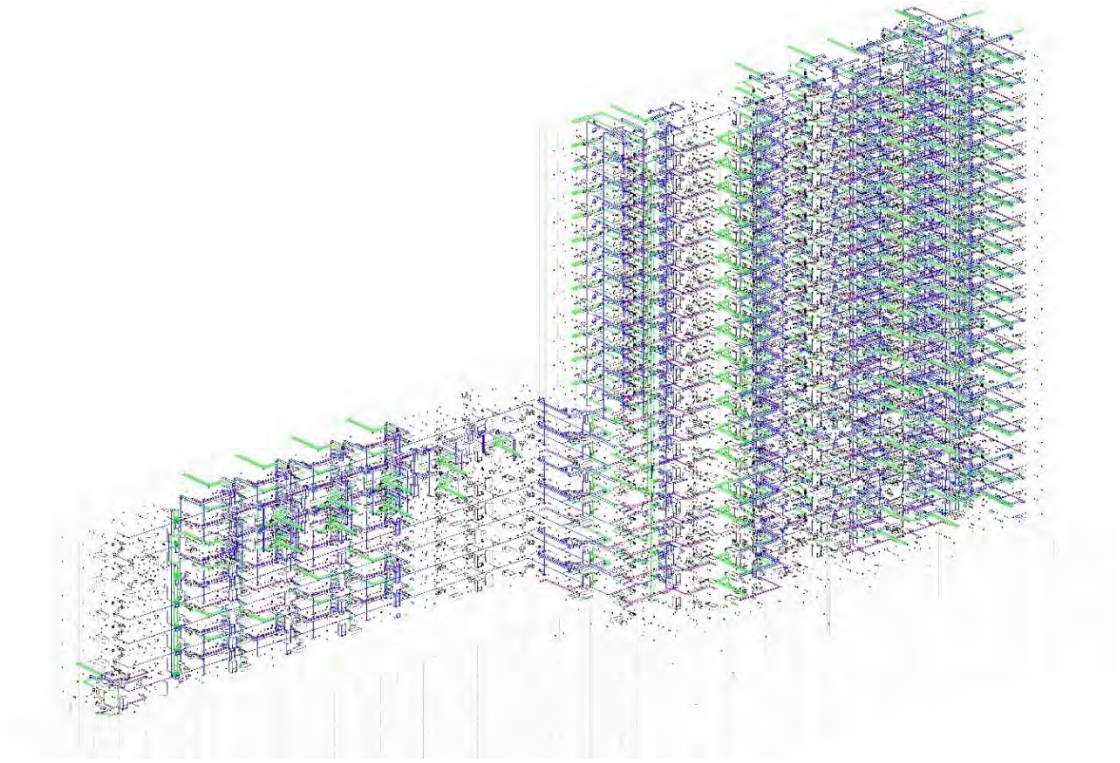

Figure E-2. 3D model of MEP systems for Mid-Rise Apartment Building

1-Story Residence

As shown in Figures F-1 thru F-3, the residence has three bedrooms and an open concept kitchen and family room. There is an attached 385 SF two car garage and a concrete outdoor area connected the family room and kitchen. The hip roof is constructed of pre-engineered roof trusses with a standard shingle roof covering. The proposed code changes impacted the 1 story residence at the mechanical and electrical levels of the prepared estimate. Approved plans based on the 2012 Florida building code were used to develop the model for estimation and code adjustments.

The mechanical level was impacted by the 2015 IECC C404.2, and R403.1.1 changes. These changes increase duct supports to no greater than 12' apart, increase water heater performance and add a programmable thermostat. The electrical level was impacted by proposed NEC 210.52G.1 code change. This change added one GFCI receptacle per car in the garage. The drawings used to develop this model already had GFCI outlets in the laundry room and within 6 feet of water as indicated in the proposed building code changes per proposed code change NEC 210.8.A. Overall the mechanical related changes accounted for the majority of the increase in cost.

Table F-1. 1-STORY RESIDENCE (2242 SF LIVING; 385 SF GARAGE) COST COMPARISON

		2012 FBC Estimated Cost	2015 FBC Estimated Cost
1	Site Work	$ -	$ -
2	Foundations	$ 15,183.07	$ 15,183.07
3	Framing	$ 35,933.84	$ 35,933.84
4	Exterior Walls	$ 37,565.83	$ 37,565.83
5	Roofing	$ 19,218.54	$ 19,218.54
6	Interiors	$ 42,192.90	$ 42,192.90
7	Specialties	$ -	$ -
8	Mechanical	$ 18,635.87	$ 21,935.87
9	Electrical	$ 13,710.87	$ 13,765.27
	Total Cost	$ 182,440.92	$ 185,795.82

Figure F-1. 3D sections of 1-Story Residence

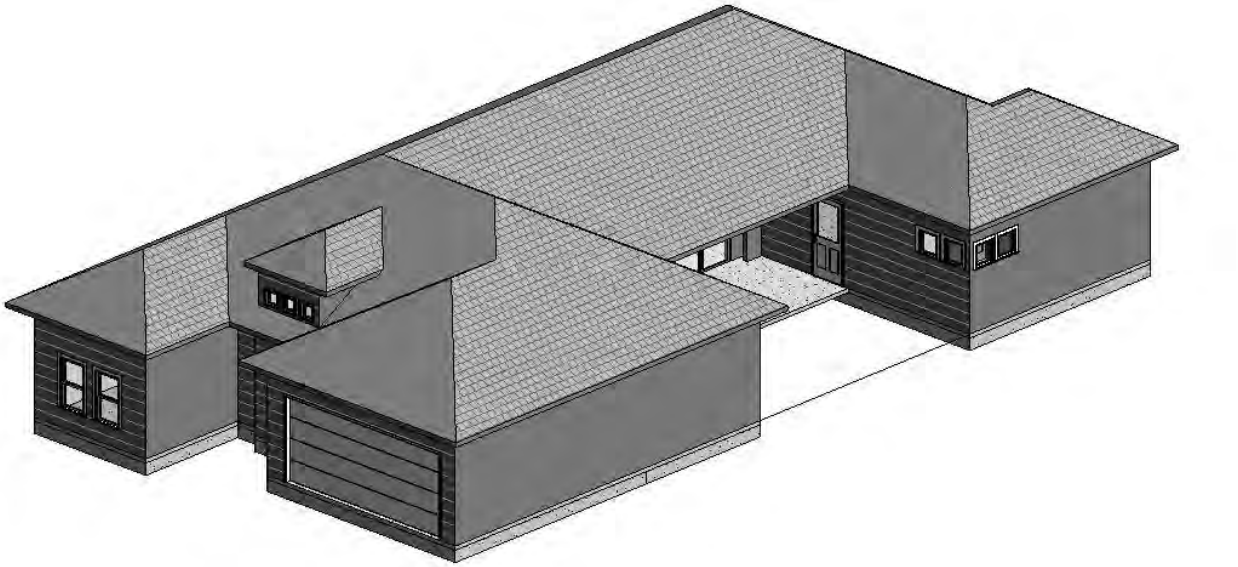

Figure F-2. 3D model of 1-Story Residence

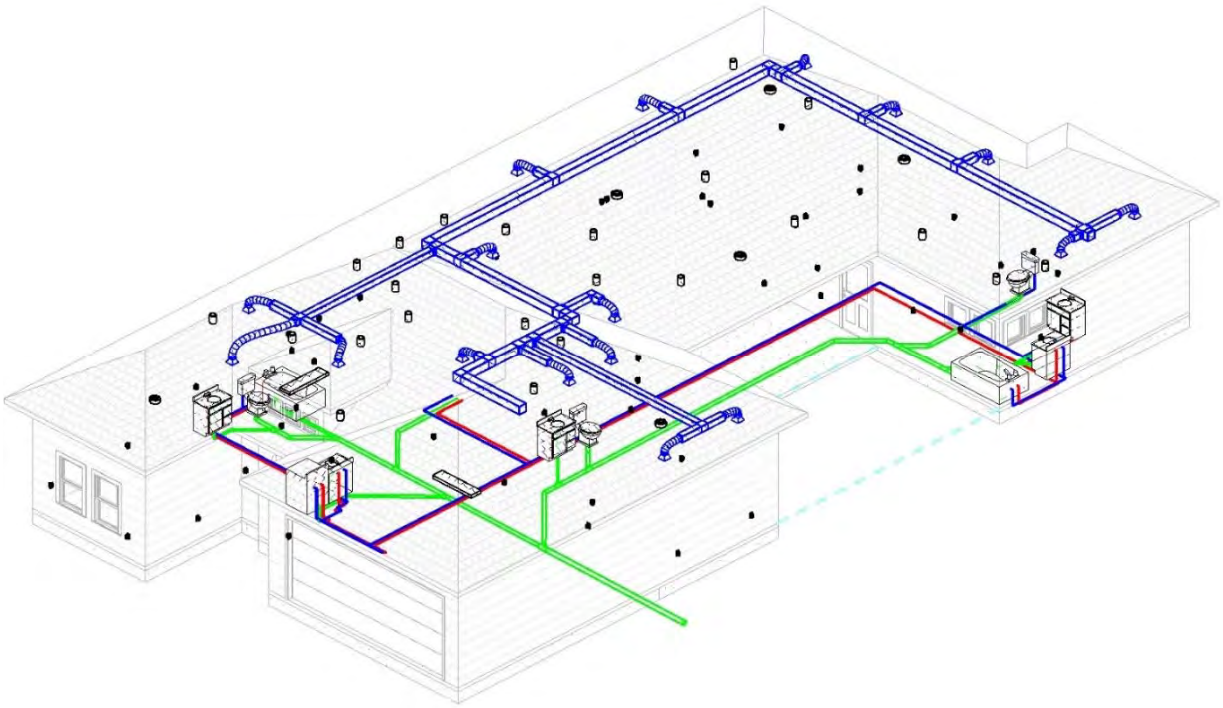

Figure F-3. 3D model MEP systems for 1-Story Residence

2-Story Residence

As shown in Figures G-1 thru G-3, the residence has three bedrooms with the master suite on the lower level and two bedrooms on the second level. There is a 497 SF attached two car garage and an open style floor plan on the first floor. In addition to the two bedrooms, the second level has a game room and a bathroom connected to the two bedrooms. The roof over the lower level is a hip roof and the second level has a gable roof. Both roofs are made from pre-engineered roof trusses with a standard roof shingle covering. The proposed code changes impacted the retail building at the mechanical level of the prepared estimate.

The mechanical level was impacted by the 2015 IECC C404.2, and R403.1.1 changes. These changes increase duct supports to no greater than 12' apart, increase water heater performance and add a programmable thermostat. The building code changes related to the electrical system did not have an impact on the estimate because the approved drawings used to develop the model already met the new electrical requirements. Specifically, the GFCI receptacle requirements indicated in the NEC 210.8A and 210.52.G.1 code changes were already met or exceeded. Overall the cost of the code changes accounted for a small percentage of the overall building cost.

Table G-1. 2-STORY RESIDENCE (4459 SF LIVING; 521 SF GARAGE) COST SUMMARY

		2012 FBC Estimated Cost	2015 FBC Estimated Cost
1	Site Work	$ -	$ -
2	Foundations	$ 19,080.41	$ 19,080.41
3	Framing	$ 54,989.45	$ 54,989.45
4	Exterior Walls	$ 52,161.63	$ 52,161.63
5	Roofing	$ 25,797.79	$ 25,797.79
6	Interiors	$ 64,566.66	$ 64,566.66
7	Specialties	$ 1,245.88	$ 1,245.88
8	Mechanical	$ 27,531.83	$ 31,131.83
9	Electrical	$ 26,694.26	$ 26,748.66
	Total Cost	$ 272,067.91	$ 275,722.31

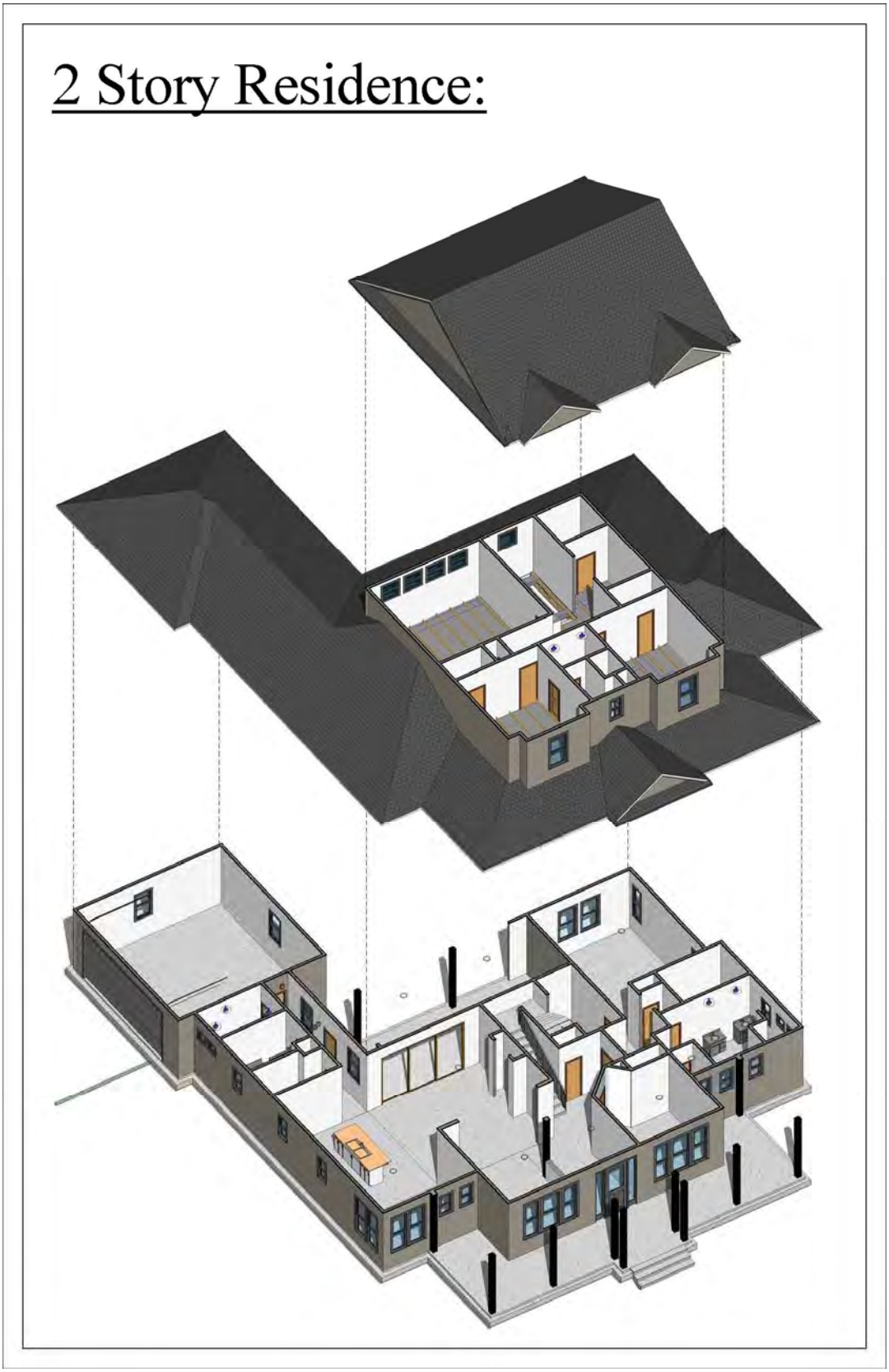

Figure G-1. 3D sections of 2-Story Residence

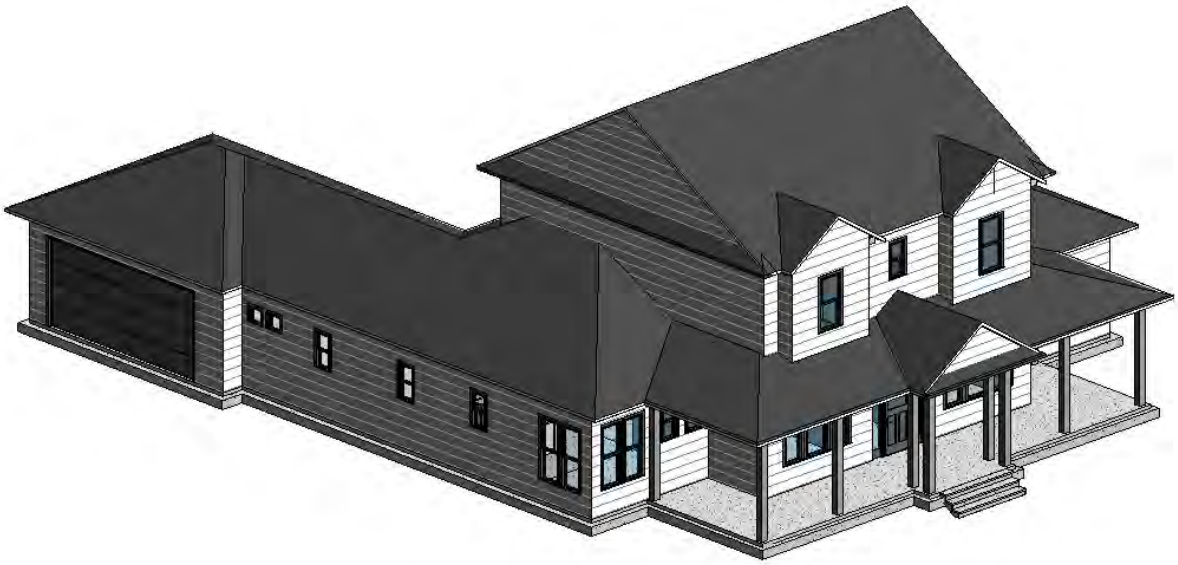

Figure G-2. 3D model of 2-Story Residence

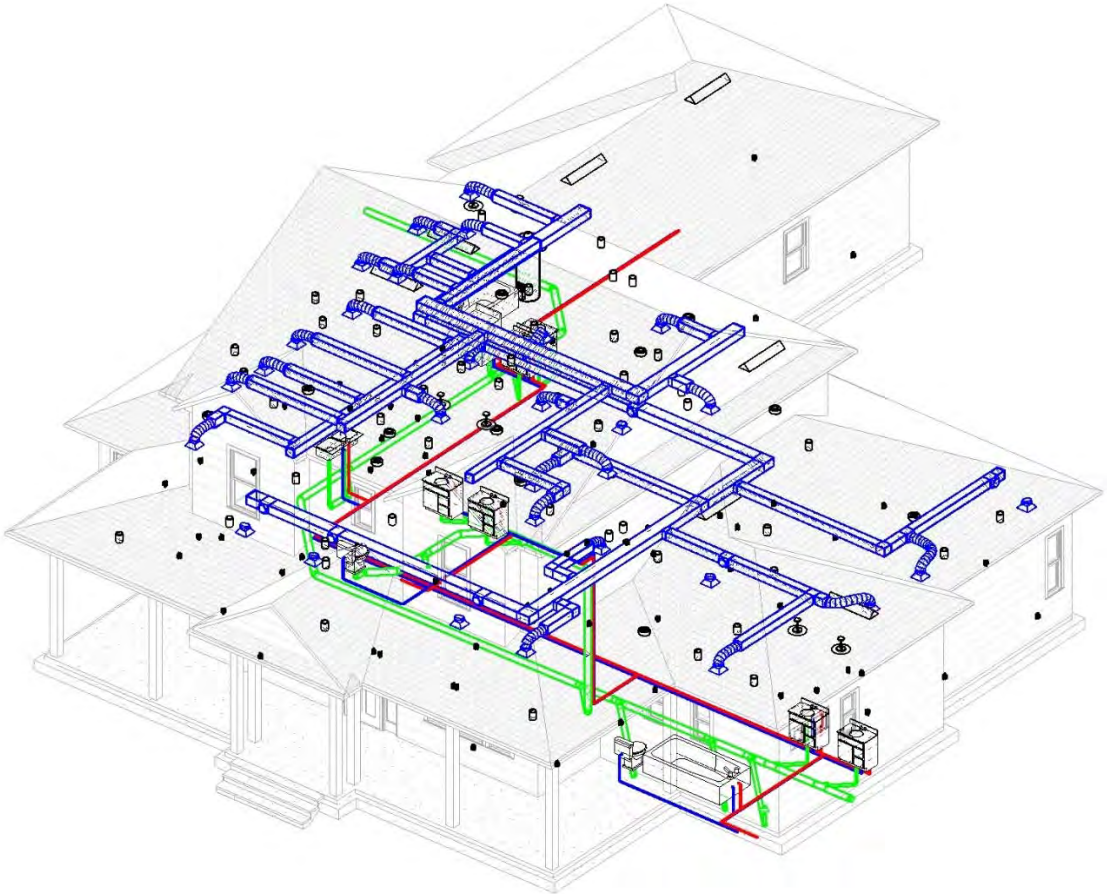

Figure G-3. 3D model MEP systems for 2-Story Residence

Conclusions and Recommendations

I-Codes 2015 changes that are prescriptive in nature and have the potential of impacting construction cost were identified and used to develop cost estimates for two prototype residential (2) and five prototype commercial/institutional building information models. These construction cost estimates were developed for both 2012 and 2015 I-codes based models of the same building.

RS Means 2016 Cost data was used to price these prototype buildings. Based on these construction cost estimates, it was determined that the relative increase in cost ranged from approximately 10% for the midrise 20-story apartment building prototype to approximately 0% for the elementary school building prototype. The estimated relative change in cost for the residences was approximately 2% for the 1-story house to approximately 1% for the 2-story house. The average changes in cost were 5.6% for the commercial/institutional buildings and 1.6% for the residences.

Future research should consider development of the models to include prospective Florida specific code changes in order to determine the cost impact of these changes. In addition, workshops should be conducted to introduce and encourage designers, builders and other code change petitioners to use the models to prospectively evaluate the cost impact of their proposed code changes. In addition, the modeling of other type of buildings should be explored to develop an even more diverse set of building models.

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APPENDIX A

Table 1. 2015 IBC MEP Changes Cost Impact					
CODE CHANGE #	2015 IBC MEP CHANGE SUMMARY	2015 IBC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
G8-12 Part I Section 202	IPC [B] DESIGN FLOOD ELEVATION IPC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).		X		
G8-12 Part II	Section 202: IMC [B] DESIGN FLOOD ELEVATION IMC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).		X		
G-8-12 Part IV	Section 202: IPSDC [B] DESIGN FLOOD ELEVATION IMC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).		X		
G40-12	Sections 202, 310.5, 310.5.2, IPC Table 403.1 310.5.2 Lodging houses. Owner occupied lodging houses with five or fewer guest rooms shall be permitted to be constructed in accordance with the International Residential Code.		X		
G59-12	Section 406.3.3.2 Ducts Part 1 of this code proposal adds a definition for private garage that is needed in the Code that clarifies the differences between a private garage, an open parking garage and an enclosed parking garage. Part 2 of this code proposal is the revision of Section 406.3.1 and the deletion of Section 406.3.2 which were carry-overs from one of the legacy codes		X		
G71-12 Part III	Sections 906.2, Table 906.3(1), Table 906.3(2), 907.2.6, 907.2.10.1 The change from "travel distance" to "distance of travel" more clearly distinguishes between "exit access travel distance"		X		

Table 1. 2015 IBC MEP Changes Cost Impact					
CODE CHANGE #	2015 IBC MEP CHANGE SUMMARY	2015 IBC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
G146-12	Section 1203.2 Attic Spaces 1203.2 Attic spaces. 1. The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided ~~that not less than 50 percent and not more than 80 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents~~. Both of the following conditions are met: 1.1. In Climate Zones 6, 7 and 8, a Class I or II vapor retarder is installed on the warm-inwinter side of the ceiling. 1.2 At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted~~. 2. The net free cross-ventilation area shall be permitted to be reduced to 1/300 where a Class I or II vapor barrier is installed on the warm-in-winter side of the ceiling. 3~~2. ~~Attic~~ Ventilation of attic spaces under low slope roof assemblies shall not be required when determined not necessary by the building official due to atmospheric or climatic conditions.		X		
G149-12	Sections 202, 1203.2, 1203.3, Table 1203.2 Unvented roof assemblies - both attic and cathedral ceiling - are a proven technology. They give the designer significant flexibility in locating mechanical equipment and ductwork inside of conditioned spaces thereby saving energy. They significantly improve the airtightness of the building enclosure thereby saving energy. They reduce wind uplift forces and reduce the risk of wildfire damage. They eliminate the problems associated with wind driven rain entering roof vents during hurricanes. The language in this proposed section is modeled on the existing language in the IRC Section 806.5. The "air-impermeable insulation" definition is the same as in the IRC.		X		
G153-12	Section 1204.1 Equipment and systems 1204.1 Equipment and systems. 2. Group F, H, S or U occupancies.		X		
G168-12 Part I	Section(s): Table 1607.1, 3004.2, 3006.1 through 3006.5, 3007.2, 3007.3.1, 3007.7.3, 3008.3.1, 3008.7.3, 3008.8, 3008.9.1 The ASME A17.1 Safety Code for Elevators and Escalators underwent a substantial revision in 2005 to incorporate requirements for Machine Room-Less elevators (MRLs). These provisions are in ASME A17.1-2007/CSA B44-07 with A17.1a- 2008/CSA B44a-08 Addenda that is referenced in Chapter 35 of the 2012 IBC.		X		
G179-12	Section: 3007.9 3007.9 Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and		X		

Table 1. 2015 IBC MEP Changes Cost Impact					
CODE CHANGE #	2015 IBC MEP CHANGE SUMMARY	2015 IBC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Type 60/Class 2/Level 1 standby power: 1. Elevator equipment. 2. Elevator hoistway lighting. 3. ~~Elevator machine room~~ Ventilation and cooling equipment <u>for elevator machine/control rooms, and machinery/control spaces.</u> 4. Elevator ~~controller cooling equipment~~ <u>car lighting.</u>				
G185-12	Section: 3008.9 3008.9 Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power: 1. Elevator equipment.2. ~~Elevator machine room~~ Ventilation and cooling equipment <u>for elevator machine/control rooms, and machinery/control spaces.</u> 3. Elevator ~~controller cooling equipment~~ <u>car lighting.</u>		X		
E2-12 Part I	CHAPTER 12 INTERIOR ENVIRONMENT SECTION 1205 LIGHTING The proposal revised the use of 'stair' and 'stairway' throughout the code so that the application matches the defined terms. This will clarify when requirements are intended for a change in elevation (i.e., stair) vs. a change in story (i.e., stairway). There was some concern about the style choice to say 'exit access stairway and ramp' vs. using the specific defined terms 'exit access stairways and exit access ramps'.		X		
E2-12 Part II	IMC CHAPTER 11 REFRIGERATION IMC SECTION 1107 REFRIGERANT PIPING IMC 306.5.1 (IFGC [M] 306.5.1) Sloped roofs. Where appliances, equipment, fans or other components that require service are installed on a roof having a slope of three units vertical in 12 units horizontal (25- percent slope) or greater and having an edge more than 30 inches (762 mm) above grade at such edge, a level platform shall be provided on each side of the appliance or equipment to which access is required for service, repair or maintenance. The platform shall be not less than 30 inches (762 mm) in any dimension and shall be provided with guards. The guards shall extend not less than 42 inches (1067 mm) above the platform, shall be constructed so as to prevent the passage of a 21-inch diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the International Building Code. Access shall not require walking on roofs having a slope greater than four units vertical in 12 units horizontal (33-percent slope). Where access involves obstructions greater than 30 inches (762 mm) in height, such obstructions shall be provided with ladders installed in accordance with Section 306.5 or ~~stairs~~ <u>stairways</u> installed in accordance with the requirements specified in the International Building Code in the path of travel to and from appliances, fans or equipment requiring service. MC 1107.2 Piping location. Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be		X		

Table 1. 2015 IBC MEP Changes Cost Impact					
CODE CHANGE #	2015 IBC MEP CHANGE SUMMARY	2015 IBC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	placed in any elevator, dumbwaiter or other shaft containing a moving object or in any shaft that has openings to living quarters or to means of egress. Refrigerant piping shall not be installed in an enclosed public stairway, ~~stair~~ stairway landing or means of egress.				
E200-12	DOES NOT APPLY TO FLORIDA				
E201-12	DOES NOT APPLY TO FLORIDA				
S102-12	Section(s): 202 (New), 1403.7, 1603.1.7, 1612.4, 1612.5, G103.7, G301.2, G401.2; IPC 309.3; IMC 301.16.1 This proposal is to insert the term "coastal A zone" wherever the term "flood hazard area subject to high velocity wave action" appears		X		
S103-12 Part I	Section(s): 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3, IMC M301.16.1 This proposal is to simply replace one term with another and edit the definition to be consistent with how the term is defined in ASCE 24. The term "Flood Hazard Area Subject to High-Velocity Wave Action" is descriptive of the flood hazard areas designated Zone V on Flood Insurance Rate Maps. However, the term is not used by the NFIP, nor is it used in the IRC or in ASCE 24, which is referenced by the IBC (1612.4). The NFIP regulations define "coastal high hazard area" at 40 CFR 59.1.		X		
S103-12 Part II	Section(s): 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3, IMC M301.16.1 This proposal is to simply replace one term with another and edit the definition to be consistent with how the term is defined in ASCE 24. The term "Flood Hazard Area Subject to High-Velocity Wave Action" is descriptive of the flood hazard areas designated Zone V on Flood Insurance Rate Maps. However, the term is not used by the NFIP, nor is it used in the IRC or in ASCE 24, which is referenced by the IBC (1612.4). The NFIP regulations define "coastal high hazard area" at 40 CFR 59.1.		X		
S103-12 Part III	Section(s): 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3, IMC M301.16.1 This proposal is to simply replace one term with another and edit the definition to be consistent with how the term is defined in ASCE 24. The term "Flood Hazard Area Subject to High-Velocity Wave Action" is descriptive of the flood hazard areas designated Zone V on Flood Insurance Rate Maps. However, the term is not used by the NFIP, nor is it used in the IRC or in ASCE 24, which is referenced by the IBC (1612.4). The NFIP regulations define "coastal high hazard area" at 40 CFR 59.1.		X		
P26-12	403.1 (IBC [P] 2902.1) Minimum number of fixtures. 403.1 (IBC [P] 2902.1) Minimum number of fixtures. Plumbing fixtures shall be provided ~~for the type of occupancy~~ and in the minimum number as shown in Table 403.1 based upon the actual use of the building or space. Types of occupancies Uses not shown in Table 403.1 shall be considered individually by the code official. The		X		

Table 1. 2015 IBC MEP Changes Cost Impact					
CODE CHANGE #	2015 IBC MEP CHANGE SUMMARY	2015 IBC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	number of occupants shall be determined by the International Building Code. ~~Occupancy classification shall be determined in accordance with the International Building Code.~~				
P30-12	Section(s): Table 403.1 (IBC [P]2902.1), 410.2 (New) (IBC 2902.6 (New)) d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required~~. e. The minimum number of required drinking fountains shall comply with Table 403.1 and Chapter 11 of the International Building Code. f. Drinking fountains are not required for an occupant load of 15 or fewer.~~ e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required. 410.2 (IBC 2902.6)Small occupancies. Drinking fountains shall not be required for an occupant load of 15 or fewer.		X		
P35-12	403.3 (IBC [P] 2902.3) Required public toilet facilities. Exceptions: Public toilet facilities shall not be required in: 1. Open or enclosed parking garages. ~~Toilet facilities shall not be required in parking garages~~ where there are no parking attendants. 2. Structures and tenant spaces intended for quick transactions, including take out, pick up and drop off, having a public access area less than or equal to 300 square feet.		X		
M36-12, Part II	Section(s): 401.2, Table 403.3; 407 (New); Chapter 15, IBC 1203.1 1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the International Mechanical Code. Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure 0.2 inch w.c. (50 Pa) in accordance with Section 402.4.1.2 of the International Energy Conservation Code, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403 of the International Mechanical Code. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the International Mechanical Code.		X		

*For prescriptive Code changes only.

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APPENDIX B

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE61-13 Part I & II	Editorial correction in Tables C301.1 and R301.1		X		
CE62-13 Part I & II	Amended Tables C301.1 and R301.1 (IRC Table N1101.10) and Figures R301.1 (IRC Figure N1101.10), C301.1 to end the Warm-Humid white line at the line separating the Dry (B) and Moist (A) moisture zones and other corrections on Texas map.		X		
CE63-13 Part I & II	Amended Sections C303.1.1 and R303.1.1 (IRC N1101.12.1) to require that R-value to be labeled on the product's package and listed on the certification.		X		
CE65-13 Part I & II	Added to Sections C303.1.3 and R303.1.3 (IRC N1101.12.3) exception to allow the use of ANSI/DASMA 105-2004Test Method for Thermal Transmittance and Air Infiltration of Garage Doors.		X		
CE66-13 Part I & II	Amended Sections C301.4 (NEW), R301.4 (NEW) (IRC N1101.10.3 (NEW)), and R406 (NEW) (IRC N1106 (NEW)) to create a tropical climate zone, which is a subset of IECC climate zone 1. Part II also creates a residential "deemed to comply" option for the tropical island climate based on their traditional residential construction.		X		
CE67-13 Part I & II	Added Sections C303.1.4.1 (NEW), and R303.1.4.1 (N1101.12.4) (NEW), to require that the thermal resistance (R-value) of insulated siding shall be determined in accordance with ASTM C1363.		X		
CE69-13	Amended Sections C401.1 to change scope to apply code to commercial buildings and the buildings sites and associated systems and equipment,		X		
CE75-13	Added Section C401.2.2 to clarify that whenever an entire new fenestration product or assembly replaces some or all of an existing fenestration product (typical in remodeling or modernization of buildings), the new fenestration product must meet the U-factor and SHGC requirements of Table 402.3.		X		
CE77-13	Amended Sections C402.1, C402.1.1, and C402.1.1 to clarify the application of the different methods of the code for building envelope to distinguish the difference in the R-value based method from the U-, C- and F-factor based methodology and links the code to the related tables.		X		
CE79-13	Amended Section C402.1.1 and Table C402.2 to clarify the use and application of the codes prescriptive building thermal envelope provisions.		X		
CE81-13	Amended Section C402.1.1 to clarify that commercial buildings built to the prescriptive option under Section 402 must meet all the requirements of the insulation and fenestration sections, and not just the prescriptive tables.		X		
CE82-13	Amended Sections C402.1.1, C402.1.2, and C402.2.4 clarifies the code in making sure that the methodologies of Tables C402.2 and Table 402.1.2 apply to below grade walls.		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE85-13	Amended Section C402.1.2.1, and Table C402.2.3 to provide a methodology for calculating U-factors for steel stud wall assemblies.		X		
CE88-13	Added to Sections C402.1 and C402.1.3 to provide an alternative component performance path for commercial buildings parallel to the "Total UA Alternative" for residential buildings in Section R402.1.4, but accounting for slab edge F-factors, basement wall C-Factors, and fenestration areas in excess of the code limits.		X		
CE91-13	Amended Tables C402.1.2 and C402.2 to modify the thermal envelope requirements for above-deck roof insulation to be consistent with the revised ASHRAE 90.1 Addendum bb to ensure that the IECC is at least as efficient as 90.1,		X		
CE94-13	Corrected Table C402.1.2 for U-factors as shown for the row for "Mass Walls, Above Grade" for the Climate Zones 1, 2, 3, 6, and 7 to correct these errors		X		
CE95-13	Corrected Table C402.1.2 for U-factors as shown for the row for "Mass Walls, Above Grade" for the Climate Zones 1, 2, 3, 6, and 7 to correct these errors		X		
CE96-13	Amended Section C402.2.5 and Tables C402.1.2 and Table C402.2 to clarify the use and application of the codes prescriptive building thermal envelope provisions for floors assemblies.		X		
CE101-13	Amended Table C402.1.2 to clarify its use for heated slabs.		X		
CE103-13	Amended Sections C402.1.1, C402.1.2 and C402.2.7 and Tables C402.1.2 and C402.2 to clarify their use for opaque doors.		X		
CE104-13	Amended Table C402.1.2 to clarify that the ASHRAE 90.1 Appendix A U-Factors can be used for compliance even if the siding system differs from the stucco siding system assumed in 90.1 and recognizes results of hot box laboratory tests conducted in accordance with ASTM C1363 for compliance with the code.		X		
CE105-13	Added to Sections C402.2 and C402.2.1 breaks out the specific requirement for continuous insulation into a separate subsection in agreement with other subsections of Section C402.2.		X		
CE109-13	Corrected Table C402.2 to eliminate thermal block requirements for metal buildings.		X		
CE111-13	Amended Table C402.2 to replace roll-up or sliding door with non-swinging door.		X		
CE114-13	Amended Section C402.2.1 to clarify when a skylight curb can be exempted from meeting the requirements for insulating the curb.		X		
CE115-13	Amended Section C402.2.1 to clarify the Code's intent how R-value is determined when using slope-to-drain tapered insulation systems in roof assemblies using the insulation entire above deck configuration.		X		
CE117-13	Amended Sections C402.1, and C402.1.1 and Table C402.2.1.1 to create Section C402.3 for solar reflectance and emittance.		X		
CE118-13	Added to C202, and C402.2.1.1 a definition for the term "low slope roof."		X		
CE119-13	Added to Table C402.2.1.1 the CRRC-1 cool roof rating standard.		X		
CE121-13	Added to Section C402.1.1.1 and Table C402.2.1.1 modification that retains the existing testing standards so that products which had been		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	tested under them do not need to be retested under CRRC-1, which provides a method by which aged solar reflectance can be determined where testing has not been completed.				
CE124-13	Modified Sections C202, C402.2.2, C402.2.2.1,and C402.2.2.2 to replace the current text indicating how to determine a wall classification with a formal definition of each wall type		X		
CE126-13	Amended Section C402.2.3 to clarify the thermal resistance provisions in the code related to above-grade walls.		X		
CE127-13 Part I	Modified Sections C402.2.3 and R402.2.5 (IRC N1102.2.5) to add a heat capacity provision to mass wall definition to be consistent with IRC definition.		X		
CE128-13	Modified Section C402.2.4 to clarify where and how insulation is to be installed on below-grade walls.		X		
CE130-13	Modified Section C402.2.5 to ensure that insulation applied in floors over outside air or unconditioned spaces is in contact with the underside of the floor deck above.		X		
CE131-13	Modified Section C402.2.5 title to clarify that it applies only to the perimeter insulation associated with slab-on-grade construction.		X		
CE133-13	Modified Sections C202, and C402.2.7 to clarify when doors are considered part of the opaque wall and subject to thermal requirements for the wall, and when doors are fenestration and subject to those requirements.		X		
CE134-13	Modified Sections C202, and C402.2.8 to clarify that panels installed in building thermal envelope assemblies must be insulated in accordance with the requirements of the assembly in which they are installed and to require that insulation of R-3.5 on the non-radiant surface when installed in interior assemblies.		X		
CE137-13	Modified Sections C202, C402.3, C402.3.1.1, C402.3.1.2, C402.3.2.1, C402.3.3.3, and C402.3.3.4 and Table C406.3, C408.3.1 to introduce “Daylight responsive controls” to replace various terms used for that purpose.		X		
CE139-13	Modified Sections C402.3, C402.3.1.1 and C402.3.1.2 to clarify daylighting control provisions associated with fenestration and increased skylight area and locate in a more appropriate subsection to foster implementation and compliance verification.		X		
CE140-13	Modified the title of Table C402.3 to make it more comprehensive.		X		
CE142-13	Modified Sections C402.3.3 and C402.3.3.1 and Tables C402.3 and C402.3.3.1 to correct a technical error in the SHGC shading adjustment, and increase the enforceability and usability of the vertical fenestration requirements.		X		
CE148-13	Modified Section C402.3.2 to create an exception to skylights above daylight zones for spaces where the total area minus the area of daylight zones adjacent to vertical fenestration is less than 2,500 square feet, and where the lighting is controlled according to Section C405.2.2.3.2.			X	
CE149-13	Modified Section C402.3.2 to clarify the requirement of skylights in roofs covering areas greater than 10,000 ft2		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE152-13	Added Section C402.3.3 to create an incentive for designers to increase daylight zones with exceptions for spaces where daylighting would interfere with the function of the space, provide little benefit, or not be feasible.		X		
CE153-13	Modified Section C402.3.2.2 to clarify the testing requirements for fenestration haze factor to reference ASTM D 1003.		X		
CE154-13	Modified Section C402.3.2.2 to include specific reference procedures in ASTM D 1003.		X		
CE155-13	Modified Section C402.3.3 to clarify the provisions in the code related to maximum U-factor and SHGC, to increase simplicity of the code.		X		
CE158-13	Modified Section C402.3.3.2 to eliminate an exception to the fenestration SHGC requirement because it does not produce equivalent energy savings.		X		
CE161-13 Part I	Modified Sections C402.3.3.5 and R402.3.2 (IRC N1102.3.2) to clarify the intent of dynamic glazing and that it has to be automatically controlled in multiple steps.		X		
CE161-13 Part II	Modified Sections C402.3.3.5 and R402.3.2 (IRC N1102.3.2) to clarify the intent of dynamic glazing and that it has to be automatically controlled in multiple steps.		X		
CE164-13	Modified Sections C402.4, C402.4.1.2, and C402.4.1.2.3 to clarify the language pertaining to the sealing of penetrations in the building thermal envelope associated with continuous air barriers so that all three compliance options associated with air barriers are equivalent.		X		
CE165-13	Modified Sections C402.4 to clarify the Code's intent regarding when air barriers are and are not required as components of buildings' thermal envelopes and upon further discussion moved to C101.4.3.		X		
CE166-13	Modified Section C402.4.1 to remove the exception for air barriers in All Climate Zones except Zone 2B.		X		
CE167-13	Modified Sections C402.4.1.1 and C402.4.2 to clarify air barrier penetrations in the building envelope.		X		
CE173-13	Added to Section C402.4.1.2.1 as deemed to comply as an air barrier, solid or hollow masonry constructed of clay or shale masonry units.		X		
CE177-13, Part II	Section(s): C402.4.1.2 (NEW), R402.1.2 (NEW), (IRC N1102.4.1.2 (NEW)) R402.4.1.2 Combustion air openings. In climate zones 3 through 8, where open combustion air ducts provide combustion air to open combustion, space conditioning fuel burning appliances, the appliances and combustion air openings shall be located outside of the building thermal envelope, or enclosed in a room isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.1, where the walls, floors and ceilings shall meet the minimum of the below- grade wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.		X		Negligible cost as change should reflect an update to the design and contract documents

Table 2. 2015 IECC Changes Cost Impact					
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		Decrease	None	Increase	
Sub Code:					
	Exceptions: 1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside. 2. Fireplaces and stoves complying with Section 402.4.2 and Section R1006 of the *International Residential Code*.				
CE179-13 Part I & II	Modified Sections C402.4.2 to prohibit field caulking or sealing of concealed sprinklers except as per manufacturer's recommendations.		X		
CE182-13	Added to Table C402.4.3 air leakage rate for high speed doors.		X		
CE183-13	Modified Section C402.4.4 to clarify that the components covered in the section on doors and access openings to shafts, chutes, stairways, and elevator lobbies are subject to air leakage provisions as components of the building thermal envelope, and to provide a distinction between these doors and other doors that are already covered within the scope of fenestration assemblies		X		
CE184-13	**Revise as follows:** ~~**C402.4.4 Doors and access openings to shafts, chutes, stairways, and elevator lobbies.** Doors and access openings from conditioned space to shafts, chutes stairways and elevator lobbies shall either meet the requirements of Section C402.4.3 or shall be gasketed, weatherstripped or sealed.~~ ~~**Exception:** Door openings required to comply with Section 715 or 715.4 of the *International BuildingCode*; or doors and door openings required by the *International Building Code* to comply with UL 1784 shall not be required to comply with Section C402.4.4.~~ **C402.4.5 Air intakes, exhaust openings, stairways and shafts.** Stairway enclosures and elevator shaftvents and other outdoor air intakes and exhaust openings integral to the building envelope shall be provided with dampers in accordance with Sections C402.4.5.1 and C402.4.5.2 C403.2.4.4. ~~**C402.4.5.1 Stairway and shaft vents.** Stairway and shaft vents shall be provided with Class I motorized dampers with a maximum leakage rate of 4 cfm/ft2 (20.3 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~ ~~Stairway and shaft vent dampers shall be installed with controls so that they are capable of automatically opening upon:~~ ~~1. The activation of any fire alarm initiating device of the building's fire alarm system; or~~ ~~2. The interruption of power to the damper.~~ ~~**C402.4.5.2 Outdoor air intakes and exhausts.** *Outdoor air* supply and exhaust openings shall be~~ ~~provided with Class IA motorized dampers with a maximum leakage rate of 4 cfm/ft2 (20.3 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~ ~~**Exceptions:**~~ ~~1. Gravity (nonmotorized) dampers having a maximum leakage rate of 20 cfm/ft2 (101.6 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D are~~ ~~permitted to be used as follows:~~		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~1.1 In buildings for exhaust and relief dampers.~~ ~~1.2 In buildings less than three stories in height above grade.~~ ~~1.3. For ventilation air intakes and exhaust and relief dampers in buildings of any height located in Climate Zones 1, 2 and 3. 1.4. Where the design *outdoor air* intake or exhaust capacity does not exceed 300 cfm (141 L/s). Gravity (nonmotorized) dampers for ventilation air intakes shall be protected from direct exposure to wind.~~ ~~2. Dampers smaller than 24 inches (610 mm) in either dimension shall be permitted to have a leakage of 40 cfm/ft2 (203.2 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~ **C403.2.4.4 Shutoff dampers.** Outdoor air intake and exhaust openings and stairway and shaft vents shall be provided with Class 1 motorized dampers having a maximum air leakage rate of 4 cfm/ft2 of damper surface area at 1.0 inch water gauge when tested in accordance with AMCA 500D. Outdoor air intake and exhaust dampers shall be installed with automatic controls configured to close when the systems or spaces served are not in use or during unoccupied period warm-up and setback operation unless the systems served require outdoor or exhaust air in accordance with the *International Mechanical Code* or the dampers are opened to provide intentional economizer cooling. Stairway and shaft vent dampers shall be installed with automatic controls configured to open upon the activation of any fire alarm initiating device of the building's fire alarm system or the interruption of power to the damper. **Exceptions:** Gravity (non-motorized) dampers shall be permitted to be used as follows: 1. In buildings less than three stories in height above grade plane. 2. In buildings of any height in climate zones 1, 2 or 3. 3. Where the design exhaust capacity is not greater than 300 cfm. All gravity (non-motorized) dampers shall have a maximum air leakage rate of 20 cfm/ft2 where not less than 24 inches in either dimension and 40 cfm/ft2 where less than 24 inches in either dimension. The rate of air leakage shall be determined at 1.0 inch water gauge when tested in accordance with AMCA 500D.				
CE186-13	Section(s): C402.4.5.1 C402.4.5.1 Stairway and shaft vents. Stairway and shaft vents shall be provided with Class I motorized dampers. Dampers shall have ~~with~~ a maximum leakage rate of 4 cfm/ft2 (20.3 L/s · m2) at 1.0 inch water gauge (w.g.) (249 Pa) and shall be labeled by an *approved agency* when tested in accordance with AMCA 500D for such purpose. Stairway and shaft vent dampers shall be installed with controls so that they are capable of automatically opening upon: 1. The activation of any fire alarm initiating device of the building's fire alarm system; or 2. The interruption of power to the damper.		X		$60.00 to $70.00 per SF of Damper area

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE187-13	Section(s): C402.4.5.2 C402.4.5.2 Outdoor air intakes and exhausts. *Outdoor air* supply and exhaust openings shall be provided with Class IA I motorized dampers with a maximum leakage rate of 4 cfm/ft2 (20.3 L/s · m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D. Exceptions: 1. Gravity (nonmotorized) dampers having a maximum leakage rate of 20 cfm/ft2 (101.6 L/s · m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D are permitted to be used as follows: 1.1. In buildings for exhaust and relief dampers. 1.2. In buildings less than three stories in height above grade. 1.3. For ventilation air intakes and exhaust and relief dampers in buildings of any height located in Climate Zones 1, 2 and 3. 1.4.Where the design *outdoor air* intake or exhaust capacity does not exceed 300 cfm (141 L/s). Gravity (nonmotorized) dampers for ventilation air intakes shall be protected from direct exposure to wind. 2. Dampers smaller than 24 inches (610 mm) in either dimension shall be permitted to have a leakage of 40 cfm/ft2 (203.2 L/s · m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.		X		
CE192-13	Modified Sections C202, and C402.4.7 to allow an air curtain to be used as a low cost, low maintenance alternative to a vestibule, thereby saving valuable floor space and creating an invisible, energy saving barrier when the door is open.	X			
CE193-13	Section(s): C402.4.8 C402.4.8 Recessed lighting. Recessed luminaires installed in the building thermal envelope shall be: ~~sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be~~ 1. IC-rated, ~~and~~ 2. L~~l~~abeled as having an air leakage rate of not more than 2.0 cfm when tested in accordance with ASTM D E 283 at a 1.57 psf pressure differential, and. ~~All recessed luminaires shall be s~~ 3. Sealed with gasket or caulk between the housing and interior wall or ceiling covering.		X		
CE194-13	Modified Sections C202, C402.1, C402.5, C403.1, C403.5, C403.6, C405.1, and C405.10 to provide basic minimum performance levels for walk-in coolers and freezers, and for refrigerated warehouse coolers and refrigerated warehouse freezers.			X	
CE196-13	Section(s): C403.2.1 C403.2.1 Calculation of heating and cooling loads. Design loads associated with heating, ventilating and air conditioning of the building shall be determined in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent computational procedure		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	using the design parameters specified in Chapter 3. Heating and cooling loads shall be adjusted to account for load reductions that are achieved where energy recovery systems are utilized in the HAVAC system in accordance with the ASHRAE HVAC Systems and Equipment Handbook by an approved equivalent computational procedure.				
CE198-13	Section(s): C403.2.2 C403.2.2 Equipment ~~and system~~ sizing. The output capacity of heating and cooling equipment ~~and systems~~ shall not exceed the loads calculated in accordance with Section C403.2.1. A single piece of equipment providing both heating and cooling shall satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options. Exceptions:1. Required standby equipment and systems provided with controls and devices that allow such systems or equipment to operate automatically only when the primary equipment is not operating. 2. Multiple units of the same equipment type with combined capacities exceeding the design load and provided with controls that have the capability to sequence the operation of each unit based on load.		X		
CE200-13	Section(s): Table C403.2.3(1), Table C403.2.3(2), Table C403.2.3(3), Table C403.2.3(8), Chapter 5 MINIMUM EFFICIENCY REQUIREMENTS: ELECTRICALLY OPERATED UNITARY AIR CONDITIONERS AND CONDENSING UNITS			X	$1-2 per Ton of Equipment
CE201-13	Section(s): C202 (NEW), Table 403.2.3(9) (NEW), Chapter 5 MINIMUM EFFICIENCY AIR CONDITIONERS AND CONDENSING UNITS SERVING COMPUTER ROOMS			X	$1-2 per Ton of Equipment
CE202-13	Section(s): C403.2.3.1 C403.2.3.1 Water-cooled centrifugal chilling packages. Equipment not designed for operation at AHRI Standard 550/590 test conditions of 44°F (7°C) leaving chilled-water temperature and 85°F (29°C) entering condenser water temperature with 3 gpm/ton (0.054 l/s · kW) condenser water flow shall have maximum full-load kW/ton and NPLV ratings adjusted using Equations 4-3 and 4-4.		X		
CE203-13	Section(s): C403.2.3.1, C403.2.3.2, Table C403.2.3(7) Water Chilling Packages – Efficiency Requirements			X	$1-2 per Ton of Equipment
CE204-13	Section(s): C403.2.4.1.2, C403.2.4.1.3 (NEW) C403.2.4.1.2 ~~C403.2.4.2 Set point overlap restriction~~ Deadband. Where used to control both heating and cooling, *zone* thermostatic controls shall be capable of providing ~~provide~~ a temperature range or deadband of at least 5°F (2.8°C) within which the supply of heating and cooling energy to the *zone* is ~~capable of being~~ shut off or reduced to a minimum. Exceptions: 1. Thermostats requiring manual changeover between heating and cooling modes. 2. Occupancies or applications requiring precision in indoor temperature control as *approved* by the *code official*.		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	C403.2.4.1.3 Setpoint overlap restriction. Where a *zone* has a separate heating and a separate cooling thermostatic control located within the *zone*, a limit switch, mechanical stop, or direct digital control system with software programming shall be provided with the capability to prevent the heating setpoint from exceeding the cooling setpoint and to maintain a deadband in accordance with Section C403.2.4.1.2.				
CE205-13	Section(s): C403.2.4.5 (NEW) C403.2.4.5 Zone isolation. HVAC systems serving *zones* that are over 25,000 square feet in floor area or that span more than one floor and designed to operate or be occupied non-simultaneously shall be divided into isolation areas. Each isolation area shall be equipped with isolation devices and controls configured to automatically shut off the supply of conditioned air and outdoor air to and exhaust air from the isolation area. Each isolation area shall be controlled independently by a device meeting the requirements of Section C403.2.4.3.2. Central systems and plants shall be provided with controls and devices that will allow system and equipment operation for any length of time while serving only the smallest isolation area served by the system or plant.			X	$5,000-8,000 per Zone Quantity
CE209-13	**C403.2.4.6 Economizer fault detection and diagnostics (FDD).** Air-cooled unitary direct-expansion units listed in Tables C403.2.3(1) through (3) and variable refrigerant flow (VRF) units that are equipped with an economizer in accordance with Section C403.3 or Section C403.4 shall include a fault detection and diagnostics (FDD) system complying with all of the following: 1. The following temperature sensors shall be permanently installed to monitor system operation: 1.1. Outside air, 1.2. Supply air, 1.3. Return air; 2. Temperature sensors shall have an accuracy of ±2°F over the range of 40°F to 80°F; 3. Refrigerant pressure sensor, where used, shall have an accuracy of ±3 percent of full scale; 4. The unit controller shall be capable of providing system status by indicating the following: 4.1. Free cooling available. 4.2. Economizer enabled. 4.3. Compressor enabled. 4.4. Heating enabled. 4.5. Mixed air low limit cycle active. 4.6. The current value of each sensor. 5. The unit controller shall be capable of manually initiating each operating mode so that the operation of compressors, economizers, fans, and heating system can be independently tested and verified;			X	*$3,000-7,000 per Quantity *Assumes existing BAS system. Otherwise cost impact will be higher due to addition of controls system.

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CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	6. The unit shall be capable of reporting faults to a fault management application accessible by day-to- day operating or service personnel, or annunciated locally on zone thermostats; and 7. The FDD system shall be capable of detecting the following faults: 7.1. Air temperature sensor failure/fault. 7.2 Not economizing when the unit should be economizing. 7.3. Economizing when the unit should not be economizing. 7.4. Damper not modulating. 7.5. Excess outdoor air.				
CE211-13	**C403.2.5.2 Enclosed parking garage ventilation controls.** Enclosed parking garages used for storing or handling automobiles operating under their own power shall employ contamination sensing devices and automatic controls configured to stage fans or modulate fan average airflow rates to 50 percent or less of design capacity or intermittently operate fans less than 20 percent of the occupied time or as required to maintain acceptable contaminant levels in accordance with IMC provisions. Failure of contamination sensing devices shall cause the exhaust fans to operate continuously at design airflow. **Exceptions:** 1. Garages with total exhaust capacity less than 22,500 cfm (10,600 L/s) with ventilation systems that do not utilize heating or mechanical cooling. 2. Garages that have a garage area to ventilation system motor nameplate power ratio that exceeds 1125 cfm/hp (710 L/s/kW) and do not utilize heating or mechanical cooling.			X	$0.50 -$1.00 per CFM of Equipment
CE212-13	Section(s): C403.2.6 C403.2.6 Energy recovery ventilation systems. Where the supply airflow rate of a fan system exceeds the values specified in Table C403.2.6, the system shall include an energy recovery system. The energy recovery system shall have the capability to provide a change in the enthalpy of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and return air enthalpies, at design conditions. Where an air economizer is required, the energy recovery system shall include a bypass or controls which permit operation of the economizer as required by Section C403.4 Exceptions: An energy recovery ventilation system shall not be required in any of the following conditions: 1. Where energy recovery systems are prohibited by the International Mechanical Code. 2. Laboratory fume hood systems that include at least one of the following features: 2.1 Variable-air-volume hood exhaust and room supply systems capable of reducing exhaust and makeup air volume to 50 percent of less of design values ~~except when higher volumes are required to maintain safe operating conditions~~. 2.2 Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) above room setpoint, cooled to no cooler than 3°F (1.7°C) below room setpoint, no humidification added, and no simultaneous heating and cooling used for dehumidification			X	$3 - 4 per CFM of Equipment

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	control. 3. Systems serving spaces that are heated to less than 60°F (15.5°C) and are not cooled. 4. Where more than 60 percent of the outdoor eating energy is provided from site-recovered or site solar energy. 5. Heating energy recovery in Climate Zones 1 and 2. 6. Cooling energy recovery in Climate Zones 3C, 4C, 5B, 5C, 6B, 7 and 8. 7. Systems requiring dehumidification that employ energy recovery in series with the cooling coil. 8. Where the largest source of air exhausted at a single location at the building exterior is less than 75 percent of the design outdoor air flow rate. 9. Systems expected to operate less than 20 hours per week at the outdoor air percentage covered by Table C403.2.6 10. Systems exhausting toxic, flammable, paint, or corrosive fumes or dust. 11. Commercial kitchen hoods used for collecting and removing grease vapors and smoke.				
CE214-13	Section(s): Table C403.2.6 These categories allow for cost effective application of energy recovery and should be included in the requirement.		X		
CE217-13	Section(s): C403.2.7 C403.2.7 Duct and plenum insulation and sealing. All supply and return air ducts and plenums shall be insulated with a minimum of R-6 insulation where located in unconditioned spaces and a ~~minimum of R-8 insulation~~ where located outside the building with a minimum of R-8 insulation in climate zones 1 through 4 and a minimum of R-12 insulation in climate zones 5 through 8. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by a minimum of R-8 insulation in climate zones 1 through 4 and a minimum of R-12 insulation in climate zones 5 through 8.		X		$3 - 4 per SF of Duct area
CE220-13	Section(s): C403.2.7 (NEW), Table C403.2.7 (NEW) C403.2.7 Kitchen exhaust systems. Replacement air introduced directly into the exhaust hood cavity shall not exceed 10 percent of the hood exhaust airflow rate. Conditioned supply air delivered to any space containing a kitchen hood shall not exceed the greater of the ventilation rate required to meet the space heating or cooling load or the hood exhaust flow minus the available transfer air from adjacent space where available transfer air is considered that portion of outdoor ventilation air not required to satisfy other exhaust needs, such as restrooms, and not required to maintain pressurization of adjacent spaces.		X		
CE222-13	C403.2.7.1.1 Low-pressure duct systems. All longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches water gauge (w.g.) (500 Pa) shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus embedded- fabric systems or tapes installed in accordance with the manufacturer's installation instructions. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the International Mechanical Code. Section(s): C403.2.7.1.1		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~Exception: Continuously welded and locking type longitudinal joints and seams on ducts operating at static pressures less than 2 inches water gauge (w.g.) (500 Pa) pressure classification.~~ For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types.				
CE223-13	**C403.2.7.1.1 Low-pressure duct systems.** All longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches water gauge shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus embedded- fabric systems or tapes installed in accordance with the manufacturer's installation instructions. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*. **Exception:** ~~Continuously welded and~~ lLocking-type longitudinal joints and seams need not be sealed as specified in this section ~~on ducts operating at static pressures less than 2 inches water gauge (w.g.) (500 Pa) pressure classification.~~		X		
CE225-13	Section(s): C403.2.7.1.3 C403.2.7.1.3 High-pressure duct systems. Ducts and plenums designed to operate at static pressures ~~in excess of~~ greater than 3 inches water gauge shall be insulated and sealed in accordance with Section C403.2.7. In addition, ducts and plenums shall be leak tested in accordance with the SMACNA HVAC Air Duct Leakage Test Manual ~~with the~~ and shown to have a rate of air leakage (CL) less than or equal to 6.0 as determined in accordance with Equation 4-5.		X		
CE226-13	Section(s): 403.2.7.1.3 C403.2.7.1.3 High-pressure duct systems. All ducts and plenums designed to operate at static pressures in excess of 3 inches water gauge (750 Pa) shall be insulated and sealed in accordance with Section C403.2.7. In addition, ducts and plenums shall be leak tested in accordance with the SMACNA HVAC Air Duct Leakage Test Manual with the rate of air leakage (CL) less than or equal to ~~6.0~~ 4.0 as determined in accordance with Equation 4-5.		X		
CE229-13	Section(s): Table C403.2.8 C403.2.8: ASHRAE/IES Standard 90.1-2010, which is adopted by reference as an alternative to the IECC Commercial Provisions, has a different mean rating temperature for evaluating the thermal properties of insulation on piping serving fluids below 40°F. The change ensures continued consistency between the IECC and standard 90.1-2010.		X		
CE234-13	Section(s): C202 (NEW), C403.2.10, C403.2.10.3 (NEW), Chapter 5			X	Negligible cost as

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	C403.2.10 Air system design and control. Each HVAC system having a total fan system motor nameplate horsepower (hp) exceeding 5 horsepower (hp) (3.7 kW) shall meet the provisions of Sections C403.2.10.1 through ~~C403.2.10.2~~ C403.2.10.3. C403.2.10.3 Fan efficiency. Fans shall have a fan efficiency grade (FEG) of at least 67 when determined in accordance with AMCA 205 by an approved, independent testing laboratory and labeled by the manufacturer. The total efficiency of the fan at the design point of operation shall be within 15 percentage points of the maximum total efficiency of the fan. Exceptions: The following fans are not required to have a fan efficiency grade: 1. Fans of 5 hp or less as follows: 1.1 Single fan with a motor nameplate horsepower of 5 hp or less, unless Exception 1.2 applies. 1.2 Multiple fans in series or parallel that have a combined motor nameplate horsepower of 5 hp or less and are operated as the functional equivalent of a single fan. 2. Fans that are part of equipment covered under Section C403.2.3. 3. Fans included in an equipment package certified by an approved agency for air or energy performance. 4. Powered wall/roof ventilators. 5. Fans outside the scope of AMCA 205. 6. Fans that are intended to operate only during emergency conditions				change should reflect an update to the design and contract documents
CE235-13	Section(s): C403.2.10.1 C403.2.10.1 Allowable fan ~~floor~~ horsepower. Each HVAC system at fan system design conditions shall not exceed the allowable fan system motor nameplate hp (Option 1) or fan system bhp (Option 2) as shown in Table C403.2.10.1(1). This includes supply fans, exhaust fans, return/relief fans, and fanpowered terminal units associated with systems providing heating or cooling capability. Single zone variable-air-volume systems shall comply with the constant volume fan power limitation. Exceptions: ~~The following fan systems are exempt from allowable fan floor horsepower requirement.~~ 1. Hospital, vivarium and laboratory systems that utilize flow control devices on exhaust and/or return to maintain space pressure relationships necessary for occupant health and safety or environmental control shall be permitted to use variable volume fan power limitation. 2. Individual exhaust fans with motor nameplate horsepower of 1 hp or less2. Individual exhaust fans with motor nameplate horsepower of 1 hp or less are exempt from the allowable fan horsepower requirement.		X		
CE236-13	Section(s): Table C403.2.10.1(2) Table C403.2.10.1(2): Clarifies the use of sound attenuation in the pressure drop adjustment.		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE237-13	Section(s): C403.2.10.2 C403.2.10.2 Motor nameplate horsepower. For each fan, the fan brake horse power shall be indicated on the construction documents and the selected motor shall be no larger than the first available motor size greater than the following: ~~brake horsepower. The fan brake horse power shall be indicated on the design documents to allow for compliance verification by the code official.~~ 1. For fans less than 6 bhp (4413 W), ~~where the first available motor larger than the brake horsepower has a nameplate rating within 50 percent of the bhp, selection of the next larger nameplate motor size is allowed.~~ 1.5 times the fan brake horsepower 2. For fans 6 bhp (4413 W) and larger, ~~where the first available motor larger than the bhp has a nameplate rating within 30 percent of the bhp, selection of the next larger nameplate motor size is allowed~~. 1.3 times the fan brake horsepower.		X		
CE238-13	**C403.2.10.2 Motor nameplate horsepower.** For each fan, the selected fan motor shall be no larger than the first available motor size greater than the brake horsepower (bhp). The fan brake horsepower (bhp) shall be indicated on the design documents to allow for compliance verification by the *code official*. **Exceptions:** 1. For fans less than 6 bhp (4413 W), where the first available motor larger than the brake horsepower has a nameplate rating within 50 percent of the bhp, selection of the next larger nameplate motor size is allowed. 2. For fans 6 bhp (4413 W) and larger, where the first available motor larger than the bhp has a nameplate rating within 30 percent of the bhp, selection of the next larger nameplate motor size is allowed. 3. Systems complying with Section C403.2.10.1 *fan system motor nameplate hp* (Option 1).		X		
CE239-13	**C403.2.12 Refrigeration equipment performance.** Refrigeration equipment shall have an energy use in kWh/day not greater than the values of Tables C403.2.12(1) and C403.2.12(2) when tested and rated in accordance with AHRI Standard 1200. The energy use shall be verified through certification under an approved certification program or, where no certification program exists, the energy use shall be supported by data furnished by the equipment manufacturer.		X		
CE240-13	**C403.2.12 Walk-in Coolers and Walk-in Freezers.** Site assembled or site constructed *walk-in coolers* and *walk-in freezers* shall comply with the following: 1. Automatic door closers shall be provided that fully close walk-in doors that have been closed to within 1 inch of full closure. **Exception:** Closers are not required for doors over 3 feet 9 inches wide or 7 feet tall. 2. Doorways shall be provided with strip doors, curtains, spring-hinged doors, or other method of minimizing infiltration when the doors are open.			X	1% to 2% of total Walk-In Cooler or Freezer System construction cost

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	3. Walls shall be provided with insulation having a thermal resistance of not less than R–25, ceilings shall be provided with insulation having a thermal resistance of not less than R–25 and doors of *walk-in coolers* and *walk –in freezers* shall be provided with insulation having a thermal resistance of not less than R–32. **Exception:** Insulation is not required for glazed portions of doors or at structural members associated with the walls, ceiling or door frame. 4. The floor of *walk-in freezers* shall be provided with insulation having a thermal resistance of not less than R–28. 5. Evaporator fan motors that are less than 1 horsepower and less than 460 volts shall be electronically commutated motors or 3-phase motors. 6. Light sources shall have an efficacy of not less than 40 lumens per Watt, including any ballast losses or shall be provided with a device that automatically turns off the lights within 15 minutes of when the *walk-in cooler* or *walk-in freezer* was last occupied. 7. Transparent reach-in doors for and windows in opaque walk-*in freezer* doors shall be provided with triple-pane glass having the interstitial spaces filled with inert gas or provided with heatreflective treated glass. 8. Transparent reach-in doors for and windows in opaque *walk-in cooler* doors shall be double-pane heat-reflective treated glass having the interstitial space gas filled; 9. Anti-sweat heaters that are not provided with anti-sweat heater controls shall have a total door rail, glass, and frame heater power draw not greater than 7.1 Watts per square foot of door opening for *walk-in freezers*, and not greater than 3.0 Watts per square foot of door opening for *walk-in coolers*. 10. Anti-sweat heater controls shall be capable of reducing the energy use of the anti-sweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane. 11. Condenser fan motors that are less than 1 horsepower in capacity shall be of the electronically commutated or permanent split capacitor-type or shall be 3-phase motors. **Exception:** Fan motors in *walk-in coolers* and *walk-in freezers* combined in a single enclosure greater than 3,000 square feet in floor area are exempt. **C403.2.13 Refrigerated display cases.** Site assembled or site constructed refrigerated display cases shall comply with the following: 1. Lighting in refrigerated display cases and glass doors installed on walk-in coolers and freezers shall be controlled by one of the following; 1.1 Automatic time switch controls to turn off lights during non-business hours. Timed overrides for display cases or walk-in coolers and freezers may be used to turn the lights on for up to one hour and shall automatically time out to turn the lights off.				

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	1.2 Motion sensor controls on each display case or walk-in door section that reduce lighting power by at least 50 percent within 3 minutes after the area within the sensor range is vacated. how about is 'unoccupied' as you have used in other proposals. 2. All low temperature display cases shall incorporate temperature based defrost termination control with a time limit default. The defrost cycle shall terminate first on an upper temperature limit breach and second upon a time limit breach. 3. Anti-sweat heater controls shall reduce the energy use of the anti-sweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane. **C403.5 Refrigeration systems** Refrigerated display cases, *walk-in coolers* or *walk-in freezers* that are served by remote compressors and remote condensers not located in a *condensing unit*, shall meet the requirements of Section C403.5.and C403.5.2. **Exception:** Systems where the working fluid in the refrigeration cycle goes through both subcritical and supercritical states (transcritical) or systems that use ammonia refrigerant are exempt. **C403.5.1 Condensers serving refrigeration systems**. Fan-powered condensers shall comply with the following: 1. The design *saturated condensing temperatures* for air-cooled condensers shall not exceed the design dry bulb temperature plus 10°F for *low temperature refrigeration systems*, and the design dry bulb temperature plus 15°F for *medium temperature refrigeration systems* where the s*aturated condensing temperature* for blend refrigerants shall be determined using the average of liquid and vapor temperatures as converted from the condenser drain pressure 2. Condenser fan motors that are less than 1 horsepower shall use electronically commutated motors, permanent split capacitor-type motors or 3-phase motors. 3. All condenser fans for air-cooled condensers, evaporatively cooled condensers, air or water cooled fluid coolers or cooling towers shall reduce fan motor demand to no more than 30% of design wattage at 50% of design air volume, and incorporate one of the following continuous variable speed fan control approaches: 3.1 Refrigeration system condenser control for air-cooled condensers shall use variable setpoint control logic to reset the condensing temperature setpoint in response to ambient drybulb temperature. 3.2 Refrigeration system condenser control for evaporatively cooled condensers shall use variable setpoint control logic to reset the condensing temperature setpoint in response to ambient wetbulb temperature. 4. Multiple fan condensers shall be controlled in unison. 5. The minimum condensing temperature setpoint shall be no greater than 70°F. **C403.5.2 Compressor systems.** Refrigeration compressor systems shall comply with the following:				

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	1. Compressors and multiple-compressor systems suction groups shall include control systems that use floating suction pressure control logic to reset the target suction pressure temperature based on the temperature requirements of the attached refrigeration display cases or walk-ins. **Exception.** Controls are not required for the following: 1. Single compressor systems that do not have variable capacity capability. 2. Suction groups that have a design saturated suction temperature of 30°F or higher, suction groups that comprise the high stage of a two-stage or cascade system or suction groups that primarily serve chillers for secondary cooling fluids. 2. Liquid sub-cooling shall be provided for all low temperature compressor systems with a design cooling capacity equal to or greater than 100,000 Btu/hr with a design saturated suction temperature of -10°F or lower. The sub-cooled liquid temperature shall be controlled at a maximum temperature setpoint t of 50°F at the exit of the sub-cooler using either compressor economizer (inter-stage) ports or a separate compressor suction group operating at a saturated suction temperature of 18°F or higher. 2.1 Insulation for liquid lines with a fluid operating temperature less than 60°F are shall comply with Table C403.2.8. 3. All compressors that incorporate internal or external crankcase heaters shall provide a means to cycle the heaters off during compressor operation. **BUBBLE POINT**. The refrigerant liquid saturation temperature at a specified pressure **CONDENSING UNIT.** A factory-made assembly of refrigeration components designed to compress and liquefy a specific refrigerant. The unit consists of one or more refrigerant compressors, refrigerant condensers (air-cooled, evaporatively – cooled, and/or water-cooled), condenser fans and motors (where used) and factory-supplied accessories. **REFRIGERANT DEW POINT.** The refrigerant vapor saturation temperature at a specified pressure. **REFRIGERATION SYSTEM, LOW TEMPERATURE.** Systems for maintaining food product in a frozen state in refrigeration applications. **REFRIGERATION SYSTEM, MEDIUM TEMPERATURE.** Systems for maintaining food product above freezing in refrigeration applications. **SATURATED CONDENSING TEMPERATURE.** The saturation temperature corresponding to the measured refrigerant pressure at the condenser inlet for single component and azeotropic refrigerants, and the arithmetic average of the dew point and *bubble point* temperatures corresponding to the refrigerant pressure at the condenser entrance for zeotropic refrigerants.				

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	WALK-IN COOLER. An enclosed storage space less than 3,000 square feet in floor area, designed to maintain the space warmer than 32°F but cooler than 55°F that has a ceiling height of not less than 7 feet **WALK-IN FREEZER.** An enclosed storage space less than 3,000 square feet in floor area, designed to maintain the space at no greater than 32°F that has a ceiling height of not less than 7 feet.				
CE241-13	Section(s): C403.1, C403.3, C403.3.1.1 (New), C403.1.1.1, C403.3.3.1.1.2, C403.3.1.2 (New), C403.3.1.1.3, Table C403.3.1.1(1), Table C403.3.1.1.3(2), C403.3.1.1.4, C403.3.1.4 (New), C403.3.1.4.1 (New), C403.3.1.4.2 (New), C403.3.2, C403.4 through C403.4.3.5 While the committee saw the value in reorganizing these provisions and making their application clearer, the proposal needed to better address chilled water.		X		
CE243-13	Section(s): C403.3.1, Table C403.3.1(1) C403.3 Simple HVAC systems and equipment (Prescriptive). This section applies to buildings served by unitary or packaged HVAC equipment listed in Tables C403.2.3(1) through C403.2.3(8), each serving one zone and controlled by a single thermostat in the zone served. It also applies to two-pipe heating systems serving one or more zones, where no cooling system is installed. C403.3.1 Economizers. Each cooling system that has a fan shall include either an air or water economizer meeting the requirements of Sections C403.3.1.1 through C403.3.1.1.4 Exception: Economizers are not required for the systems listed below~~.~~ ~~1. Individual fan-cooling units with a supply capacity less than the minimum listed in Table C403.3.1(1)~~. 1. In cooling systems for buildings located in climate zones 1A and 1B. 2. In climate zones other than 1A and 1B, where individual cooling units have a capacity of less than 33,000 Btu/h. The total supply capacity of all fan-cooling units not provide with economizers shall not exceed 20 percent of the total supply capacity of all fan-cooling units in the building nor 300,000 Btu/h, whichever is greater.		X		
CE244-13	Section(s): C403.3.1, Table C403.3.1(1) C403.3.1 Economizers. Each cooling system that has a fan shall include either an air or water economizer meeting the requirements of Sections C403.3.1.1 through C403.3.1.1.4. Exception: Economizers are not required for the systems listed below 7. Systems under 110,000 Btu/h total cooling capacity that utilize multiple stage cooling capacity control and multiple speed fan control.		X		
CE245-13	Section(s): C403.3.1, Table C403.3.1(1), C403.3.1.4, C403.1.1.5 (NEW), Table C403.3.1.1.3(2), C403.3.1.2 (NEW), C403.3.1.2.1 (NEW) C403.3.1 Economizers. Each cooling system that has a fan shall include either an air or water economizer meeting the requirements of Sections C403.3.1.1 through ~~C403.3.1.1.4.~~ C403.3.1.1.5.		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Economizers are not required for the systems listed below 7. Systems that include a heat recovery system in accordance with Section C403.4.6. 8. Systems that serve spaces whose sensible cooling load at design conditions, excluding transmission and infiltration loads, is not more than the transmission and infiltration losses at an outdoor temperature of 60°F. C403.3.1.1.4 Dampers. Return, exhaust/relief, and outdoor air dampers shall in accordance with Section C402.4.5.2 C403.3.1.1.5 Relief of excess outdoor air. Systems shall be capable of relieving excess outdoor air during air economizer operation to prevent over-pressurizing the building. The relief air outlet shall be located to avoid recirculation into the building. C403.3.1.2 Water economizers. Water economizers shall comply with Sections C403.3.1.2.1 through C403.3.1.2.2. C403.3.1.2.1 Design capacity. Water economizer systems shall be capable of cooling supply air by indirect evaporation and providing up to 100 percent of the expected system cooling load at outdoor air temperatures not greater than 50°F dry bulb/45°F wet bulb. C403.3.1.2.2 Maximum pressure drop. Precooling coils and water-to-water heat exchangers used as part of a water economizer system shall either have a water-side pressure drop of less than 15 feet of water (45 kPa) or a secondary loop shall be created so that the coil or heat exchanger pressure drop is not seen by the circulating pumps when the system is in the normal cooling (non-economizer) mode.				
CE246-13	Section(s): C202 (NEW), Table C403.3.1.1.3(1) Table C403.3.1.1.3(1): Electronic enthalpy controllers are devices that use a combination of humidity and dry-bulb temperature in their switching algorithm.		X		
247					
CE249-13	Section(s): C403.4.1, Table C403.4.1 (NEW) C403.4.1 Economizers. ~~Economizers shall comply with~~ each cooling system shall include either an air economizer in compliance with Section C403.3.1.1 or water economizer in compliance with Sections C403.4.1.1 through C403.4.1.4. Exceptions: Economizers are not required for the systems listed below. 1. Individual fan-cooling units with a supply capacity less than the minimum listed in Table C403.3.1(1) that either: 1.1. Have direct expansion cooling coils, or 1.2. Where the total chilled water system capacity less the capacity of fan units with air economizers is less than the minimum listed in Table C403.4.1. 2. Chilled-water cooling systems that are passive (without a fan) or use induction where the total chilled water system capacity less the capacity of fan units with air economizers is less than the minimum listed in Table C403.4.1. 3. Individual cooling units that are in compliance with exceptions 2 through 6 to economizers under Section C403.3.1.			X	$1-$2 per CFM of Equipment
250					

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE251-13	Section(s): C403.4.2.1, C403.4.2.2 C403.4.2.1 Static pressure sensor location. Static pressure sensors used to control VAV fans shall be placed in a position located such that the controller setpoint is no greater than ~~one-third the total design fan static pressure, except for systems with *zone* reset control complying with Section C403.4.2.2~~ 1.2 inches w.c. ~~For sensors~~ Where this results in one or more sensors being ~~installed~~ located down-stream of major duct splits, at least one sensor shall be located on each major branch to ensure that static pressure can be maintained in each branch. C403.4.2.2 Set points for direct digital control. For systems with direct digital control of individual ~~*zone* boxes~~ zones reporting to the central control panel, the static pressure set point shall be reset based on the zone requiring the most pressure, i.e., the set point is reset lower until one *zone* damper is nearly wide open. The direct digital controls shall be capable of monitoring zone damper positions; or shall have an alternative method of indicating the need for static pressure which is capable of all of the following: 1. Automatically detecting any zone which excessively drives the reset logic; 2. Generating an alarm to the system operational location; and 3. Allowing an operator to readily remove one or more zones from the reset algorithm.			X	$300-$400 per sensor
CE253-13	Section(s): C403.4.3.4 C403.4.3.4 Part load controls. Hydronic systems greater than or equal to ~~300,000~~ 500,000 Btu/h (87 930W) in design output capacity supplying heated or chilled water to comfort conditioning systems shall include controls that have the capability to: 1. Automatically reset the supply-water temperatures in response to varying building heating and cooling demand using: coil valve position, zone-return water temperature, building return water temperature, or out-side air temperature ~~as an indicator of building heating or cooling demand~~. The temperature shall be capable of being reset by at least 25 percent of the design supply-to-return water temperature difference; ~~or~~ and 2. Automatically vary fluid flow for hydronic systems with a combined motor capacity of 10 hp (7.5 kW) or larger with three or more ~~Reduce systems pump flow by at least 50 percent of design flow rate utilizing adjustable speed drive(s) on pump(s), or multiple-staged pumps where at least one-half of the total pump horsepower is capable of being automatically turned off or~~ control valves or other devices by reducing the system design flow rate by at least 50 percent by designed valves that modulate or step open down, and close, or pumps that modulate or turn on and off as a function of load ~~or other approved means~~; and 3. Automatically vary pump flow on chilled water systems and heat rejection loops serving water cooled unitary air-conditioners with a combined motor capacity of 10 hp (7.5 kW) or larger by reducing ~~system~~ pump design flow by at least 50 percent of			X	$3,000 - $4,000 per Equipment Quantity

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~design flow rate~~ utilizing adjustable speed drive(s) on pump(s), or multiple-staged pumps where at least one-half of the total pump horsepower is capable of being automatically turned off ~~or control valves designed to modulate or step down, and close, as a function of load, or other approved means.~~ Pump flow shall be controlled to maintain one control valve nearly wide open or to satisfy the minimum differential pressure. Exceptions: 1. Supply-water temperature reset for chilled water systems supplied by offsite district chilled water or chilled water from ice storage systems. 2. Minimum flow rates other than 50 percent as required by the equipment manufacturer for proper operation of equipment where using flow bypass or end-of-line 3-way valves. 3. Variable pump flow on dedicated equipment circulation pumps where configured in primary / secondary design to meet minimum flow requirements required by the equipment manufacturer for proper operation of equipment,				
CE254-13	Section(s): C202 (NEW), C403.4.3.5 (NEW), Table C403.4.3.5 (NEW) C403.4.3.5 Boiler Turndown. *Boiler systems* with design input of greater than 1,000,000 Btu/h shall comply with the turndown ratio specified in Table 403.4.3.5. The system turndown requirement shall be met through the use of multiple single input boilers, one or more *modulating boilers* or a combination of single input and modulating boilers.			X	$2,000 - $3,000 per Equipment Quantity
CE255-13	Section(s): C403.4.4, C403.4.4.1 (NEW), C403.4.4.2 (NEW), C403.4.4.2.1 (NEW), C403.4.4.2.2 (NEW), C403.4.4.3, C403.4.4.4 (NEW) C403.4.4 Heat rejection equipment ~~fan speed control~~. Each fan powered by a motor of 7.5 hp (5.6 kW) or larger shall have the capability to operate that fan at two-thirds of full speed or less, and shall have controls that automatically change the fan speed to control the leaving fluid temperature or condensing temperature/pressure of the heat rejection device. Exception: Factory-installed heat rejection devices within HVAC equipment tested and rated in accordance with Tables C403.2.3(6) and C403.2.3(7). C403.4.4.1 General. Heat rejection equipment such as air-cooled condensers, dry coolers, open-circuit cooling towers, closed-circuit cooling towers, and evaporative condensers used for comfort cooling applications shall comply with this section. Exception: Heat rejection devices whose energy usage is included in the equipment efficiency ratings listed in Tables C403.2.3 (6) and C403.2.3 (7). C403.4.4.2 Fan speed control. The fan speed shall be controlled as follows: C403.4.4.2.1 Fan motors at least 7.5 hp. Each fan powered by a motor of 7.5 hp (5.6 kW) or larger shall have the capability to operate that fan at two-thirds of full speed or less, and shall have controls that automatically change the fan speed to control the leaving fluid temperature or condensing temperature/pressure of the heat rejection device. Exceptions: The following fan motors over 7.5 hp are exempt: 1. Condenser fans			X	$3,000 to $4,000 per Equipment Quantity

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	serving multiple refrigerant circuits. 2. Condenser fans serving flooded condensers. 3. Installations located in climate zones 1 and 2. C403.4.4.2.2 Multiple cell heat rejection equipment. Multiple cell heat rejection equipment with variable speed fan drives shall: 1. Be controlled to operate the maximum number of fans allowed that comply with the manufacturer's requirements for all system components, and 2. Be controlled so all fans can operate at the same fan speed required for the instantaneous cooling duty as opposed to staged (on/off) operation. Minimum fan speed shall be the minimum allowable speed of the fan drive system in accordance with the manufacturer's recommendations. C403.4.4.3 Limitation on centrifugal fan open-circuit cooling towers. Centrifugal fan open-circuit cooling towers with a combined rated capacity of 1100 gpm or greater at 95°F condenser water return, 85°F condenser water supply, and 75°F outdoor air wet-bulb temperature shall meet the energy efficiency requirement for axial fan open-circuit cooling towers listed in Table C403.2.3(8). Exception: Centrifugal open-circuit cooling towers that designed with inlet or discharge ducts or require external sound attenuation. C403.4.4.4 Tower flow turndown. Open circuit cooling towers used on water cooled chiller systems that are configured with multiple or variable speed condenser water pumps shall be designed so that all open circuit cooling tower cells can be run in parallel with the larger of the flow that is produced by the smallest pump at its minimum expected flow rate or at 50 percent of the design flow for the cell.				
CE257-13	Section(s): C403.4.5 C403.4.5 Requirements for complex mechanical systems serving multiple zones. Sections C403.4.5.1 through C403.4.5.3 shall apply to complex mechanical systems serving multiple zones. Supply air systems serving multiple zones shall be VAV systems which, during periods of occupancy, are designed and capable of being controlled to reduce primary air supply to each zone to one of the following before reheating, recooling or mixing takes place: 1. Thirty percent of the maximum supply air to each zone. 2. Three hundred cfm (142 L/s) or less where the maximum flow rate is less than 10 percent of the total fan system supply airflow rate. 3. The minimum ventilation requirements of Chapter 4 of the International Mechanical Code. 4. Any higher rate that can be demonstrated to reduce overall system annual energy use by offsetting reheat/recool energy losses through a reduction in outdoor air intake for the system, as approved by the code official. 5. The air flow rate required to comply with applicable codes or accreditation standards, such as pressure relationships or minimum air change rates. Exception: The following define where individual zones or where entire air		X		

Table 2. 2015 IECC Changes Cost Impact					
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		Decrease	None	Increase	
Sub Code:					
	distribution systems are exempted from the requirement for VAV control: ~~1. Zones where special pressurization relationships or cross-contamination requirements are such that VAV systems are impractical.~~				
CE258-13	Section(s): C403.4.5.4 (NEW) C403.4.5.4 Fractional HP fan motors. Motors for fans that are 1/12 HP or greater and less than 1 HP shall be electronically-commutated motors or shall have a minimum motor efficiency of 70 percent rated in accordance with DOE 10 CFR 431 . These motors shall also have the means to adjust motor speed for either balancing or remote control. The use of belt-driven fans to sheave adjustments for airflow balancing in lieu of a varying motor speed shall be permitted.			X	$200.00 to $300.00 per Motor Cost
CE259-13	Section(s): C403.4.5.5 (NEW) C403.4.5.5 Multiple-zone VAV system ventilation optimization control. Multiple-zone VAV systems with direct digital control of individual zone boxes reporting to a central control panel shall have automatic controls configured to reduce outdoor air intake flow below design rates in response to changes in *system ventilation efficiency (Ev)* as defined by the *International Mechanical Code*.			X	$2,000 - $3,000 per Box Quantity
CE262-13	Section(s): Table C404.2, C404.2.1 (New) MINIMUM PERFORMANCE OF WATER-HEATING EQUIPMENT			X	Negligible cost as change should reflect an update to the design & contract documents
CE263-13	Section(s): Table C404.2 C404.2: Per federal Department of Energy requirements, the minimum efficiency level for pool gas heaters went from 78% to 82%, effective April 2013. This change ensures consistency with federal requirements.		X		
CE264-13	Section(s): C404.2 C404.2 Service water-heating equipment performance. Water-heating equipment and hot water storage tanks shall meet the requirements of Table C404.2. The efficiency shall be verified through data furnished by the manufacturer of the equipment or through certification under an *approved* certification program. Water heating equipment also intended to be used to provide space heating shall meet the applicable provisions of Table C404.2.			X	$2,000 - $3,000 per Equipment Quantity
CE271-13, Part I	Section(s): C202 (NEW), C404.5, C404.5.1 (NEW), Table C404.5.1 (NEW), C404.5.2 (NEW), C404.5.3 (NEW), IPC [E]607.5		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	The existing section language is much simpler. There is no justification for adding such a complex set of rules for insulating piping.				
CE274-13	Section(s): C202 (New), C404.5 (New), C404.5.1 (New), C404.5.1 (New), Table C404.5.1 (New), C404.5.2 (New), C404.5.2.1 (New) C404.5 Efficient heated water supply piping. Heated water supply piping shall be in accordance with Section C404.5.1 or Section C404.5.2. The flow rate through ¼ inch piping shall not exceed 0.5 gpm (1.9 Lpm). The flow rate through 5/16 inch piping shall not exceed 1 gpm (3.8 Lpm). The flow rate through 3/8 inch piping shall not exceed 1.5 gpm (5.7 Lpm). C404.5.1 Maximum allowable pipe length method. The maximum allowable piping length from the nearest source of heated water to the termination of the fixture supply pipe for plumbing fixtures and plumbing appliances shall be in accordance with the maximum piping length column in Table C404.5.1. Where the piping contains more than one size of pipe, the largest size of pipe within the piping shall be used for determining the maximum allowable length of the piping in Table C404.5.1. C404.5.2 Maximum allowable pipe volume method. The water volume in the piping shall be calculated in accordance with Section C404.5.2.1. The maximum volume from the nearest source of heated water to the termination of the fixture supply pipe for a plumbing fixture or plumbing appliance shall be 0.5 gallon (1.89 L) where the source of heated water is a water heater; and 0.19 gallon (0.7 L) where the source of heated water is a recirculating system or heat-traced piping. C404.5.2.1 Water volume determination. The volume shall be the sum of the internal volumes of pipe, fittings, valves, meters and manifolds between the nearest source of heated water and the termination of the fixture supply pipe. The volume in the piping shall be determined from the volume column in Table C404.5.1. The volume contained within fixture shut off valves, within flexible water supply connectors to a fixture fitting and within a fixture fitting shall not be included in the water volume determination. Where heated water is supplied by a recirculating system or heat-traced piping, the volume shall include the portion of the fitting on the branch pipe that supplies water to the fixture.		X		
CE275-13	Section(s): C202 (NEW), C404.5 (NEW), C404.5.1 (NEW), Table C404.5.1 (NEW), C404.5.2 (NEW), C404.5.2.1 (NEW) C404.5 Efficient heated water supply piping. Heated water supply piping shall be in accordance with Section C404.5.1 or Section C404.5.2. The flow rate through ¼ inch piping shall not exceed 0.5 gpm (1.9 Lpm). The flow rate through 5/16 inch piping shall not exceed 1 gpm (3.8 Lpm). The flow rate through 3/8 inch piping shall not exceed 1.5 gpm (5.7 Lpm). C404.5.1 Maximum allowable pipe length method. The maximum piping length from the nearest source of heated water to the termination of the fixture supply pipe for a public lavatory faucet shall be in accordance with the maximum piping		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	length column in Table C404.5.1. Where the piping contains more than one size of pipe, the largest size of pipe within the piping shall be used for determining the maximum allowable length of the piping in Table C404.5.1. C404.5.2 Maximum allowable pipe volume method. The maximum piping volume from the nearest source of heated water to the termination of the fixture supply pipe for a public lavatory faucet shall be 2 ounces (0.06 L). The water volume in the piping shall be calculated in accordance with Section C404.5.2.1. C404.5.2.1 Water volume determination. The volume shall be the sum of the internal volumes of pipe, fittings, valves, meters and manifolds between the nearest source of heated water and the termination of the fixture supply pipe. The volume in the piping shall be determined from the volume column in Table C404.5.1. The volume contained within fixture shut off valves, within flexible water supply connectors to a fixture fitting and within a fixture fitting shall not be included in the water volume determination. Where heated water is supplied by a recirculating system or heat-traced piping, the volume shall include the portion of the fitting on the branch pipe that supplies water to the fixture.				
CE278-13, Part I	Section(s): C404.6, C404.7 (NEW), IPC [E] 607.2.1, IPC [E] 607.2.1.1 (NEW) C404.6 Hot water temperature maintenance system controls. For hot water distribution system circulating ~~hot water system~~ pumps or and heat trace, the pumps and heat trace shall be arranged to be turned off either automatically ~~or manually~~ when there is ~~limited~~ not hot water demand. Operating controls shall be readily accessible. C404.7.1 Storage tank hot water circulation systems. Circulating pumps intended to maintain storage tank water temperature shall have controls that will limit operation of the pump from heating cycle start up to not greater than 5 minutes after the end of the cycle. Ready access shall be provided to the operating controls.		X		
CE278-13, Part II	Section(s): C404.6, C404.7 (NEW), IPC [E] 607.2.1, IPC [E] 607.2.1.1 (NEW) [E] 607.2.1 Hot water temperature maintenance system controls. ~~Automatic~~ For hot water distribution system circulating ~~hot water system~~ pumps ~~or~~ and heat trace, the pumps and heat trace shall be arranged to be c~~onveniently~~ turned off ~~either~~ automatically ~~or manually~~ when there ~~hot water system is not in operation.~~ is ~~limited~~ not hot water demand. Ready access shall be provided to the operating controls. This section and Section 607.2.1.1 shall not apply to hot water temperature maintenance system controls in Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane. Hot water temperature maintenance system controls in Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane shall be in accordance with Section R403.4.1 of the International Energy Conservation Code.		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	607.2.1.1 Storage tank hot water circulation systems. Circulating pumps intended to maintain storage tank water temperature shall have controls that will limit operation of the pump from heating cycle start up to not greater than 5 minutes after the end of the cycle. Ready access shall be provided to the operating controls.				
CE282-13, Part I	Section(s): C404.7 (New), IPC Chapter 2, IPC [E]607.2.1.1 (New) C404.7 Demand recirculation controls. A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following: 1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance. 2. The control shall limit the water temperature increase in the cold water piping to not more than 10ºF (5.6 ºC) greater than the initial temperature of the water in the piping and limits the temperature entering the cold water piping to 102ºF (38.9 ºC).		X		
CE282-13, Part II	Section(s): C404.7 (New), IPC Chapter 2, IPC [E]607.2.1.1 (New) [E] 607.2.1.1 Demand recirculation controls. A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following: 1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance. 2. The control shall limit the water temperature increase in the cold water piping to not more than 10ºF (5.6 ºC) greater than the initial temperature of the water in the piping and limits the temperature entering the cold water piping to 102ºF (38.9 ºC).		X		
CE283-13, Part I	Section(s): C404.7 (NEW), Table C407.5.1(1), Chapter 5, R403.4.3 (NEW) (N1103.5 (NEW)), Chapter 5, IRC P2903.11 (NEW) C404.7 Drain water heat recovery units. Drain water heat recovery units shall comply with CSA 55.2. Potable water-side pressure loss shall be less than 10 psi at maximum design flow. For Group R occupancies, the efficiency of drain water heat recovery unit efficiency shall be in accordance with CSA 55.1. CSA 55.1-2012 Test method for measuring efficiency and pressure loss of drain water heat recovery units CSA 55.2-2012 Drain water heat recovery units		X		
CE283-13, Part II	Section(s): C404.7 (NEW), Table C407.5.1(1), Chapter 5, R403.4.3 (NEW) (N1103.5 (NEW)), Chapter 5, IRC P2903.11 (NEW) R403.4.3 (N1103.4.3) Drain water heat recovery units. Drain water heat recovery units shall comply with CSA 55.2. Drain water heat		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	recovery units shall be in accordance with CSA 55.1. Potable water-side pressure loss of drain water heat recovery units shall be less than 3 psi (20.7 kPa) for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units shall be less than 2 psi (13.8 kPa) for individual units connected to three or more showers. CSA 55.1-2012 Test method for measuring efficiency and pressure loss of drain water heat recovery units CSA 55.2-2012 Drain water heat recovery units				
CE283-13, Part III	Section(s): C404.7 (NEW), Table C407.5.1(1), Chapter 5, R403.4.3 (NEW) (N1103.5 (NEW)), Chapter 5, IRC P2903.11 (NEW) P2903.11 Drain water heat recovery units. Drain water heat recovery units shall be in accordance with Section N1103.4.3		X		
CE284-13	Section(s): C404.8 (NEW), C408.1, C408.2, C408.2.3.2, C408.2.4, C408.2.4.1, C408.2.5.2, C408.2.5.4 C404.8 Service water heating systems commissioning and completion requirements. Service water heating systems, swimming pool water heating systems, spa water heating systems and the controls for those systems shall be commissioned and completed in accordance with Section C408.2. C408.2 Mechanical systems and service water heating systems commissioning and completion requirements. Prior to passing the final mechanical and plumbing inspections, the registered design professional shall provide evidence of mechanical systems and service water heating systems commissioning and completion in accordance with the provisions of this section. Construction document notes shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Copies of all documentation shall be given to the owner and made available to the code official upon request in accordance with Sections C408.2.4 and C408.2.5. C408.2.3.2 Controls. HVAC and service water heating control systems shall be tested to document that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with approved plans and specifications. C408.2.4 Preliminary commissioning report. A preliminary report of commissioning test procedures and results shall be completed and certified by the registered design professional or approved agency and provided to the building owner. The report shall be organized with mechanical and service hot water findings in separate sections to allow independent review. The report shall be identified as "Preliminary Commissioning Report" and shall identify: 1. Itemization of deficiencies found during testing required by this section that have not been corrected at the time of report preparation. 2. Deferred			X	2% to 3% of total Service Water Heating System construction cost

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	tests that cannot be performed at the time of report preparation because of climatic conditions. 3. Climatic conditions required for performance of the deferred tests. C408.2.4.1 Acceptance of report. Buildings, or portions thereof, shall not pass the final mechanical and plumbing inspections, until such time as the code official has received a letter of transmittal from the building owner acknowledging that the building owner has received the Preliminary Commissioning Report. C408.2.5.2 Manuals. An operating and maintenance manual shall be provided and include all of the following: 1. Submittal data stating equipment size and selected options for each piece of equipment requiring maintenance. 2. Manufacturer's operation manuals and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified. 3. Name and address of at least one service agency. 4. HVAC and service hot water controls system maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions. 5. A narrative of how each system is intended to operate, including recommended setpoints. C408.2.5.4 Final commissioning report. A report of test procedures and results identified as "Final Commissioning Report" shall be delivered to the building owner ~~and shall include.~~ The report shall be organized with mechanical system and service hot water system findings in separate sections to allow independent review. The report shall include the following: 1. Results of functional performance tests. 2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed. 3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.				
CE285-13, Part I	Section(s): C202, C405.1, R202 (IRC N1109.1) R404.1 (IRC N1104.1) C405.1 General (Mandatory). This section covers lighting system controls, the connection of ballasts, the maximum lighting power for interior applications, electrical energy consumption, and minimum acceptable lighting equipment for exterior applications. Exception: Dwelling units within commercial buildings shall not be required to comply with Sections C405.2 through C405.5 provided that they comply with Section R404.1. ~~not less than 75 percent of the permanently installed light fixtures, other than low voltage lighting, shall be fitted for, and contain only, high efficacy lamps~~.		X		
CE287-13	Section(s): C202 (New), C405.2, C405.2.1, C405.2.1.1, C405.2.2, C405.2.2.1, C405.2.1.1, C405.2.1.2, C405.2.2, C405.2.2.1, C405.2.2.3, C405.2.2.3.1, C405.2.2.3.2, C405.2.2.3.3, C405.2.3, C405.2.4		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	The lighting control section needed to be reorganized into a more logical format. The rearrangement will eliminate much confusion.				
CE290-13	Section(s): C405.2.2 C405.2.2 Additional lighting controls. Each area that is required to have a manual control shall also have controls that meet the requirements of Sections C405.2.2.1, C405.2.2.2 and C405.2.2.3. Exception: Additional lighting controls need not be provided in the following spaces: 1. Sleeping units. 2. Spaces where patient care is directly provided. 3. Spaces where an automatic shutoff would endanger occupant safety or security. 4. Lighting intended for continuous operation 5. Shop and laboratory classrooms.			X	$4 - $6/SF of building area
CE291-13	**C405.2.2.1 Automatic time switch controls ~~devices~~.** Automatic time switch controls shall be installed to control lighting in all areas of the building. **Exceptions:** 1. Emergency egress lighting does not need to be controlled by an automatic time switch. 2. Lighting in spaces controlled by occupancy sensors does not need to be controlled by automatic time switch controls. ~~The~~ Automatic time switch controls ~~device~~ shall comply with the following: 1. Have a minimum 7 day clock; 2. Be capable of being set for 7 different day types per week; 3. Incorporate an automatic holiday "shut-off" feature, which turns off all controlled lighting loads for at least 24 hours and then resumes normally scheduled operations. 4. Have program back-up capabilities, which prevent the loss of program and time settings for at least 10 hours, if power is interrupted; and 5. Include an override switch device that complies with the following: 5.1.The override switch shall be in a readily accessible location; 5.2.The override switch shall be located where the lights controlled by the switch are visible; or the switch shall provide a mechanism which announces the area controlled by the switch; 5.3.The override switch shall permit manual operation; 5.4.The override switch, when initiated, shall permit the controlled lighting to remain on for a maximum of 2 hours; and 5.5.Any individual override switch shall control the lighting for a maximum area of 5,000 square feet (465 m2). **Exception:** Within malls, arcades, auditoriums, single tenant retail spaces, industrial facilities and arenas: 1. The time limit shall be permitted to exceed 2 hours provided the override switch is a captive key device; and			X	$2 to $3/SF of building lighting area

Table 2. 2015 IECC Changes Cost Impact					
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		Decrease	None	Increase	
Sub Code:					
	2. The area controlled by the override switch is permitted to exceed 5,000 square feet (465 m2), but shall not exceed 20,000 square feet (1860 m2).				
CE292-13	Section(s): C405.2.2.2 C405.2.2.2 Occupancy sensors. Occupancy sensors shall be installed in all classrooms, conference/meeting rooms, employee lunch and break rooms, private offices, restrooms, warehouse spaces, storage rooms and janitorial closets, and other spaces 300 square feet (28 m2) or less enclosed by floor-to-ceiling height partitions. These automatic control devices shall be installed to automatically turn off lights within 30 minutes of all occupants leaving the space, and shall either be manual on or shall be controlled to automatically turn the lighting on to not more than 50 percent power.			*X	$400 - $600 per Device quantity *Applicable to warehouse spaces
CE294-13	Section(s): C202, Figure C405.1 (NEW), Figure C405.2 (NEW), C405.2.2.3, C405.2.2.3.1 (NEW), C405.2.2.3.2 (NEW), C405.2.2.3.3 (NEW), Figure C405.3 (NEW), Figure C405.4 (NEW) ~~C405.2.2.3 Daylight zone control. Daylight zones shall be designed such that lights in the daylight zone are controlled independently of general area lighting and are controlled in accordance with either Section C405.2.2.3.1 or Section C405.2.2.3.2. Each daylight control zone shall not exceed 2,500 square feet (232 m2). 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, 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.~~ C405.2.2.3 Daylight responsive controls. Daylight responsive controls complying with Section C405.2.2.3.1 shall be provided to control the electric lights within daylight zones in the following spaces: 1. Spaces with a total of more than 150 watts of general lighting within sidelight daylight zones complying with Section C405.2.2.3.2. General lighting does not include lighting that is required to have specific application control in accordance with Section C405.2.3. 2. Spaces with a total of more than 150 watts of general lighting within toplight daylight zones complying with Section C405.2.2.3.3. Exceptions: Daylight responsive controls are not required for the following: 1. Spaces in health care facilities where patient care is directly provided. 2. Dwelling units and sleeping units. 3. Lighting that is required to have specific application control in accordance with Section C405.2.3. C405.2.2.3.1 Daylight responsive control function. Where required, daylight responsive controls shall be provided within each space for control of lights in that space and shall comply with all of the following: 1. Lights in toplight daylight zones in accordance with Section C405.2.2.3.3 shall be controlled independently of lights in sidelight daylight zones in accordance with Section C405.2.2.3.2; 2. Daylight responsive controls within each space shall be configured so that they can be calibrated			X	$700 - $900 per Device Quantity

Table 2. 2015 IECC Changes Cost Impact					
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		Decrease	None	Increase	
Sub Code:					
	from within that space by authorized personnel; 3. Calibration mechanisms shall be readily accessible; 4. When located in offices, classrooms, laboratories, and library reading rooms, daylight responsive controls shall dim lights continuously from full light output to 10 percent of full light output or lower; 5. Daylight responsive controls shall be capable of a complete shut off of all controlled lights; and 6. Lights in sidelight daylight zones in accordance with Section C405.2.2.3.2 facing different cardinal orientations (i.e. within 45 degrees of due north, east, south, west) shall be controlled independently of each other. Exception: Up to 150 watts of lighting in each space is permitted to be controlled together with lighting in a daylight zone facing a different cardinal orientation. C405.2.2.3.2 Sidelight daylight zone. The sidelight daylight zone is the floor area adjacent to vertical fenestration which complies with all of the following: 1. Where the fenestration is located in a wall, the daylight zone shall extend laterally to the nearest full height wall, or up to 1.0 times the height from the floor to the top of the fenestration, and longitudinally from the edge of the fenestration to the nearest full height wall, or up to 2 feet (610 mm), whichever is less, as indicated in Figure C405.1; 2. Where the fenestration is located in a rooftop monitor, the daylight zone shall extend laterally to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 1.0 times the height from the floor to the bottom of the fenestration, whichever is less, and longitudinally from the edge of the fenestration to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.25 times the height from the floor to the bottom of the fenestration, whichever is less, as indicated in Figures C405.2 and C405.3; 3. The area of the fenestration is at least 24 square feet; 4. The distance from the fenestration to any building or geological formation which would block access to daylight is greater than the height from the bottom of the fenestration to the top of the building or geologic formation; and 5. Where located in existing buildings, the visible transmittance of the fenestration is no less than 0.25. C405.2.2.3.3 Toplight daylight zone. The toplight daylight zone is the floor area underneath a roof fenestration assembly which complies with all of the following: 1. The daylight zone shall extend laterally and longitudinally beyond the edge of the roof fenestration assembly to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.7 times the ceiling height, whichever is less, as indicated in Figure C405.4; 2. No building or geological formation blocks direct sunlight from hitting the roof fenestration assembly at the peak solar angle on the summer solstice; and 3. Where located in existing buildings, the product of the visible transmittance of the roof fenestration assembly and the area of the rough opening of the roof fenestration assembly, divided by the area of the daylight zone is no less than 0.008.				
CE299-13	Section(s): C405.2.3			X	$800 - $1,000 per

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	C405.2.3 Specific application controls. Specific application controls shall be provided for the following: 1. Display and accent light shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space 2. Lighting in cases used for display case purposes shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space. 3. Hotel and motel sleeping units and guest suites shall have a master control device ~~at the main room entry that controls all permanently installed luminaires and switched receptacles~~ that is capable of switching off all installed luminaires and switched receptacles within 20 minutes after all occupants leave the room.				Control Zone Quantity *Applicable only to hotel buildings
CE303-13	Section(s): C405.2.4 ~~C405.2.4 Exterior lighting controls. Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and a time switch, or an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. All time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.~~ C405.2.4 Exterior lighting controls. Exterior lighting shall be controlled by either an astronomical time switch or a photo sensor and a time switch. Time switches shall be capable of retaining programming and the time setting for at least 10 hours without power.		X		
CE304-13	Section(s): C405.2.4 ~~C405.2.4 Exterior lighting controls. Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and a time switch, or an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. All time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours~~ C405.2.4 Exterior lighting controls. Lighting for exterior applications other than emergency lighting that is intended to be automatically off during building operation, lighting specifically required to meet health and life safety requirements or decorative gas lighting systems shall: 1. Be provided with a control that automatically turns off the lighting as a function of available daylight. 2. Where lighting the building façade or landscape the lighting shall have controls that automatically shut off the lighting as a function of dawn/dusk and a set opening and closing time. 3. Where not covered in Item 2 the lighting shall have controls configured to automatically reduce the connected lighting power by at least 30 percent from no later than 12 midnight to 6 a.m. or from one hour after business closing to one hour before business opening or during any period when no activity has been detected for a time of no longer than 15 minutes. All time switches shall be able to		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	retain programming and the time setting during loss of power for a period of at least ten hours				
CE308-13	Section(s): C405.3 ~~C405.3 Tandem wiring (Mandatory). The following luminaires located within the same area shall be tandem wired: 1. Fluorescent luminaires equipped with one, three or odd-numbered lamp configurations, that are recess- mounted within 10 feet (3048 mm) center-to-center of each other. 2. Fluorescent luminaires equipped with one, three or any odd-numbered lamp configuration that are pendant- or surface-mounted within 1 foot (305 mm) edge-to-edge of each other.~~		X		
CE309-13	Section(s): C405.5.1 C405.5.1 Total connected interior lighting power. The total connected interior lighting power (watts) shall be ~~the sum of the watts of all interior lighting equipment as determined in accordance with Sections C405.5.1.1 through C405.5.1.4~~ determined in accordance with Equation 4-6.		X		
CE310-13	Section(s): C405.5.1, C405.5.3 (NEW), Table C405.5.2(1), Table C405.5.2(2) C405.5.1 Total connected interior lighting power. The total connected interior lighting power (watts) shall be the sum of the watts of all interior lighting equipment as determined in accordance with Sections C405.5.1.1 through C405.5.1.4. C405.5.3 Additional interior lighting power. Where using the Space-by-Space Method, an increase in the interior lighting power allowance is permitted for specific lighting functions. Additional power shall be permitted only where the specified lighting is installed and automatically controlled, separately from the general lighting, to be turned off during nonbusiness hours. This additional power shall be used only for the specified luminaires and shall not be used for any other purpose.		X		
CE312-13	Section(s): C405.5.1 This proposal simplifies the exception to the interior lighting power in sleeping units. The definition of sleeping unit is such that there is no further need to delineate the building type in which the sleeping unit is located.		X		
CE314-13	Section(s): C405.5.1 C405.5.1 Total connected interior lighting power. The total connected interior lighting power (watts) shall be the sum of the watts of all interior lighting equipment as determined in accordance with Sections C405.5.1.1 through C405.5.1.4. Exceptions: 11. Lighting approved because of safety or emergency considerations, ~~inclusive of exit lights~~. <u>15. Exit signs.</u>		X		
CE316-13	Section(s): C405.5.2.1 (NEW), C405.5.2.2 (NEW), Table C405.5.2(2) The proposal does 3 things: 1. It moves the retail lighting exception from being a footnote at the end of a long table to a more prominent position in the text of the code directing the code users to the tables. 2. It reformats the provision into a series of items which more clearly		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	specify the requirements and limits of the exception. It allows the equation to be numbered as all equations in the IECC are numbered. 3. It replaces the 'exception within the exception' to being a portion of the criteria – and properly identifies the code official as the person who will approve the additional display lighting				
CE317-13	Section(s): C405.5.3 (New), Table C405.5.2(2) C405.5.3 Additional interior lighting power. Where using the Space-by-Space Method, an increase in the interior lighting power allowance is permitted for specific lighting functions. Additional power shall be permitted only where the specified lighting is installed and automatically controlled, separately from the general lighting, to be turned off during nonbusiness hours. This additional power shall be used only for the specified luminaires and shall not be used for any other purpose.		X		
CE319-13	Section(s): C405.6, C405.6.1, C405.6.2 C405.6 Exterior lighting (Mandatory). Where the power for exterior lighting is supplied through the energy service to the building, all exterior lighting, ~~other than low-voltage landscape lighting~~, shall comply with ~~Sections C405.6.1~~ and C405.6.2 ~~C405.6.1 Exterior building grounds lighting. All exterior building grounds luminaires that operate at greater than 100 watts shall contain lamps having a minimum efficacy of 60 lumens per watt unless the luminaire is controlled by a motion sensor or qualifies for one of the exceptions under Section C405.6.2.~~ C405.6.2 Exterior building lighting power. The total exterior lighting power allowance for all exterior building applications is the sum of the base site allowance plus the individual allowances for areas that are to be illuminated and are permitted in Table C405.6.2(2) for the applicable lighting zone. Tradeoffs are allowed only among exterior lighting applications listed in Table C405.6.2(2), Tradable Surfaces section. The lighting zone for the building exterior is deter- mined from Table C405.6.2(1) unless otherwise specified by the local jurisdiction.		X		
CE320-13	Section(s): Table C405.6.2(1) The proposal clarifies the text in this cell of the table.		X		
CE321-13	**TABLE C405.6.2(2)** **INDIVIDUAL LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS** The proposal simplifies the calculation of façade lighting and eliminates an undefined term which makes the current calculation difficult.		X		
CE322-13	Section(s): C405.7 C405.7 Electrical energy consumption (mandatory). ~~In buildings having individual~~ Every dwelling units, ~~provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units~~ in Use Group R-2 buildings shall have a separate electrical meter.		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE329-13	Section(s): C405.8 (NEW), Table C405.8 (NEW) C405.8 Electrical transformers (Mandatory). Electric transformers shall meet the minimum efficiency requirements of Table C405.8 as tested and rated in accordance with the test procedure listed in DOE 10 CFR 431. The efficiency shall be verified through certification under an approved certification program or, where no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the transformer manufacturer.			X	$2,000 - $3,000 per Transformer Quantity
CE331-13	Section(s): C405.8 (NEW), Table C405.8(1) (NEW), Table C405.8(2) (NEW), C405.8(3) (NEW), Table C405.8(4) (NEW), Chapter 5 C405.8 Electrical motors (Mandatory). Electric motors shall meet the minimum efficiency requirements of Tables C405.8 (1) through C405.8 (4) when tested and rated in accordance with the DOE 10 CFR 431. The efficiency shall be verified through certification under an approved certification program or, where no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the motor manufacturer.			X	$1,000 - $2,000 per Motor Quantity
332					
CE333-13	Section(s): C405 (NEW), C405.1 (NEW), C405.2 (NEW), Chapter 5 C405 Vertical and horizontal transportation systems and equipment. Vertical and horizontal transportation systems and equipment shall comply with this section. C405.1 Elevator cabs. For the luminaires in each elevator cab, not including signals and displays, the sum of the lumens divided by the sum of the watts shall be no less than 35 lumens per watt. Ventilation fans in elevators that do not have their own air conditioning system shall not consume more than 0.33 watts/cfm at the maximum rated speed of the fan. Controls shall be provided that will de-energize ventilation fans and lighting systems when the elevator is stopped, unoccupied and with its doors closed for over 15 minutes. C405.2 Escalators and moving walks. Escalators and moving walks shall comply with ASME A17.1/CSA B44 and shall have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.			X	$1,000 - $2,000 per Elevator Quantity
CE336-13	Section(s): C406.1.1 (NEW) C406.1 Requirements. Buildings shall comply with at least one of the following: 1. Efficient HVAC Performance in accordance with Section C406.2. 2. Efficient Lighting System in accordance with Section C406.3. 3. On-Site Supply of Renewable Energy in accordance with Section C406.4. C406.1.1. Tenant spaces. Except where an entire building is in compliance with Section C406.4, individual tenant spaces shall comply with either Section C406.2 or Section C406.3~~. unless documentation can be provided that demonstrates compliance with Section C406.4 for the entire building~~		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CE337-13	Section(s): C202 (New), C406.1, C406.2, Table C406.2(1), Table C406.2(2), Table C406.2(3), Table C406.2(4), Table C406.2(5), Table C406.2(6), Table C406.2(7), C406.3, C406.4, C406.5 (New), C406.6(New), C406.8 (New), C406.8.1 (New) C406.1 Requirements. Buildings shall comply with at least one of the following: 1. More efficient HVAC equipment ~~performance~~ in accordance with Section C406.2. 2. Reduced ~~efficient~~ lighting power density system in accordance with Section C406.3. 3. Enhanced lighting controls in accordance with Section C406.4 4. On-site supply of renewable energy in accordance with Section C406.5. 5. Provision of a dedicated outdoor air system for certain HVAC equipment in accordance with Section C406.6. 6. High efficiency service water heating in accordance with Section C406.8. C406.2. More efficient HVAC equipment performance. Equipment shall exceed the minimum efficiency requirements listed in Tables C403.2.3(1) through 403.2.3(7) by 10 percent in addition to the requirements of Section C403. Where multiple performance requirements are provided, the equipment shall exceed all requirements by 10 percent. Variable refrigerant flow systems shall exceed the energy efficiency provisions of ANSI/ASHRAE/IES 90.1 by 10 percent. Equipment not listed in Tables C403.2.3(1) through 403.2.3(7) shall be limited to 10 percent of the total building system capacity.		X		
CE339-13	Section(s): C406.2, Table C406.2(7) C406.2 Efficient HVAC performance. Equipment shall meet the minimum efficiency requirements of Tables C406.2(1) through ~~C406.2(7)~~ C406.2(6) in addition to the requirements in Section C403. This section shall only be used where the equipment efficiencies in Tables C406.2(1) through ~~C406.2(7)~~ C406.2(6) are greater than the equipment efficiencies listed in Table C403.2.3(1) through ~~403.2.3(7)~~ 403.2.3(6) for the equipment type.		X		
CE345-13	Section(s): C407.4.1, C407.6 C407.4.1 Compliance report. ~~Compliance software tools shall generate~~ Permit submittals shall include a report that documents that the proposed design has annual energy costs less than or equal to the annual energy costs of the standard reference design. The compliance documentation shall include the following information: 1. Address of the building; 2. An inspection checklist documenting the building component characteristics of the proposed design as listed in Table C407.5.1(1). The inspection checklist shall show the estimated annual energy consumption for both the standard reference design and the proposed design; 3. Name of individual completing the compliance report; and 4. Name and version of the compliance software tool. C407.6 Calculation software tools. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the standard reference design and the proposed design and shall include the following capabilities. ~~1. Computer generation of the~~		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~standard reference design using only the input for the proposed design. The calculation procedure shall not allow the user to directly modify the building component characteristics of the standard reference design. 2~~. 1. Building operation for a full calendar year (8,760 hours). 3. 2. Climate data for a full calendar year (8,760 hours) and shall reflect approved coincident hourly data for temperature, solar radiation, humidity and wind speed for the building location. 4. 3. Ten or more thermal zones. 5. 4. Thermal mass effects. 6. 5. Hourly variations in occupancy, illumination, receptacle loads, thermostat settings, mechanical ventilation, HVAC equipment availability, service hot water usage and any process loads. 7. 6. Part-load performance curves for mechanical equipment. 8. 7. Capacity and efficiency correction curves for mechanical heating and cooling equipment. 9. 8. Printed code official inspection checklist listing each of the proposed design component characteristics from Table C407.5.1(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g., R-value, U-factor, SHGC, HSPF, AFUE, SEER, EF, etc.).				
347					
CE348-13	Section(s): Table C407.5.1(1) The modification is to provide the correct phrasing of "standard reference design". The proposal corrects the references and clarifies the footnote.		X		
CE349-13	Section(s): C407.6.3 (NEW) <u>C407.6.3 Exceptional calculation methods. When the simulation program does not model a design, material, or device of the proposed design, an exceptional calculation method shall be used where approved by the code official. Where there are multiple designs, materials, or devices that the simulation program does not model, each shall be calculated separately and exceptional savings determined for each. At no time shall the total exceptional savings constitute more than half of the difference between the baseline building performance and the proposed building performance. All applications for approval of an exceptional method shall include: 1. Step-by-step documentation of the exceptional calculation method performed detailed enough to reproduce the results; 2. Copies of all spreadsheets used to perform the calculations; 3. A sensitivity analysis of energy consumption when each of the input parameters is varied from half to double the value assumed; 4. The calculations shall be performed on a time step basis consistent with the simulation program used; 5. The performance rating calculated with and without the exceptional calculation method.</u>		X		
CE351-13	Section(s): C408.2, C408.2.1, C408.2.2.1, C408.2.2.2, C408.3.1 The proposal provides editorial clean up to the provisions and use of appropriate terminology		X		
CE352-13	Section(s): C408.2		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	C408.2 Mechanical systems commissioning and completion requirements. Prior to p~~assing~~ the final mechanical inspection, the registered design professional shall provide evidence of mechanical systems commissioning and completion in accordance the provisions of this section. Construction document notes shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Copies of all documentation shall be given to the owner and made available to the code official upon request in accordance with Sections C408.2.4 and C408.2.5.				
CE353-13	Section(s): C408.2 C408.2 Mechanical systems commissioning and completion requirements. Prior to passing the final mechanical inspection, the registered design professional shall provide evidence of mechanical systems commissioning and completion in accordance the provisions of this section. Construction document notes shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Copies of all documentation shall be given to the owner and made available to the code official upon request in accordance with Sections C408.2.4 and C408.2.5. Exceptions: The following systems are exempt~~ from the commissioning requirements~~: 1. Mechanical systems in buildings where the total mechanical equipment capacity is less than 480,000 Btu/h (140 690 W) cooling capacity and 600,000 Btu/h (175 860 W) heating capacity. 2. Systems included in Section C403.3 that serve <u>individual</u> dwelling units and sleeping units~~ in hotels, motels, boarding houses or similar units~~		X		
CE354-13	Section(s): C408.2.2.1 C408.2.2.1 Air system balancing. Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the International Mechanical Code. Discharge dampers <u>used for air system balancing</u> are prohibited on constant volume fans and variable volume fans with motors 10 hp (18.6 kW) and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp (0.74 kW), fan speed shall be adjusted to meet design flow conditions.		X		
CE356-13	Section(s): C408.2.5.2 C408.2.5.2 Manuals. An operating and maintenance manual shall be provided and include all of the following: 1. Submittal data stating equipment size and selected options for each piece of equipment requiring maintenance. 2. Manufacturer's operation manuals and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified. 3. Name and address of at least one service agency.			X	Negligible cost as change should reflect an update to the design & contract documents

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	4. HVAC controls system maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions. 5. Submittal data indicating all selected options for each piece of lighting equipment and lighting controls. 6. Operation and maintenance manuals for each piece of lighting equipment. Required routine maintenance actions, cleaning and recommended relamping shall be clearly identified. 7. A schedule for inspecting and recalibrating all lighting controls. 8. A narrative of how each system is intended to operate, including recommended setpoints.				
CE357-13	Section(s): C408.3.1 C408.3.1 Functional testing. Testing shall ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's installation instructions. ~~The construction documents shall state the party who will conduct the required functional testing~~. Where required by the code official, an approved ~~party~~ individual independent from the design or construction of the project shall be responsible for the functional testing and shall provide documentation to the code official certifying that the installed lighting controls meet the provisions of Section C405. Where occupant sensors, time switches, programmable schedule controls, photosensors or daylighting controls are installed, the following procedures shall be performed: 1. Confirm that the placement, sensitivity and time-out adjustments for occupant sensors yield acceptable performance. 1.1. For projects with up to seven occupancy sensors, all occupancy sensors shall be tested 1.2. For projects with more than seven the following shall be verified: 1.2.1. Status indicator (as applicable) operates correctly 1.2.2. The controlled lights turn off or down to the permitted level within the required time, 1.2.3. For auto-on occupant sensors, the lights do turn on to the permitted level when someone enters the space, 1.2.4. For manual on sensors, the lights turn on only when manually activated 1.2.5. The lights are not incorrectly turned on by movement in nearby areas or by HVAC operation 2. Confirm that the time switches and programmable schedule controls are programmed to turn the lights off. 3. Confirm that all control devices for daylight controls have been properly located, field-calibrated, and set for design set points and threshold light levels. All daylight control devices shall only be readily accessible to authorized personnel. ~~the placement and sensitivity adjustments for photosensor controls reduce electric light based on the amount of usable daylight in the space as specified.~~.			X	$0.10 - $0.20 of SF of Building Area
CE362-13, Part I	Section(s): C403.2.5 (New), R403.2 (New) (IRC N1103.2 (New)) C403.2.5 Hot water boiler outdoor temperature setback control. Hot water boilers that supply heat to the building through one- or two-		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	pipe heating systems shall have an outdoor setback control that lowers the boiler water temperature based on the outdoor temperature.				
CE362-13, Part II	Section(s): C403.2.5 (New), R403.2 (New) (IRC N1103.2 (New)) R403.2 (N1103.2) Hot water boiler outdoor temperature setback. Hot water boilers that supply heat to the building through one- or two-pipe heating systems shall have an outdoor setback control that lowers the boiler water temperature based on the outdoor temperature.		X		
CE363-13	Section(s): C404.3 ~~C404.3 Temperature controls. Service water-heating equipment shall be provided with controls to allow a setpoint of 110°F (43°C) for equipment serving dwelling units and 90°F (32°C) for equipment serving other occupancies. The outlet temperature of lavatories in public facility rest rooms shall be limited to 110°F (43°C).~~		X		
RE3-13	Section(s): R103.2 (IRC N1101.8) R103.2 (N1101.8) Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted when approved by the code official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, as applicable, insulation materials and their R-values; fenestration U-factors and SHGCs; area-weighted U-factor and SHGC calculations; mechanical system design criteria; mechanical and service water heating system and equipment types, sizes and efficiencies; ~~economizer description~~; equipment and systems controls; ~~fan motor horsepower (hp) and controls~~; duct sealing, duct and pipe insulation and location; ~~lighting fixture schedule with wattage and control narrative~~; and air sealing details.		X		
RE12-13	Modified Section R401.2 (IRC N1101.15) to clarify that a home has to comply with Sections R401 through R404 or Section R405 and the provisions of Sections R401 through R404 labeled “mandatory”.		X		
RE14-13	Modified Section R401.3 (IRC N1101.16) to prescribe where electrical panel certificates will be posted.		X		
RE16-13	Modified Section R401.3 (IRC N1101.16) to allow building official to determine where electrical panel certificates will be posted.		X		
RE18-13	Added to Sections R402.1 (IRC N1102.1), and R402.1.1 (IRC N1102.1.1) requirements for vapor retarders in building thermal envelope.		X		
RE43-13	Modified Section R402.1.2 (IRC N1102.1.2) to clarify intent by revising “insulating sheathing” to “continuous insulation”.		X		
RE45-13	Modified Table R402.1.3 (IRC N1102.1.3) to correct the assumptions behind the wood-frame wall U-factors for Zones 1 and 2.		X		
RE50-13	Modified Table R402.1.3 (IRC Table N1102.1.3) to rectify the conversion from R-Value to U-Factor.		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RE53-13	Modified Section R402.2.1 (IRC N1102.2.1) to clarify the "alternative" ceiling insulation requirement.		X		
RE58-13	Modified R402.2.4 (IRC N1102.2.4) to clarify that the vertical access door to the unconditioned space shall meet the fenestration requirement of the IECC Table R402.1.1.		X		
RE60-13	Modified Section R402.2.7 (IRC N1102.2.7), and Table R402.4.1.1 (IRC Table N1102.4.1.1) to allow floor framing cavity insulation to be installed to maintain permanent contact with underside of subfloor decking or floor framing cavity insulation.		X		
RE63-13	Modified Section R402.2.13 (IRC N1102.2.13) and Table R402.1.1 (IRC Table N1102.1.1) to clarify the issue of structural sheathing with continuous insulation presently contained in footnote h of Table R402.1.1.		X		
RE68-13	Modified Section R402.3.5 (IRC N1102.3.5) to set the Ufactor requirements the same for all the climate zones where requirements exist for sunroom fenestrations.		X		
RE83-13	Modified Table R402.4.1.1 (IRC Table N1102.4.1.1) to require for cavities within corners and headers of frame walls to be insulated by completely filling the cavity with a material having a thermal resistance of R3 per inch minimum.		X		
RE84-13	Modified Table R402.4.1.1 (IRC Table N1102.4.1.1) to allow floor framing cavity insulation to be installed to maintain permanent contact with underside of subfloor decking or floor framing cavity insulation.		X		
RE85-13	Modified Table R402.4.1.1 (IRC Table N1102.4.1.1) to add a column to separate air barrier criteria and insulation criteria.		X		
RE86-13	Modified Section R402.4.2 (IRC N1102.4.2) and Table R402.4.1.1 (IRC Table N1102.4.1.1) to add a testing standard for tight-fitting doors on masonry fireplaces, to address safety issues.		X		
RE91-13	Section(s): R402.4.1.2 (IRC N1102.4.1.2), Chapter 5 R402.4.1.2 (N1102.4.1.2) Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8. Testing shall be conducted <u>in accordance with ASTM E 779 or ASTM E 1827</u> ~~with a blower door~~ <u>and reported</u> at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope. During testing: 1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures; 2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures; 3. Interior doors, if installed at the time of the test, shall be open; 4. Exterior doors for continuous		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	ventilation systems and heat recovery ventilators shall be closed and sealed; 5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and 6. Supply and return registers, if installed at the time of the test, shall be fully open. Add new reference standards.				
RE105-13	Section(s): R403.1.1 (IRC N1103.1.1) R403.1.1 (N1103.1.1) Programmable thermostat. ~~Where the primary heating system is a forced air furnace, at least one thermostat per~~ The thermostat controlling the primary heating or cooling system of the dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day. This thermostat shall include the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F (13°C) or up to 85°F (29°C). The thermostat shall initially be programmed with a heating temperature set point no higher than 70°F (21°C) and a cooling temperature set point no lower than 78°F (26°C).			X	$200-$400 per Thermostat quantity
RE107-13	Section(s): R403.2.1 (IRC N1103.2.1) R403.2.1 (N1103.2.1) Insulation (Prescriptive).Supply and return ducts in attics shall be insulated to a minimum of R-8. ~~All other ducts~~ Supply and return ducts in other portions of the building shall be insulated to a minimum of R-6.		X		
RE109-13	Section(s): R403.2 (IRC N1103.2), R403.2.2 (IRC N1103.2.2), R403.2.3 (NEW) (IRC N1103.2.3 (NEW)), R403.2.4 (NEW) (IRC N1103.2.4 (NEW)) R403.2 (N1103.2) Ducts. Ducts and air handlers shall be in accordance with Sections R403.2.1 through ~~R403.2.3~~ R403.2.5. R403.2.2 (N1103.2.2) Sealing (Mandatory). Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with either the International Mechanical Code or International Residential Code, as applicable. ~~Duct tightness shall be verified by either of the following: 1. Postconstruction test: Total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. 2. Rough-in test: Total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. All registers shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 3 cfm (85 L/min) per 100 square feet (9.29 m2) of conditioned floor area. Exception: The total leakage test is not required for ducts and air handlers located entirely within the building thermal envelope.~~		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	R403.2.3 (N1103.2.3) Duct testing (Mandatory). Ducts shall be pressure tested to determine air leakage by one of the following methods: 1. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. 2. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test. R403.2.4 (N1103.2.4) Duct leakage (Prescriptive). The total leakage of the ducts, where measured in accordance with Section R403.2.3, shall be as follows: 1. Postconstruction test: The total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area. 2. Rough-in test: The total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cfm (85 L/min) per 100 square feet (9.29 m2) of conditioned floor area. R403.2.3 R403.2.5 (~~N1103.2.3~~ N1103.2.5) Building cavities (Mandatory). Building framing cavities shall not be used as ducts or plenums.				
RE111-13	Section(s): R403.2.2 (IRC N1103.2.2) R403.2.2 (N1103.2.2) Sealing (Mandatory). Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with either the International Mechanical Code or International Residential Code, as applicable. Exceptions: 1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals. 2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect. ~~3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems~~. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams, and locking-type joints and seams of other than the snap-lock and button-lock types.		X		
RE117-13	Section(s): R403.2.2 (IRC N1103.2.2) Reversing the order of the required testing options places the first option in a preferential position,		X		
RE118-13	Section(s): R403.2.2 (IRC N1103.2.2) Reversing the order of the required testing options places the first option in a preferential position,		X		
RE125-13, Part I	Section(s): R403.4.1 (IRC N1103.4.1), R403.4.1.1 (NEW) (IRC N1103.4.1.1 (NEW)),		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	R403.4.1.2 (NEW) (IRC N1103.4.1.2 (NEW)), Chapter 5, IPC [E] 607.2.1, [E] 607.2.1.1 (NEW), [E] 607.2.1.1.1 (NEW), [E] 607.2.1.1.2 (NEW), IPC Chapter 14, IRC P2905 (NEW), IRC P2905.1 (NEW) R403.4.1 (IRC N1103.4.1) ~~Circulating hot~~ Heated water circulation and temperature maintenance systems (Mandatory~~). Circulating hot water systems shall be provided with an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.~~ Heated water circulation systems shall be in accordance with Section R403.4.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.4.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible. R403.4.1.1 (IRC N1103.4.1.1) Circulation systems. Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermo-syphon circulation systems shall be prohibited. Circulation system pump controls shall be demand activated. The controls shall start the pump upon sensing the presence of a user of a fixture or appliance, receiving a signal from the action of an action of a user of a fixture or appliance or sensing the flow of heated water to a fixture or appliance. The controls shall limit the water temperature increase in the return water piping to not more than 10ºF (5.6 ºC) greater than the initial temperature of the water in the return piping and shall limit the return water temperature to 102ºF (38.9ºC). R403.4.1.2 (IRC N1103.4.1.2) Heat trace systems. Electric heat trace systems shall comply with IEEE 515.1. Controls for such systems shall be able to automatically adjust the energy input to the heat tracing to maintain the desired water temp				
RE125-13	Section(s): R403.4.1 (IRC N1103.4.1), R403.4.1.1 (NEW) (IRC N1103.4.1.1 (NEW)), R403.4.1.2 (NEW) (IRC N1103.4.1.2 (NEW)), Chapter 5, IPC [E] 607.2.1, [E] 607.2.1.1 (NEW), [E] 607.2.1.1.1 (NEW), [E] 607.2.1.1.2 (NEW), IPC Chapter 14, IRC P2905 (NEW), IRC P2905.1 (NEW) [E] 607.2.1 ~~Hot~~ Heated water circulation and temperature maintenance systems ~~controls~~. For other than Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane, automatic circulating hot water system pumps or heat trace shall be arranged to be conveniently turned off, automatically or manually, when the hot water system is not in operation. Heated water circulation and temperature maintenance systems for Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane shall be in accordance with Section 607.2.1.1. 607.2.1.1 Group R2, R3 and R4 occupancies 3 stories or less. This section shall apply to Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane. Heated water circulation		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	systems shall be in accordance with Section 607.2.1.1.1. Heat trace temperature maintenance systems shall be in accordance with Section 607.2.1.1.2. Access to automatic controls, temperature sensors and pumps shall be provided. Ready access to manual controls shall be provided. 607.2.1.1.1 Circulation systems. Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermo-syphon circulation systems shall be prohibited. Circulation system pump controls shall be demand activated. The controls shall start the pump upon sensing the presence of a user of a fixture or appliance, receiving a signal from the action of an action of a user of a fixture or appliance or sensing the flow of heated water to a fixture or appliance. The controls shall limit the water temperature increase in the return water piping to not more than 10ºF (5.6 ºC) greater than the initial temperature of the water in the return piping and shall limit the return water temperature to 102ºF (38.9ºC). 607.2.1.1.2 Heat trace systems. Electric heat trace systems shall comply with IEEE 515.1. Controls for such systems shall be able to automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.				
RE-125, Part III	Section(s): R403.4.1 (IRC N1103.4.1), R403.4.1.1 (NEW) (IRC N1103.4.1.1 (NEW)), R403.4.1.2 (NEW) (IRC N1103.4.1.2 (NEW)), Chapter 5, IPC [E] 607.2.1, [E] 607.2.1.1 (NEW), [E] 607.2.1.1.1 (NEW), [E] 607.2.1.1.2 (NEW), IPC Chapter 14, IRC P2905 (NEW), IRC P2905.1 (NEW) P2905.1 Heated water systems. Heated water circulation and temperature maintenance systems shall be in accordance with Section N1103.4.1.		X		
RE129-13, Part II	Section(s): R403.4.2 (IRC N1103.4.2), Table R403.4.2 (IRC Table N1103.4.2), IPC [E]607.5, IRC P2905 (NEW) 607.5 ~~Pipe~~ Insulation of piping. ~~Hot water piping in automatic temperature maintenance systems shall be insulated with not less than 1 inch (25 mm) of insulation having a conductivity not exceeding 0.27 Btu per inch/h ● ft2 ● °F (1.53 W per 25 mm/m2 ● K). The first 8 feet (2438 mm) of hot water piping from a hot water source that does not have heat traps shall be insulated with 0.5 inch (12.7 mm) of material having a conductivity not exceeding 0.27 Btu per inch/h ● ft2 ● °F (1.53 W per 25 mm/m2 ● K).~~ For other than Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane, piping to the inlet of a water heater and piping conveying water heated by a water heater shall be insulated in accordance with Sections C404.5 of the International Energy Conservation Code. For Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane, piping to the inlet of a water heater and piping		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	conveying water heated by a water heater shall be insulated in accordance with Section R403.4.2 of the International Energy Conservation Code				
RE132-13	Section(s): R403.4.2 (IRC N1103.4.2), Table R403.4.2 (IRC Table N1103.4.2) R403.4.2 (N1103.4.2) Hot water pipe insulation (Prescriptive). Insulation for hot water pipe with a minimum thermal resistance (R-value) of R-3 shall be applied to the following: 1. Piping larger than 3/4 inch nominal diameter. 2. Piping serving more than one dwelling unit. 3~~. Piping from the water heater to kitchen outlets~~. 43. Piping located outside the conditioned space. 54. Piping from the water heater to a distribution manifold. 65. Piping located under a floor slab. 76. Buried piping. 87. Supply and return piping in recirculation systems other than demand recirculation systems. ~~9. Piping with run lengths greater than the maximum run lengths for the nominal pipe diameter given in Table R403.4.2. All remaining piping shall be insulated to at least R-3 or meet the run length requirements of Table R403.4.2.~~		X		
RE136-13, Part I	Section(s): R403.4.2 (NEW) (IRC N1103.4.2 (NEW)), IPC 202, IPC [E]607.2.1.1 (NEW), IRC P2905 (NEW), IRC P2905.1 (NEW) <u>R403.4.2 (IRC N1101.4.2) Demand recirculation systems. A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following: 1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance. 2. The control shall limit the water temperature increase in the cold water piping to not more than 10ºF (5.6 ºC) greater than the initial temperature of the water in the piping and limits the temperature entering the cold water piping to 102ºF (38.9 ºC).</u>		X		
RE136-13, Part II	Section(s): R403.4.2 (NEW) (IRC N1103.4.2 (NEW)), IPC 202, IPC [E]607.2.1.1 (NEW), IRC P2905 (NEW), IRC P2905.1 (NEW) <u>[E] 607.2.1.1 Demand recirculation controls. This section shall apply only to Group R2, R3 and R4 occupancies that are 3 stories or less in height above grade plane. A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following: 1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance. 2. The control shall limit the water temperature increase in</u>		X		

Table 2. 2015 IECC Changes Cost Impact					
CODE CHANGE #	2015 IECC CHANGE SUMMARY	2015 IECC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	the cold water piping to not more than 10ºF (5.6 ºC) greater than the initial temperature of the water in the piping and limits the temperature entering the cold water piping to 102ºF (38.9 ºC).				
RE136-13, Part III	Section(s): R403.4.2 (IRC N1103.4.2), Table R403.4.2 (IRC Table N1103.4.2), IPC [E]607.5, IRC P2905 (NEW) P2905.1 Demand recirculation systems. Demand recirculation water systems shall be in accordance with Section N1103.4.2.		X		
RE142-13	Section(s): R403.6 (IRC N1103.6) R403.6 (N1103.6) Equipment sizing and efficiency rating (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 calculation methodologies. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed		X		
RE167-13	Section(s): Table R405.5.2(1) (IRC Table B1105.5.2(1)) This proposal restores text from a cell inadvertently deleted by EC13-09/10. The modification simply makes the format of the text consistent with the remainder of the table.		X		

*For prescriptive Code changes only.

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APPENDIX C

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
P1-12	Section(s): 202 BACKFLOW PREVENTER. A backflow prevention assembly, a backflow prevention device or other means or method to prevent backflow into the potable water supply.		X		
P4-12	Section(s): 202 Heat fusion is now a defined type of joint for plastic piping, and is considered separate from welding because there is not any additional filler material used in forming the joint. However, heat-fusion joints are not mechanical joints and as such should be excluded from the definition of mechanical joints.		X		
P5-12	Section(s): 202 This code change revision will improve the code by providing greater clarity. The code proposal revision will not add or delete any of the current areas identified in the code. It will rearrange the items to enhance the understanding that water supplies, storm sanitary and storm sewers are located outside the structures. They are however identified in the code and remain critical to the operation of structures.	X			
P7-12	Section(s): 202 Public sewer. A common sewer directly controlled by public authority. That part of the drainage system of pipes, installed and maintained by a city, township, county, public utility company or other public entity, and located on public property, in the street or in an approved dedicated easement of public or community use.		X		
P9-12	Section(s): 202 TOILET FACILITY. A room or space that contains not less than one water closet and one lavatory.		X		
P10-12	Section(s): 202 WASTE RECEPTOR. A floor sink, standpipe, hub drain or a floor drain that receives the discharge of one or more indirect waste pipes.		X		
P11-12	Section(s): 202, 301.3, Chapter 13, Chapter 13 (New), Chapter 14 (New) Add new definitions as follows: STORAGE TANK. A fixed container for holding water at atmospheric pressure for subsequent reuse as part of a plumbing or irrigation system. RECLAIMED WATER. *Non-potable water* that has been derived from the treatment of wastewater by a facility or system licensed or permitted to produce water meeting the jurisdiction's water requirements for its intended uses. Also known as "Recycled Water." ONSITE NON-POTABLE WATER REUSE SYSTEMS. Water systems for the collection, treatment, storage, distribution, and reuse of non-potable water generated onsite, including but not limited to graywater systems. This definition does not include rainwater harvesting systems.		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	DISTRIBUTION PIPE. Pressurized or non-pressure piping used within the plumbing system of a building to deliver rainwater or graywater from the *storage tank* or pump to the point of use. COLLECTION PIPE. Unpressurized pipe used within the collection system that drains onsite non-potable water or rainwater to a storage tank by gravity. ALTERNATE ON–SITE NON-POTABLE WATER. Non-potable water from other than public utilities, onsite surface sources and subsurface natural freshwater sources. Examples of such water are graywater, on-site reclaimed water, collected rainwater, captured condensate, and rejected water from reverse osmosis systems. METER. A measuring device used to collect data and indicate water usage. RAINWATER. Water from natural precipitation. NON-POTABLE WATER SYSTEMS: The sections shown to be added to the code are from the IgCC. These sections really need to be in the IPC as these subjects are more applicable to the IPC scope. Currently, the IPC does not address different types of nonpotable water (other than gray water) and therefore provides no guidance as to how nonpotable waters are to be collected, stored and distributed. The current Chapter 13 only deals with the use/reuse of gray water for the flushing of water closets and urinals and subsurface irrigation. It is clarified that gray water and rain water recycling systems must be separate systems and may not be interconnected. This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the PMGCAC has held 2 open meetings, multiple conference calls and multiple workgroup calls which included members of the PMGCAC. Interested parties also participated in all of the meetings and conference calls to discuss and debate the proposed changes.				
P17-12	Section(s): 307.5 Substitute as follows: 307.5 Protection of footings. Trenching installed parallel to footings and walls shall not extend into the bearing plane of a footing or wall. The upper boundary of the bearing plane is a line that extends downward, at an angle of 45 degrees from horizontal, from the outside bottom edge of the footing or wall.		X		
P19-12	Section(s): Table 308.5 Revised: TABLE 308.5 HANGER SPACING ~~Mid-story guide~~ For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe.		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	What constitutes a "mid-story guide" and what is it supposed to do? The current footnote doesn't clearly state a requirement. What is the purpose of the guide and how limiting is the guide supposed to be? The term mid-story seems out of context considering that the intent of the footnote is to require a guide midway between vertical supports. The vertical supports don't necessarily correspond to a support at each story. Stories can be any height. The revised language provides the necessary information to make this footnote clearly state the intent.				
P20-12	Section(s): 309.2 This proposal simply moves the exception language below the list. It is awkward and certainly confusing to have the exception placed between the parent language "the following systems and equipment") and the list. This change is editorial. ICC staff recommended deletion of "all" in four locations.		X		
P26-12	Section(s): 403.1 (IBC [P] 2902.1) 403.1 (IBC [P] 2902.1) Minimum number of fixtures. Plumbing fixtures shall be provided ~~for the type of occupancy~~ and in the minimum number as shown in Table 403.1 <u>based upon the actual use of the building or space</u>. Types of occupancies Uses not shown in Table 403.1 shall be considered individually by the code official. The number of occupants shall be determined by the International Building Code. ~~Occupancy classification shall be determined in accordance with the International Building Code.~~		X		
P30-12	Section(s): Table 403.1 (IBC [P]2902.1), 410.2 (New) (IBC 2902.6 (New)) TABLE 403.1: MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES ~~The minimum number of required drinking fountains shall comply with Table 403.1 and Chapter 11 of the International Building Code.~~ ~~f. Drinking fountains are not required for an occupant load of 15 or fewer.~~		X		
P35-12	Section(s): 403.3 (IBC [P] 2902.3) Exceptions: Public toilet facilities shall not be required in: 1. Open or enclosed parking garages. ~~Toilet facilities shall not be required in parking garages~~ where there are no parking attendants. 2. <u>Structures and tenant spaces intended for quick transactions, including take out, pick up and drop off, having a public access area less than or equal to 300 square feet.</u>		X		
P38-12	Section(s): 403.4 (IBC [P]2902.4) Signage. Required public facilities shall be <u>provided with</u> ~~designated by a legible~~ signs <u>that</u> for each <u>designate the</u> sex <u>as required by Section 403.2.</u> Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1110 of the *International Building Code*.		X		
P39-12	Section(s): 403.4.1 (IBC [P]2902.4.1) Directional signage. Directional signage indicating the route to the <u>required</u>		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	public toilet facilities shall be posted ~~in accordance with Section 3107 of the *International Building Code*. Such signage shall be located~~ in a lobby, corridor, or aisle or similar space, such that it can be readily seen from the main ~~at the~~ entrance to the building or tenant space. ~~facilities for customers, and visitors.~~				
P42-12	Section(s): 404.2 (New), 404.3 (New), Chapter 14 404.2 Accessible fixture requirements. Accessible plumbing fixtures shall be installed with the clearance, height, spacing, and arrangement in accordance with ICC A117.1. 404.3 Exposed pipes and surfaces. Water supply and drain pipes under accessible lavatories and sinks shall be covered or otherwise configured to protect against contact . Pipe coverings shall comply with ASME A112.18.9. Add new standards to Chapter 14 as follows: ASME A112.18.9-2011 Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures ICC A117.1-2009 Accessible and Usable Buildings and Facilities		X		
P46-12	Section(s): 406.1 Water connection. The water supply to an automatic clothes washer shall be protected against backflow by an air gap that is integral with ~~installed integrally within~~ the machine or ~~with the installation~~ of a backflow preventer shall be installed in accordance with Section 608. Air gaps shall comply with ASME A112.1.3 or A112.1.2.		X		
P50-12	Section(s): 409.2 Water connection. The water supply to a dishwashing machine shall be protected against backflow by an *air gap* that is integral with the machine or a backflow preventer shall be installed in accordance with Section 608. Air gaps shall comply with ASME A112.1.3 or A112.1.2.		X		
P51-12	Section(s): 410.1, Chapter 14 Approval. Drinking fountains shall conform to ASME A112.19.1/CSA B45.2 or ASME A112.19.2/CSA B45.1 and water coolers shall conform to ARI 1010. Drinking fountains and water coolers shall conform to NSF 61, Section 9. Electrically operated, refrigerated drinking water coolers shall be listed and labeled in accordance with UL 399. Add new standard to Chapter 14 as follows: UL 399-2008 Drinking-Water Coolers, with revisions through January 14, 2011		X		
P54-12	Section(s): 202, 410.3, 410.4 Add new definitions as follows: DRINKING FOUNTAIN. A plumbing fixture that is connected to the potable water distribution system and the drainage system. The fixture allows the user to obtain a drink directly from a stream of flowing water without the use of any accessories.		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	WATER DISPENSER. A plumbing fixture that is manually controlled by the user for the purpose of dispensing potable drinking water into a receptacle such as a cup, glass or bottle. Such fixture is connected to the potable water distribution system of the premises. This definition also includes a freestanding apparatus for the same purpose that is not connected to the potable water distribution system and that is supplied with potable water from a container, bottle or reservoir. WATER COOLER. A drinking fountain that incorporates a means of reducing the temperature of the water supplied to it from the potable water distribution system.				
P57-12	Section(s): 413.1, Chapter 14 Approval. Domestic food waste grinders shall conform to ASSE 1008 and shall be listed and labeled in accordance with UL 430. Food waste grinders shall not increase the drainage fixture unit load on the sanitary drainage system. Add new standard to Chapter 14 as follows: UL 430-2009 Waste Disposers, with revisions through March 23, 2011		X		
P59-12	Section(s): 417.4.1 This is consistent with the language currently in the IRC. This adds the missing requirement from the IPC that bath tubs and showers are required to have non-absorbent floors, the same as the IRC currently requires. This change also incorporates the term “corrosion resistant” in place of “non-corrosive”. The materials must be made of materials that resist corrosion. This is consistent industry terminology used throughout the I-codes.		X		
P63-12	Section(s): 420.1, Chapter 14 Approval. Water closets shall conform to the water consumption requirements of Section 604.4 and shall conform to ANSI Z124.4, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5. Water closets shall conform to the hydraulic performance requirements of ASME A112.19.2/CSA B45.1. Water closet tanks shall conform to ANSI Z124.4, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5. Electro-hydraulic water closets shall comply with ASME A112.19.2/CSA B45.1. Water closets equipped with a dual flushing device shall comply with ASME A112.19.14. Add new standard to Chapter 14 as follows: ASME A112.19.14–2006(R2011) Six-Liter Water Closets Equipped with a Dual Flushing Device		X		
P68-12	Section(s): 421.1 Approval. Whirlpool bathtubs shall comply with ASME A112.19.7/CSA B45.10 and shall be listed and labeled in accordance with UL1795. Add new standard to Chapter 14 as follows: UL		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	1795-2009 Hydromassage Bathtubs, including revisions through August 23, 2011				
P70-12	Section(s): 423.3 (New) Add new text as follows: 423.3 Footbaths, pedicure baths and head shampoo sinks. The water supplied to specialty plumbing fixtures such as pedicure chairs having an integral foot bath tub, footbaths, and head shampoo sinks, shall be limited to a maximum temperature of 110 ◦F by a water temperature limiting device that conforms to ASSE 1070 or CSA B125.3.		X		
P73-12	Section(s): 424.8 Revise as follows: 424.8 Transfer valves. Deck-mounted bath/shower transfer valves containing an integral atmospheric vacuum breaker shall conform to the requirements of ASME ~~A112.18.7~~ A112.18.1/CSA B125.1.		X		
P75-12	Section(s): 501.3 Drain valves. Drain valves for emptying shall be installed at the bottom of each tank-type water heater and hot water storage tank. ~~Drain valves shall conform to ASSE 1005~~. The drain valve inlet shall be not less than ¾ inch nominal iron pipe size and the outlet shall be provided with male garden hose threads.		X		
P80-12	Section(s): 504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall: 10. Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diameter above the floor or flood level rim of a waste receptor ~~flood level rim.~~		X		
P86-12	Section(s): 504.7.2 Pan drain termination. The pan drain shall extend full-size and terminate over a suitably located indirect waste receptor or floor drain or extend to the exterior of the building and terminate not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the adjacent ground surface. Where a pan drain was not previously installed, a pan drain shall not be required for a replacement water heater installation.		X		
P87-12	Section(s): 601.5 (New), Chapter 14 Add new text as follows: 601.5 Rehabilitation of piping systems. Where pressure piping systems are rehabilitated using an epoxy lining system, such lining system shall comply with ASTM F 2831. Add new standard to Chapter 14 as follows: ASTM F 2831-11 Standard Practice for Internal Non Structural Epoxy Barrier Coating Material Used In Rehabilitation of Metallic Pressurized Piping Systems		X		
P88-12	Section(s): 603.2		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Substitute as follows: Separation of water service and building sewer. Where water service piping is located in the same trench with the building sewer, such sewer shall be constructed of materials listed in Table 702.2. Where the building sewer piping is not constructed of materials listed in Table 702.2, the water service pipe and the building sewer shall be horizontally separated by not less than 5 feet (1524 mm) of undisturbed or compacted earth. The required separation distance shall not apply where a water service pipe crosses a sewer pipe, provided the water service is sleeved to a point not less than 5 feet (1524 mm) horizontally from the sewer pipe centerline on both sides of such crossing. The sleeve shall be of pipe materials listed in Table 605.3, 702.2 or 702.3. The required separation distance shall not apply where the bottom of the water service pipe located within 5 feet (1524 mm) of the sewer is not less than 12 inches (305 mm) above the highest point of the top of the building sewer.				
P90-12	Section(s): Table 604.3 WATER DISTRIBUTION SYSTEM DESIGN CRITERIA REQUIRED CAPACITY AT FIXTURE SUPPLY PIPE OUTLETS TABLE 604.3 WATER DISTRIBUTION SYSTEM DESIGN CRITERIA REQUIRED CAPACITY AT FIXTURE SUPPLY PIPE OUTLETS requires plumbing distribution system design to achieve flow rates of *at least* 3 gpm for showers, 2.5 gpm for sink faucets, and 2 gpm for lavatory faucets, all of which are excessive as minimum requirements. The *minimum* flow rate for a shower in this table is above the allowable *maximum* flow rate for a showerhead as specified by Table 604.4 of this code and by the nationwide standard that has been in effect for nearly 20 years. Similarly, the minimum flow rate for lavatories does not distinguish between public and private fixtures, and thus sets a minimum flow for public lavatories that is in excess of the maximum flow allowable under Table 604.4 of this code. And for residential sinks other than service sinks, the *minimum* flow rate is again set higher than the allowable *maximum* flow rate for a sink faucet as specified by Table 604.4. For applications at the low end of the acceptable range of water pressure, these excessive minimum flow values tend to encourage the oversizing of pipes leading to fixture outlets, leaving a larger volume of cooled hot water to purge before use, and thus exacerbating the problem of the energy and water lost while waiting for actual hot water to arrive at the fixture. In some installations, these excessive minimum values may require water pressure booster systems that might otherwise be unnecessary. Under this proposal, public lavatories would be distinguished from private lavatories, single-handle mixing valves for private lavatories would be recognized, and the minimum flow rates for lavatory, residential sink, and shower supply pipes would be adjusted downward. Minimum flow rates for showers would be set at 2.5 gpm, or such lower flow rate as would match the manufacturer's minimum rated flow for the mixing valve to		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	provide the level of thermal protection prescribed by the industry standard. The minimum flow rate for a residential sink, other than a service sink, would be set at 1.75 gpm, which is 80 percent of the value of the maximum flow rate allowed by this code under Table 604.4. The minimum flow rate for a public lavatory would be set at 0.4 gpm, 80 percent of the value of the maximum flow rate allowed by this code under Table 604.4. The minimum flow rate for a private lavatory would be set at 0.8 gpm, which is the minimum flow rate prescribed for private lavatory faucets by the US EPA's WaterSense specification (version 1.0, October 2007).				
P93-12	Section(s): Table 604.5 Section 607.2 of the 2012 IPC limits the developed length of hot or tempered water supply piping to 50 feet. The change recommended in this proposal correlates Table 604 with Section 607.2. It will apply to cold water as well as to hot or tempered water, which quite frankly is fine from the perspective of minimizing pressure drop and maintaining acceptable performance at the fixtures.	X			
P94-12	Section(s): Table 605.3, Table 605.4, 605.17 (New) CPVC/AL/CPVC pipe has been developed that is suitable for use as potable water piping, both as water service pipe and water distribution pipe. This product has been successfully used successfully on a limited basis since 2007 based on NSF standard 61 and a special engineering standard (SE) from NSF International. Including this product in the IPC will recognize another plumbing pipe option for installers.		X		
P95-12	Section(s): Table 605.3, Table 702.2, Table 702.3, Table 702.4, 705.3, Table 1102.5 Asbestos cement pipe is no longer manufactured in North America. The potential health issues associated with asbestos make this piping material unsuitable for use. The material needs to be removed from the code.		X		
P97-12	Section(s): Table 605.5, Chapter 14 Add new standard to Chapter 14 as follows: ASME B16.51-2011 Copper and Copper Alloy Press-Connect Pressure Fittings		X		
P98-12	Section(s): Table 605.5, Chapter 14 Add new standard to Chapter 14 as follows: ASME B16.51-2011 Copper and Copper Alloy Press-Connect Pressure Fittings		X		
P99-12	Section(s): Table 605.5 PIPE FITTINGS The above proposal removes DWV fittings from Potable Water table to benefit the end user. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV and ASME B 16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings – DWV are designed with short cup depth and ¼ inch per foot slope. Both		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Standards are listed correctly under DWV fittings in Table 704.2 and Chapter 14 Reference Standards.				
P100-12	Section(s): Table 605.5 PIPE FITTINGS Adding standard ASTM F2769 (already in the code) to the pipe fittings table because the standard includes fittings for PE-RT tubing. This standard should have added to this table during the last cycle when the standard was first introduced into the code for Tables 605.3 and 605.4.		X		
P101-12	Section(s): Table 605.5, Chapter 14 The materials currently listed in Table 605.5 do not fully represent the materials being used for potable water systems in the industry. The code is overly-restrictive with regard to pipe materials and does not allow for the use of materials that offer improved mechanical and electrochemical properties compared with allowed materials. The additions of the standard materials will allows the use of high grade materials that provide improved performance. Many of these materials are also currently used in the International Mechanical Code and other piping codes.		X		
P102-12	Section(s): Table 605.5 ASME B16.12 removed as it is for threaded *drainage* fittings and is inappropriate in a water distribution pipe fitting table.		X		
P104-12	Section(s): 605.15, 605.15.4 (New) Revise as follows: 605.15.4 Press connect. Cut tube ends shall be reamed to the full inside diameter of the tube end. Joint surfaces shall be cleaned. The tube shall be fully inserted into the press connect fitting. Press connect joints shall be pressed with a tool certified by the manufacturer.		X		
P105-12	Section(s): 605.15.3 (New), Chapter 14 Add new text as follows: 605.15.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F1476, shall be made with an *approved* elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be permitted to be concealed. Add new standard to Chapter 14 as follows: ASTM ASTM F1476-07 Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications		X		
P106-12	Section(s): 605.15.5 (New) Add new text as follows: 605.15.5 Press Connect Joints. Press connect joints shall be installed in accordance with the manufacturer's instructions. Press-connect joints shall conform to one of the standards listed in Table 605.5		X		
P107-12	Section(s): 605.16.2 Revise as follows:		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	605.16.2 Solvent cementing. Joint surfaces shall be clean and free from moisture,. Joints shall be made in accordance with the pipe manufacturer's installation instructions. Where such instructions require and that an *approved* primer be used, the primer shall be applied to the joint surfaces and a solvent cement, orange in color and conforming to ASTM F 493, shall be applied to the joint surfaces. Where such instructions allow for a one step solvent cement, yellow in color and conforming to ASTM F 493, to be used, the joint surfaces shall not require application of a primer before the solvent cement is applied. The joint shall be made while the cement is wet and in accordance with ASTM D 2846 or ASTM F 493. Solvent cemented joints shall be permitted above or below ground.				
P109-12	Section(s): 605.18.3 (New), Chapter 14 Add new text as follows: 605.18.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F1476, shall be made with an *approved* elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be permitted to be concealed. Add new standard to Chapter 14 as follows: ASTM ASTM F1476-07 Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications		X		
P112-12	Section(s): 605.2.1 (New), Chapter 14 Add new text as follows: 605.2.1 Lead content of drinking water pipe and fittings. Pipe, pipe fittings, joints, valves, faucets, and fixture fittings utilized to supply water for drinking or cooking purposes shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent lead or less. Add new standard to Chapter 14 as follows: NSF 372-2010 Drinking Water System Components - Lead Content		X		
P113-12	Section(s): 605.5 Fittings. Pipe fittings shall be *approved* for installation with the piping material installed and shall comply with the applicable standards listed in Table 605.5. Pipe fittings utilized in water supply systems shall also comply with NSF 61. Ductile and gray iron pipe and pipe fittings utilized within water service piping systems shall be cement mortar lined in accordance with AWWA C104.		X		
P115-12	Section(s): 605.7 Valves. All valves shall be of an approved type and compatible with the type of piping material installed in the system. ~~Ball valves, gate valves, butterfly valves, globe valves and plug~~. Valves intended to supply drinking water shall meet the requirements of NSF 61.		X		
P116-12	Section(s): 605.7, Table 605.7 (New), Chapter 14		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Currently the code requires valves to be approved but does not contain requirements for which performance standards are acceptable for use. While a number of valve standards have been created over the years, they have not been included in the code. The intent of this code change is to create a table to identify appropriate standards for valves. This list is not all inclusive of all material types and in some cases there are not national standards for every type of valve and material used. For this reason, the language "shall be approved or conform to . . ."				
P119-12	Section(s): 605.22.2 (New), Chapter 14 Add new text as follows: 605.22.2 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F1476, shall be made with an *approved* elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be permitted to be concealed. Add new standard to Chapter 14 as follows: ASTM ASTM F1476-07 Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications		X		
P120-12	Section(s): 605.23.3 (New), Chapter 14 Add new text as follows: 605.23.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F1476, shall be made with an *approved* elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be permitted to be concealed. Add new standard to Chapter 14 as follows: ASTM ASTM F1476-07 Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications		X		
P121-12	Section(s): 605.24.2 Plastic pipe or tubing to other piping material. Joints between different ~~grades~~ types of plastic pipe or between plastic pipe and other piping material shall be made with ~~an~~ *approved* adapters or transition fittings.		X		
P122-12	Section(s): 605.25.1 Revise as follows: ~~605.25.1 Flared joints. Flared pipe ends shall be made by a tool designed for that operation.~~		X		
P131-12	Section(s): 605.25.1 Revise as follows: ~~605.25.1 Flared joints. Flared pipe ends shall be made by a tool designed for that operation.~~		X		
P132-12	Section(s): Table 608.1, 608.13.6, Chapter 14 APPLICATION OF BACKFLOW PREVENTERS There also other hydrants and hose connections with the proper backflow preventer or vacuum breaker that exist other than those		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	complying with the ASSE and CSA standards. These hydrants are for utility and maintenance use. This is a National standard (ANSI) which covers the performance requirements for these types of devices. Add new standard to Chapter 14 as follows: ASME A112.21.3–1985(R2007) Hydrants for Utility and Maintenance Use				
P133-12	Section(s): Table 608.1 APPLICATION OF BACKFLOW PREVENTERS There is much confusion concerning protection provided by any 'backflow preventer'. Reorganizing this table would better identify proper and correct applications for code users by identifying the different protection methods: assemblies, backflow prevention devices and other means or methods. The existing table gives the mistaken understanding that "any of the above provides adequate protection for any job". This is not true. Adequate protection is based on hazard classification, application and proper installation. Backflow prevention assemblies are specifically recognized and accepted as separate and distinct units based on Section 312.10.2 because of their requirement for periodic testing to ensure proper and reliable operation in order to protect public health.		X		
P134-12	Section(s): 608.6 Revise as follows: 608.6 Cross-connection control. Cross-connections shall be prohibited, except where approved backflow prevention assemblies, backflow prevention devices or other means or methods are installed to protect the potable water supply.		X		
P135-12	Section(s): 608.8, 608.8.1 Water distribution systems of other than potable water are being installed in buildings and the code needs to require marking of the piping and signage for the outlets for safety reasons. The basis for this new language is text from the IgCC and is written to be in alignment with the IgCC requirements.		X		
P141-12	Section(s): 608.13.7 608.13.7 Double check ~~valve~~ backflow prevention assemblies. Double check ~~valve~~ backflow prevention assemblies shall conform to ASSE 1015, CSA B64.5, CSA B64.5.1 or AWWA C510. ~~Double~~detector check ~~valve~~ detector fire protection backflow prevention assemblies shall conform to ASSE\ 1048. These ~~devices~~ assemblies shall be capable of operating under continuous pressure conditions.		X		
P142-12	Section(s): 608.13.10 (New) Add new text as follows: 608.13.10 Dual check valve backflow preventer. Dual check valve backflow preventers shall conform to ASSE 1024 or CSA B64.6.		X		
P147-12	Section(s): 610.1 Revise as follows:		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	610.1 General. New ~~or repaired~~ potable water systems shall be purged of deleterious matter and disinfected prior to utilization. The method to be followed shall be that prescribed by the health authority or water purveyor having jurisdiction or, in the absence of a prescribed method, the procedure described in either AWWA C651 or AWWA C652, or as described in this section. This requirement shall apply to "on-site" or "in-plant" fabrication of a system or to a modular portion of a system.				
P152-12	Section(s): 701.7 Delete without substitution: ~~701.7 Connections. Direct connection of a steam exhaust, blowoff or drip pipe shall not be made with the building drainage system. Waste water where discharged into the building drainage system shall be at a temperature not greater than 140°F (60°C). Where higher temperatures exist, *approved* cooling methods shall be provided.~~		X		
P155-12	Section(s): 702.5 (New), 803.1 Revise as follows: 702.5 Temperature rating. Where the wastewater temperature will be greater than 140°F (60°C), the sanitary drainage piping material shall be rated for the highest temperature of the wastewater.		X		
P157-12	Section(s): 703.1 Revise as follows: 703.1 Building sewer pipe near the water service. ~~Where the building sewer is installed within 5 feet (1524 mm) of the water service, the installation shall comply with the provisions of Section 603.2.~~ The proximity of a sewer to a water service shall comply with Section 603.2.		X		
P158-12	Section(s): 703.6 (New), 1109, 1109.1 Add new text as follows: 703.6 Combined sanitary and storm public sewer. Where the public sewer is a combined system for both sanitary and storm water, the sanitary sewer shall be connected independently to the public sewer. General. Where the public sewer is a combined system for both sanitary and storm water, the storm sewer shall be connect independently to the public sewer.		X		
P159-12	Section(s): 705 (New) REPLACEMENT OF UNDERGROUND SEWERS BY PIPE BURSTING METHODS 705.1 General. This section shall govern the replacement of existing building sewer piping by pipe bursting methods. 705.2 Applicability. The replacement of building sewer piping by pipe bursting methods shall be limited to gravity drainage piping of sizes 6 inches and smaller. The replacement piping shall be of the same nominal size as the existing piping. 705.3 Pre-installation inspection. The existing piping sections to be replaced shall be inspected internally by a recorded video camera		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	survey. The survey shall include notations of the position of cleanouts and the depth of connections to the existing piping. 705.4 Pipe. The replacement piping shall be of extra high molecular weight PE3408 material and shall be manufactured with an SDR of 17 and in compliance with ASTM F 714. 705.5 Pipe fittings. Pipe fittings to be connected to the replacement piping shall be of extra high molecular weight PE3408 material and shall be manufactured with an SDR of 17 and in compliance with ASTM D2683. 705.6 Cleanouts. Where the existing building sewer did not have cleanouts meeting the requirements of this code, cleanout fittings shall be installed as required by this code. 705.7 Installation procedure. The installation procedure shall be in accordance with the following steps: 1. The existing pipe section to be replaced shall be cleaned of debris. 2. The beginning and end of the piping section to be replaced shall be exposed as necessary to enable pulling equipment to be properly installed and the replacement piping to be inserted without bending of the pipe at less than the minimum allowable bending radius as recommended by the pipe manufacturer. 3. A pulling cable shall be retrieved from the pulling end of the piping to be replaced and pulled to the insertion end of the piping to be replaced. 4. A pipe bursting and pulling head shall be connected to one end of the replacement piping. The bursting/pulling head shall be connected to the pulling cable. 5. In accordance with the pulling equipment and pipe bursting head manufacturer's operating instructions, the pipe bursting/pulling head shall be simultaneously operated and pulled through the existing piping until the end of the new piping exits at the pulling end of the operation. 6. The pipe bursting/pulling head shall be disconnected from the new piping and the pulling equipment removed from the area. The replacement piping ends shall be cut to length as required and shall be connected to the existing piping beyond the pipe section that was replaced. Connections to the ends of the replacement piping shall be in accordance with Section 705. 7. Where a connection to the replacement piping at a point between the pulling end and the insertion end of the pipe section that was replaced is required, the replacement piping shall be exposed at that location. A section of replacement piping shall be removed and a fitting of the appropriate configuration in accordance with Table 706.3 shall be installed. The connections between the fitting and the pipe shall be made in accordance with Section 705.16. 705.8 Post-installation inspection. The completed replacement piping section shall be inspected internally by a recorded video camera				

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	survey. The video survey shall be reviewed and approved by the code official prior to pressure testing of the replacement piping system. 705.9 Pressure testing. The replacement piping system as well as the connections to the replacement piping shall be tested in accordance with Section 312. Add new standards to Chapter 14 as follows: ASTM D2683-04 Standard Specification for Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing. F 714-06a Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) based on Outside Diameter.				
P161-12	Section(s): 705.5.3 Revise as follows: 705.5.3 Mechanical joint coupling. Mechanical joint couplings for hubless pipe and fittings shall consist of an elastomeric sealing sleeve and a metallic shield that comply with CISPI 310, ASTM C1277 or ASTM C1540. The elastomeric sealing sleeve shall conform to ASTM C564 or CSA B602 and shall be provided with a center stop. Mechanical joint couplings shall be installed in accordance with the manufacturer's installation instructions.		X		
P162-12	Section(s): 705.7, 705.7.1, 705.7.2 ABS pipe can be made by several different methods. The manufacturing method of an ABS pipe has nothing to do with how the pipe is joined. All forms of ABS pipe are joined by the joining method for ABS pipe, Section 705.2. These sections are redundant and were thus deleted.		X		
P163-12	Section(s): 705.8, 705.8.1, 705.8.2 PVC pipe can be made by several different methods. The manufacturing method of a PVC pipe has nothing to do with how the pipe is joined. All forms of PVC pipe are joined by the joining method for PVC pipe, Section 705.14. These sections are redundant and were thus deleted.		X		
P164-12	Section(s): 705.8.2, 705.14.2 Exception: A primer is not required where both of the following conditions apply: 1. The solvent cement used is third-party certified as conforming to ASTM D 2564. 2. The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in non-pressure applications in sizes up to and including 4 inch (102 mm) in diameter.		X		
P168-12	Section(s): 708 This proposal reorganizes this section in a more logical format for ease of understanding.		X		
P170-12	Section(s): 712.3.2 Revise as follows: 712.3.2 Sump pit. The sump pit shall be not less than 18 inches (457 mm) in diameter and not less than 24 inches (610 mm) in depth, unless		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	otherwise approved. The pit shall be accessible and located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, concrete, steel, plastic or other approved materials. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gas-tight removable cover that is installed flush with grade or above grade. The cover shall be adequate to support anticipated loads in the area of use. The sump pit shall be vented in accordance with Chapter 9.				
P172-12	Section(s): 715.1 Exception: In existing buildings, fixtures above the elevation of the manhole cover of the next upstream manhole in the *public sewer* shall not be prohibited from discharging through a backwater valve.		X		
P174-12	Section(s): 716 (New), Appendix C Vacuum drainage system is a proven technology and should be allowed for situations where draining by gravity is prohibitive or not possible. Moving this information into Chapter 7 will allow for acceptance of vacuum drainage systems in jurisdictions that have not adopted the appendices.		X		
P175-12	Section(s): 802.1, 802.1.8 Revise as follows: 802.1 Where required. Food-handling equipment in other than dwelling units, and clearwater waste shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. Health-care related fixtures, devices and equipment shall discharge to the drainage system through an indirect waste pipe by means of an air gap in accordance with this chapter and Section 713.3. Fixtures not required by this section to be indirectly connected shall be directly connected to the plumbing system in accordance with Chapter 7. 802.1.8 Food utensils, dishes, pots and pans sinks. Sinks, in other than dwelling units, used for the washing, rinsing or sanitizing of utensils, dishes, pots, pans or service ware used in the preparation, serving or eating of food shall discharge indirectly through an air gap or an air break to the drainage system.		X		
P176-12	Section(s): 802.1 Where required. Food-handling equipment, and clear-water waste, dishwashing machines and utensil, pots, pans and dish washing sinks shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. Health-care related fixtures, devices and equipment shall discharge to the drainage system through an indirect waste pipe by means of an air gap in accordance with this chapter and Section 713.3. Fixtures not required by this section to be indirectly connected shall be directly connected to the plumbing system in accordance with Chapter 7.		X		
P177-12	Section(s): 802.1.1 Food handling. Equipment and fixtures utilized for the storage, preparation and handling of food shall discharge through an indirect		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	waste pipe by means of an air gap. Each well of a multi-compartment sink shall discharge independently to a waste receptor.				
P181-12	Section(s): 802.3 This is a companion proposal with a newly added definition of waste receptor. The code fails to provide guidance as to what is a ventilated space, so we suggest removing the terms. This proposal takes the provisions in the direction of clear mandatory language that provides the user with terminology that clearly explains where a waste receptor is not permitted to be located. Further, there is no real problem associated with having a hub drain in a closet or storeroom where items such as water heaters and condensate producing appliances are located so that text has been removed.		X		
P182-12	Section(s): 202, 802.3, 802.3.2, 802.4 Add new definition as follows: WASTE RECEPTOR. A floor sink, standpipe, hub drain or a floor drain that receives the discharge of one or more indirect waste pipes.		X		
P185-12	Section(s): 903.1 Trap seal protection. The plumbing system shall be provided with a system of vent piping that will permit the admission or emission of air so that the seal of any fixture trap shall not be subjected to a ~~pneumatic~~ pressure differential of more than 1 inch of water column (249 Pa).		X		
P186-12	Section(s): 903.2 903.2 Frost closure. Where the 97.5-percent value for outside design temperature is 0°F (-18°C) or less, ~~every~~ vent extensions through a roof or wall shall be not less than 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made not less than 1 foot inside the ~~structure at a point not less than 1 foot (305 mm) below the roof or inside the wall~~ building's thermal envelope.		X		
P190-12	Section(s): 915.2.2 Connection. The combination waste and vent system shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain that serves vented fixtures located on the same floor. ~~is vented in accordance with one of the venting methods specified in this chapter~~. Combination waste and vent systems connecting to building drains receiving only the discharge from a one or more ~~stack or~~ stacks shall be provided with a dry vent. The vent connection to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented before offsetting horizontally. The horizontal length of a combination waste and vent system shall be unlimited.		X		
P192-12	Section(s): 918.5 918.5 Access and ventilation. Access shall be provided to all air admittance valves. ~~The~~ Such valves shall be installed in a locate~~d~~tion ~~within a ventilated space~~ that allows air to enter the valve.		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
P193-12	Section(s): 1002.1 Exceptions: 4. Floor drains in multilevel parking structures that discharge to a building storm sewer shall not be required to be individually trapped. Where floor drains in multilevel parking structures are required to discharge to a combined building sewer system, the floor drains shall not be required to be individually trapped provided that they are connect to a main trap in accordance with Section 1103.1.	X			Estimate $20/unit
P195-12	Section(s): 1002.4. 1002.4.1 (New), 1002.4.1.1 (New), 1002.4.1.2 (New), 1002.4.1.3 (New), 1002. 4.1.4 (New), Chapter 14 Trap seals. Each fixture trap shall have a liquid seal of not less than 2 inches (51 mm) and not more than 4 inches (102 mm), or deeper for special designs relating to accessible fixtures. ~~Where a trap seal is subject to loss by evaporation, a trap seal primer valve shall be installed. Trap seal primer valves shall connect to the trap at a point above the level of the trap seal. A trap seal primer valve shall conform to ASSE 1018 or ASSE 1044.~~ 1002.4.1 Trap seal protection. Traps seals of emergency floor drain traps and traps subject to evaporation shall be protected by one of the methods in Sections 1002.4.1.1 through 1002.4.1.4 1002.4.1.1 Potable water supplied trap seal primer valve. A potable water supplied trap seal primer valve shall supply water to the trap. Water supplied trap seal primer valves shall conform to ASSE 1018. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap. 1002.4.1.2 Reclaimed or gray water supplied trap seal primer valve. A reclaimed or gray water supplied trap seal primer valve shall supply water to the trap. Water supplied trap seal primer valves shall conform to ASSE 1018. The quality of reclaimed or gray water supplied to trap seal primer valves shall be in accordance with the requirements of the manufacturer of the trap seal primer valve. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap. 1002.4.1.3 Waste water supplied trap primer device. A waste water supplied trap primer device shall supply water to the trap. Waste water supplied trap primer devices shall conform to ASSE 1044. The discharge pipe from the trap seal primer device shall connect to the trap above the trap seal on the inlet side of the trap. 1002.4.1.4 Barrier type trap seal protection device. A barrier-type trap seal protection device shall protect the floor drain trap seal from evaporation. Barrier type floor drain trap seal protection devices shall conform to ASSE 1072. The devices shall be installed in accordance with the manufacturer's instructions.		X		
P197-12	Section(s): 1002.6 Building traps. Building (house) traps shall be prohibited, ~~except where local conditions~~		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~necessitate such traps. Building traps shall be provided with a cleanout and a relief vent or fresh air intake on the inlet side of the trap. The size of the relief vent or fresh air intake shall not be less than one half the diameter of the drain to which the relief vent or air intake connects. Such relief vent or fresh air intake shall be carried above grade and shall be terminated in a screened outlet located outside the building.~~				
P199-12	Section(s): 202, 1003.3.4, Chapter 14 Add new definition as follows: GREASE INTERCEPTOR. Fats, Oils, and Greases (FOG) disposal system. A plumbing appurtenance that reduces nonpetroleum fats, oils, and greases in effluent by separation or mass and volume reduction.		X		
P200-12	Section(s): 202, 1003.3.6 (New), Chapter 14 Add new definition to Chapter 2 as follows: GREASE INTERCEPTORS. Fats, Oils, and Greases (FOG) disposal systems. Plumbing appurtenances that reduce nonpetroleum fats, oils, and grease (FOG) in effluent by separation, mass and volume reduction. Add new text as follows: 1003.3.6 Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems. The required capacity of *gravity grease interceptors* and *gravity grease interceptors* with *fats, oils, and greases disposal systems* shall be determined by multiplying the peak drain flow into the interceptor in gallons per minute by a retention time of 30 minutes. *Gravity grease interceptors* shall be designed and tested in accordance with IAPMO/ANSI Z100. *Gravity grease interceptors* with *fats, oils, and greases disposal systems* shall be designed and tested in accordance with ASME 112.14.6 and IAPMO/ANSI Z1001. *Gravity grease interceptors* and *gravity grease interceptors* with *fats, oils, and greases disposal systems* shall be installed in accordance with manufacturer's instructions. Where manufacturer's instructions are not provided, *gravity grease interceptors* and *gravity grease interceptors* with *fats, oils, and greases disposal systems* shall be installed in compliance with ASME A112.14.6 and IAPMO/ANSI Z1001. Add new standards to Chapter 14 as follows: ASME A112.14.6-2010 FOG (Fats, Oils, and Greases) Disposal Systems IAPMO 5001 East Philadelphia Street Ontario, CA 91761 IAPMO Z1001 -2007 Prefabricated Gravity Grease Interceptors		X		
P204-12	Section(s): 1003.4 Exception: An oil separator is not required in hydraulic elevator pits where an *approved* alarm system is installed. Such alarm systems shall		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	not terminate the operation of pumps utilized to maintain emergency operation of the elevator by firefighters.				
P206-12	Section(s): 1003.4 Oil separators required. At repair garages where floor or trench drains are provided, carwashing facilities, at factories where oily and flammable liquid wastes are produced and ~~in~~ hydraulic elevator pits, oil separators shall be installed into which ~~all~~ oil-bearing, greasebearing or flammable wastes shall be discharged before emptying into the building drainage system or other point of disposal.		X		
P207-12	Section(s): 1003.6 Revise as follows: 1003.6 ~~Laundries~~ Clothes washer discharge interceptor. ~~Laundry facilities not installed within an individual dwelling unit or intended for individual family use~~ Clothes washers shall discharge through an interceptor that is provided with a wire basket or similar device, removable for cleaning, that prevents passage into the drainage system of solids ½ inch (12.7 mm) or larger in size, string, rags, buttons or other materials detrimental to the public sewage system. Exceptions: 1. Clothes washers in individual dwelling units shall not be required to discharge through an interceptor. 2. A single clothes washer designed for use in individual dwelling units and installed in a location other than an individual dwelling unit shall not be required to discharge through an interceptor.		X		
P208-12	Section(s): 1003.9 Revise as follows: 1003.9 Venting of interceptors and separators. Interceptors and separators shall be designed so as not to become air bound. ~~where tight covers are utilized~~. ~~Each~~ Interceptors ~~or~~ and separators shall be vented in accordance with one of the methods of Chapter 9. ~~where subject to a loss of trap seal.~~		X		
P209-12	Section(s): 202, 1101.2 Add new definitions as follows: RAINWATER. Water from natural precipitation. STORMWATER: Natural precipitation, including snowmelt, that has contacted a surface at grade or below grade. Revise as follows: 1101.2 ~~Where required~~. Disposal. All Rainwater from roofs, and stormwater from paved areas, yards, courts and courtyards shall drain ~~into a separate storm *sewer* system, or a combined *sewer* system~~, or to an *approved* place of disposal. For one- and twofamily dwellings, and where *approved*, storm water is permitted to discharge onto flat areas, such as streets or lawns, provided that the storm water flows away from the building.		X		
P211-12	Section(s): 1101.7		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Roof design. Roofs shall be designed for the maximum possible depth of water that will pond thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements. In determining the maximum possible depth of water, all primary roof drainage means shall be assumed to be blocked. The maximum possible depth of water on the roof shall include the height of the water required above the inlet of the secondary roof drainage means to achieve the required flow rate of the secondary drainage means to accommodate the design rainfall rate as required by Section 1106.				
P214-12	Section(s): Table 1102.5 SUBSOIL DRAIN PIPE Polyvinyl chloride (PVC) Plastic pipe (type sewer pipe, SDR 35, PS25, PS50 or PS100) ASTM D 2729; ASTM D 3034; ASTM F 891; CSA B182.2; CSA B182.4		X		
P216-12	Section(s): 1103.1 1103.1 Main trap. Leaders and storm drains connected to a combined sewer shall be trapped. Individual storm water traps shall be installed on the storm water drain branch serving each conductor, or a single trap shall be installed in the main storm drain just before its connection with the combined building sewer or the public sewer. Leaders and storm drains connected to a building storm sewer shall not be required to be trapped.	X			Estimate $15/unit
P217-12	Section(s): 1104.2 ~~1104.2 Combining storm with sanitary drainage. The sanitary and storm drainage systems of a structure shall be entirely separate except where combined sewer systems are utilized. Where a combined sewer is utilized, the building storm drain shall be connected in the same horizontal plane through a single-wye fitting to the combined sewer not less than 10 feet (3048 mm) downstream from any soil stack.~~		X		
P218-12	Section(s): 1105.2 (New) 1105.2 Roof drain flow rate. The published roof drain flow rate based upon the head of water above the roof drain shall be used to size the storm drainage system in accordance with Section 1106. The flow rate used for sizing the storm drainage piping shall be based on the maximum anticipated ponding at the roof drain.			X	Negligible cost as change should reflect an update to the design and contract documents
P219-12	Section(s): 1106.2, Table 1106.2 (New), Table 1106.2(1), Table 1106.2(2), 1106.3, Table 1106.3 (New), 1106.6, Table 1106.6 ~~1106.2 Vertical conductors and leaders. Vertical conductors and leaders shall be sized for the maximum projected roof area, in accordance with Table 1106.2(1) and Table 1106.2(2). TABLE 1106.2(1) SIZE OF CIRCULAR VERTICAL CONDUCTORS AND LEADERS TABLE 1106.2(2) SIZE OF RECTANGULAR VERTICAL CONDUCTORS AND~~			X	Negligible cost as change should reflect an update to the design

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~LEADERS 1106.3 Building storm drains and sewers. The size of the building storm drain, building storm sewer and their horizontal branches having a slope of one-half unit or less vertical in 12 units horizontal (4- percent slope) shall be based on the maximum projected roof area in accordance with Table 1106.3. The slope of horizontal branches shall be not less than one-eighth unit vertical in 12 units horizontal (1- percent slope) unless otherwise approved.~~ 1106.2 Size of storm drain piping. Vertical and horizontal storm drain piping shall be sized based on the flow rate through the roof drain. The flow rate in storm drain piping shall not exceed that specified in Table 1106.2. 1106.3 Vertical leader sizing. Vertical leaders shall be sized based on the flow rate from horizontal gutters or the maximum flow rate through roof drains. The flow rate through vertical leaders shall not exceed that specified in Table 1106.3. 1106.6 Size of roof gutters~~. The size of semicircular gutters shall be based on the maximum projected roof area in accordance with Table 1106.6.~~ Horizontal gutters shall be sized based on the flow rate from the roof surface. The flow rate in horizontal gutters shall not exceed that specified in Table 1106.6.				and contract documents
P220-12	Section(s): 1108.1 1108.1 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, secondary (emergency overflow) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. Where primary and secondary roof drains are manufactured as a single assembly, the inlet and outlet for each drain shall be independent.		X		
P221-12	Section(s): 1108.3 1108.3 Sizing of secondary drains. Secondary (emergency) roof drain systems shall be sized in accordance with Section 1106 based on the rainfall rate for which the primary system is sized in ~~Tables 1106.2(1), 1106.2(2), 1106.3 and 1106.6~~. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.7. Scuppers shall have an opening dimension of not less than 4 inches (102 mm). The flow through the primary system shall not be considered when sizing the secondary roof drain system.		X		
P222-12	Section(s): 1110, 1110.1 ~~1110.1 Equivalent roof area. Where there is a continuous or semicontinuous discharge into the building storm rain or building storm sewer, such as from a pump, ejector, air conditioning plant or similar device, each gallon per minute (L/m) of such discharge shall be computed as being equivalent to 96 square feet (9 m2) of roof area, based on a rainfall rate of 1 inch (25.4 mm) per hour.~~		X		
P223-12	Section(s): 1302.2, Chapter 14		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	1302.2 Disinfection ~~and treatment. Gray water shall be disinfected by an approved method that employs one or more disinfectants such as chlorine, iodine or ozone that are recommended for use with the pipes, fittings and equipment by the manufacturer of the pipes, fittings and equipment~~. Gray water shall be disinfected and treated by an on-site water reuse treatment system complying with NSF 350.				
P224-12	Section(s): 1302.4 ~~1302.4 Coloring. The gray water shall be dyed blue or green with a food grade vegetable dye before such water is supplied to the fixtures.~~		X		
P225-12	Section(s): 1308.1.1 (New), Chapter 14 1308.1.1 Design and construction. Reservoirs shall be designed and constructed in accordance with Chapters 16 through 22 of the International Building Code and in accordance with the following standards as appropriate for the material of the reservoir: AWWA D100, AWWA D115, AWWA D120, UL 58, UL 1746, UL 1316, UL 142, API 12F or API 12D.		X		
P226-12	Section(s): Table E202.1 This proposal simply adds two more commonly used water distribution piping and tubing materials to this table in order to make the table more useful to designers.		X		
M22-12	Section(s): 307.2.2 Delete PB material as it is no longer available or used in this application, and add polypropylene materials which are currently being used in this application		X		
M29-12	Section(s): 202, 307.2.4.1 307.2.4.1 Ductless Mini-Split Traps. Ductless mini split equipment that produces condensation shall be provided with an inline check valve located in the drain line instead of a trap.		X		
M32-12	Section(s): 307.2.5 (New) 307.2.5 Cleanouts. Condensate drains shall be provided with a means to allow cleaning of the drain and clearing of blockages without having to cut or disassemble the piping.			X	$15/unit
G8-12 Part I	Section(s): 202 IPC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).		X		
G40-12	Section(s): 202, 310.5, 310.5.2 (NEW), IPC Table 403.1 (IBC [P] Table 2902.1) 310.5 Residential Group R-3. Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:		X		

Table 3. 2015 IPC Changes Cost Impact					
CODE CHANGE #	2015 IPC CHANGE SUMMARY	2015 IPC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Lodging houses with five of fewer guest rooms 310.5.2 Lodging houses. Owner occupied lodging houses with five or fewer guest rooms shall be permitted to be constructed in accordance with the International Residential Code.				
G71-12 Part III	Section(s): 906.2, Table 906.3(1), Table 906.3(2), 907.2.6, 907.2.10.1 (IBC [F] 906.2, Table 906.3(1), Table 906.3(2), 907.2.6, 907.2.10.1) The change from "travel distance" to "distance of travel" more clearly distinguishes between "exit access travel distance"		X		
E201-12	Section(s): 1109.5.1 (IPC [B] 410.2) The current language is not specific enough. It isn't clear that for the single drinking fountain, two separate spouts are required to meet the needs of the people in the wheelchairs and the standing people.		X		

*For prescriptive Code changes only.

DRAFT

APPENDIX D

Table 4. 2015 IMC Changes Cost Impact					
CODE CHANGE #	2015 IMC CHANGE SUMMARY	2015 IMC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
M10-12	Section(s): 303.3 303.3 Prohibited locations. Fuel-fired appliances shall not be located in, or obtain combustion air from, any of the following rooms or spaces: 1. Sleeping Rooms 2. Bathrooms 3. Toilet Rooms 4. Storage Closets 5. Surgical Rooms		X		
M11-12	Section(s): 303.5 303.5 Indoor locations. ~~Furnaces and boilers installed in closets and alcoves shall be listed for such installation. For purposes of this section, a closet or alcove shall be defined as a room or space having a volume less than 12 times the total volume of the fuel-fired appliances other than boilers and less than 16 times the total volume of boilers. Room volume shall be computed using the gross floor area and the actual ceiling height up to a maximum computation height of 8 feet.~~		X		
M15-12	Section(s): 305.4, Chapter 15 305.4 Interval of support. Piping shall be supported at distances not exceeding the spacing specified in Table 305.4, or in accordance with ~~MSS SP-69~~ ANSI/MSS SP-58-2009.		X		
M16-12	Section(s): Table 305.4 Add support dimensions for polyethylene of raised temperature (PE-RT). PE-RT is already in the International Codes and adding the support spacing will provide additional information for installation. All other dimensions in the table remain unchanged.		X		
M18-12	Section(s): 306.1 306.1 Access. Appliances, controls devices, heat exchangers and HVAC system components that utilize energy shall be accessible for inspection, service, repair and replacement without disabling the function of a fire-resistance-rated assembly or removing permanent construction, other appliances, venting systems or any other piping or ducts not connected to the appliance being inspected, serviced, repaired or replaced. A level working space at least 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an appliance.			X	$100 - $200 per Location quantity
M20-12	Section(s): 307.2 307.2 Evaporators and cooling coils. Condensate drain systems shall be provided for equipment and appliances containing evaporators or cooling coils. Condensate drain systems shall be designed, constructed and installed in accordance with Sections 307.2.1 through 307.2.4.		X		
M22-12	Section(s): 307.2.2 307.2.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, ~~polybutylene~~, polyethylene, ABS, CPVC, or PVC, or polypropylene pipe or tubing. All components shall be selected for the		X		

Table 4. 2015 IMC Changes Cost Impact					
CODE CHANGE #	2015 IMC CHANGE SUMMARY	2015 IMC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the International Plumbing Code relative to the material type. Condensate waste and drain line size shall not be less than ¾-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 307.2.2.				
M26-12	Section(s): 202 (NEW), Section 307.2.3.1 307.2.3.1 Water-level monitoring devices and condensate pumps. On down-flow units and all other coils that do not have a secondary drain or provisions to install a secondary or auxiliary drain pan, a water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment served in the event that the primary drain becomes restricted. Devices installed in the drain line shall not be permitted. For ductless mini-split equipment that is not able to drain condensate from the unit by gravity, a condensate pump shall be installed to remove water from the equipment. The condensate pump shall be powered by the same power supply that powers the equipment being served and shall be capable of shutting off the equipment served in the event of failure of the pump to remove condensate.		X		
M29-12	Section(s): 202, 307.2.4.1 307.2.4.1 Ductless Mini-Split Traps. Ductless mini split equipment that produces condensation shall be provided with an inline check valve located in the drain line instead of a trap.		X		
M32-12	Section(s): 307.2.5 (New) 307.2.5 Cleanouts. Condensate drains shall be provided with a means to allow cleaning of the drain and clearing of blockages without having to cut or disassemble the piping.			X	Estimate $15/unit
M34-12	Section(s): 202, 308 PROTECTIVE ASSEMBLY (REDUCED CLEARANCE). Any noncombustible assembly that is labeled or constructed in accordance with Table 308.~~6~~4.2 and is placed between combustible materials or assemblies and mechanical appliances, devices or equipment, for the purpose of reducing required airspace clearances. Protective assemblies attached directly to a combustible assembly shall not be considered as part of that combustible assembly. 308.4 Allowable reduction. The reduction of required clearances to combustible assemblies or combustible materials shall be based on the utilization of a reduced clearance protective assembly in accordance with Section 308.~~5~~4.1 or 308.~~6~~4.2. 308.~~5~~4.1 Labeled assemblies. The allowable clearance reduction shall be based on an approved reduced clearance protective assembly that is listed and labeled in accordance with UL 1618. 308.~~6~~4.2 Reduction table. The allowable clearance reduction shall be based on one of the methods specified in Table 308.64.2. Where required clearances are not listed in Table 308.~~6~~4.2, the reduced clearances shall be		X		

Table 4. 2015 IMC Changes Cost Impact					
CODE CHANGE #	2015 IMC CHANGE SUMMARY	2015 IMC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	determined by linear interpolation between the distances listed in the table. Reduced clearances shall not be derived by extrapolation below the range of the table. 308.~~7~~5 Solid fuel-burning appliances. The clearance reduction methods specified in Table 308.~~6~~4.2 shall not be utilized to reduce the clearance required for solid fuel-burning appliances that are labeled for installation with clearances of 12 inches (305 mm) or less. Where appliances are labeled for installation with clearances of greater than 12 inches (305 mm), the clearance reduction methods of Table 308.~~6~~4.2 shall not reduce the clearance to less than 12 inches (305 mm). 308.~~8~~6 Masonry chimneys. The clearance reduction methods specified in 308.~~6~~4.2 shall not be utilized to reduce the clearances required for masonry chimneys as specified in Chapter 8 and the International Building Code. 308. 7 Chimney connector pass-throughs. The clearance reduction methods specified in 308.64.2 shall not be utilized to reduce the clearances required for chimney connector pass-throughs as specified in Section 803.10.4. 308.~~10~~8 Masonry fireplaces. The clearance reduction methods specified in 308.~~6~~4.2 shall not be utilized to reduce the clearances required for masonry fireplaces as specified in Chapter 8 and the International Building Code. 308.~~11~~9 Kitchen exhaust ducts. The clearance reduction methods specified in 308.~~6~~4.2 shall not be utilized to reduce the minimum clearances required by Section 506.3.11 for kitchen exhaust ducts enclosed in a shaft.				
M36-12, Part I	Section(s): 401.2, Table 403.3; 407 (New); Chapter 15, IBC 1203.1 Section 401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403. Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2-inch water column (50 Pa) in accordance with Section 402.4.1.2 of the International Energy Conservation Code, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.		X		
M36-12, Part II	Section(s): 401.2, Table 403.3; 407 (New); Chapter 15, IBC 1203.1 1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the International Mechanical Code. Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure 0.2 inch w.c. (50 Pa) in accordance with Section 402.4.1.2 of the International Energy Conservation Code, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403 of the International Mechanical Code. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the International Mechanical Code.		X		
M42-12	Section(s): 403, 403.3 (NEW), 403.3.1 (New), 403.3.2 (New), 403.3.2.1 (New), 403.3.2.1.1 (New), 403.3.2.2 (New), 403.3.2.3 (New), 403.3.2.4 (New)		X		

Table 4. 2015 IMC Changes Cost Impact					
CODE CHANGE #	2015 IMC CHANGE SUMMARY	2015 IMC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	This proposal makes no changes to the mechanical ventilation requirements of buildings other than R-2, R-3, and R-4 buildings of three stories or less above grade plane (note that the text removed from 403.2 has simply been reinserted in 403.3.1.1). The effect of this proposal will be to simplify and clarify mechanical ventilation requirements for R-2, R-3, and R-4 buildings with a height of three stories or less above grade plane, ensuring that the IMC requirements are aligned with the latest ASHRAE standard that addresses these building types.				
M43-12	Section(s): 403.2.1, Table 403.3 403.2.1 Recirculation of air. The air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that: 3. Where mechanical exhaust is required by Note b in Table 403.3, recirculation of air from such spaces shall be prohibited. Recirculation of air that is contained completely within such spaces shall not be prohibited. Where recirculation of air is prohibited, ~~A~~all air supplied to such spaces shall be exhausted, including any air in excess of that required by Table 403.3.		X		
M44-12	Section(s): 403.2.1, Table 403.3 403.2.1 Recirculation of air. The air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that: (No changes to items 1 through 3) 4. Where mechanical exhaust is required by Note g in Table 403.3, mechanical exhaust is required and recirculation from such spaces is prohibited where more than 10 percent of the resulting supply airstream consists of air recirculated from these spaces. Recirculation of air that is contained completely within such spaces shall not be prohibited.		X		
M46-12	Section(s): Table 403.3 Table 403.3: For nail salons, each nail station shall be provided with a source capture system capable of exhausting not less than 50 cfm per station. Where one or more required source capture systems operate continuously during occupancy, the exhaust rate from such systems shall be permitted to be applied to the exhaust flow rate required by Table 403.3 for the nail salon.		X		
M49-12	Section(s): Table 403.3 The requirement for an exhaust system which is a form of ventilation seems to conflict with Section 502.14 which exempts one and two family dwellings from being ventilated. The concern is installing a fan of this size will have no impact on the garage space as it would not provide much in the way of flow.	X			$0.10 - $0.20 per Location quantity
M51-12	Section(s): 403.2 403.2 Outdoor air required. The minimum outdoor airflow rate shall be determined in accordance with Section 403.3. Ventilation In occupiable spaces, the ventilation supply systems shall be designed to deliver the required rate of outdoor airflow to the breathing zone ~~within each occupiable space.~~		X		

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M52-12	Section(s): 403.4 403.4 Exhaust ventilation. Exhaust airflow rate shall be provided in accordance with the requirements in Table 403.3. Where Table 403.3 specifies a people outdoor airflow rate, an area outdoor airflow rate, or both for an occupancy that also has an exhaust airflow rate specified by Table 403.3, the space served by the required exhaust airflow shall be supplied with outdoor air at a rate not less than that determined in accordance with Section 403.3 and such outdoor air shall be either a component of the makeup air for the required exhaust airflow or it shall be otherwise relieved or exhausted. Exhaust makeup air shall be permitted to be any combination of outdoor air, recirculated air and transfer air provided that the outdoor air requirements of Table 403.3 are satisfied ~~except as limited in accordance with Section 403.2.~~		X		
M54-12	Section(s): 404.1 404.1 Enclosed parking garages. Where mechanical ventilation systems for enclosed parking garages ~~shall be permitted~~ to operate intermittently, such operation shall be automatic ~~in accordance with Item 1. Item 2 or both.~~ ~~1. The system shall be arranged to operate automatically upon detection of vehicle operation or the presence of occupants by approved automatic detection devices.~~ ~~2. The system shall be arranged to operate automatically by means of~~ carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be installed in accordance with their manufacturers' recommendations.		X		
M59-12	Section(s): 501.3 501.3 Exhaust discharge. The air removed by every mechanical exhaust system shall be discharged outdoors at a point where it will not cause a nuisance and not less than the distances specified in Section 501.3.1. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into an attic or crawl space.		X		
M60-12	Section(s): 501.3, 501.3.1.1 501.3 Exhaust discharge. The air removed by every mechanical exhaust system shall be discharged outdoors at a point ~~where it will not cause a nuisance and~~ not less than the distances specified in Section 501.3.1. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into an attic, or crawl space, or be directed onto walkways. ~~501.3.1.1 Exhaust discharge. Exhaust air shall not be directed onto walkways.~~		X		
M61-12	Section(s): 501.4 501.4 Pressure equalization. Mechanical exhaust systems shall be sized to remove the quantity of air required by this chapter to be exhausted. The system shall operate when air is required to be exhausted. Where mechanical exhaust is required in a room or space in other than occupancies in R-3 and dwelling units in R-2, such space shall be maintained with a neutral or negative pressure. If a greater quantity of air is supplied		X		

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	by a mechanical ventilating supply system than is removed by a mechanical exhaust for a room, adequate means shall be provided for the natural or mechanical exhaust of the excess air supplied. If only a mechanical exhaust system is installed for a room or if a greater quantity of air is removed by a mechanical exhaust system than is supplied by a mechanical ventilating supply system for a room, adequate makeup air consisting of supply air, transfer air or outdoor air shall be provided to satisfy the deficiency. ~~The calculated building infiltration rate shall not be used to satisfy the requirements of this section.~~				
M63-12	Section(s): 502.14 502.14 Motor Vehicle Operation. In areas where motor vehicles operate, mechanical ventilation shall be provided in accordance with Section 403. Additionally, areas in which stationary motor vehicles are operated shall be provided with a source capture system that connects directly to the motor vehicle exhaust systems. Such system shall be engineered by a registered design professional or shall be factory-built equipment designed and sized for the purpose. Exceptions: 1. This section shall not apply where the motor vehicles being operated or repaired are electrically powered. 2. This section shall not apply to one- and two- family dwellings. 3. This section shall not apply to motor vehicle service areas where engines are operated inside the building only for the duration necessary to move the motor vehicles in and out of the building.			X	$1,000-$2,000 per Location quantity
M64-12	Section(s): 502.20 (New), Table 404.3 502.20 Manicure and pedicure stations. Manicure and pedicure stations shall be provided with an exhaust system in accordance with Table 403.3, note h. Manicure tables and pedicure stations not provided with factory-installed exhaust inlets shall be provided with exhaust inlets located not more than 12 inches horizontally and vertically from the point of chemical application.		X		
M66-12	Section(s): 504.4, 504.6.2 504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. ~~Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow~~. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or chimney. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums. 504.6.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with nominal ¼ inch long by 1/8 inch diameter rivets ~~screws or~~ other fasteners that do not protrude into the inside of the duct more than such rivets.		X		
M68-12	Section(s): 504.5 (NEW), 504.6.4, 504.6.4.3(NEW), Chapter 15 504.5 Dryer Exhaust Duct Power Ventilators. Domestic dryer exhaust duct power ventilators shall conform to UL 705 for use in dryer exhaust duct		X		

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	systems. The dryer exhaust duct power ventilator shall be installed in accordance with the manufacturer's instructions. 504.6.4 Duct length. The maximum allowable exhaust duct length shall be determined by one of the methods specified in Sections 504.6.4.1 or ~~504.6.4.2~~ through 504.6.4.3. 504.6.4.3 Dryer exhaust duct power ventilator length. The maximum length of the exhaust duct shall be determined by the dryer exhaust duct power ventilator manufacturer's installation instructions.				
M70-12	Section(s): 504.6.5 504.6.5 Length identification. Where the exhaust duct equivalent length exceeds 35 feet ~~is concealed within the building construction~~, the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6 feet (1829 mm) of the exhaust duct connection.		X		
M71-12	Section(s): 504.6.7, 504.6, IFGC 614.6.3, IFGC 614.6 504.~~6.7~~ (IFGC 614.6.~~3~~) Protection required. Protective shield plates shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Shield plates shall be placed on the finished face of all framing members where there is less than 11 /4 inches (32 mm) between the duct and the finished face of the framing member. Protective shield plates shall be constructed of steel, have a thickness of 0.062 inch (1.6 mm) and extend a minimum of 2 inches (51 mm) above sole plates and below top plates. 504.~~67~~ (IFGC 614.~~6~~7) Domestic clothes dryer ducts. Exhaust ducts for domestic clothes dryers shall conform to the requirements of Sections 504.6.1 through 504.6.~~7~~6.			X	$50 - $100 per location quantity
M73-12	Section(s): 504.8, 505.3 (NEW) Since exception 2 has been installed in the IBC, it has been incomplete. The IMC has done a good job of updating the provisions for common ducts with clothes dryers but nothing has been done for domestic kitchens. Designers would not go to the expense of installing a shaft for domestic kitchen exhaust if there was not a smoke issue. When expensive condo's install super domestic kitchens, there is going to be smoke. Also, IMC Section 505.1 specifically requires systems with downdraft exhaust to discharge to the exterior		X		
M76-12	Section(s): 505.1, 505.3 (New), 507.2.3 505.1 Domestic systems. Where domestic range hoods and domestic appliances equipped with downdraft exhaust are ~~located within dwelling units~~ provided, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, shall be air tight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems. 505.2 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cfm (0.19 m3 /s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall		X		

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	be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system. 505.3 Other than Group R. In other than Group R occupancies, where domestic cooking appliances are utilized for domestic purposes, such appliances shall be provided with domestic range hoods. Hoods and exhaust systems shall be in accordance with Sections 505.1 and 505.2.				
M85-12	Section(s): 506.3.7.1 506.3.7.1 Grease duct reservoirs. Grease duct reservoirs shall		X		
M86-12	Section(s): 506.3.8 506.3.8 Grease duct cleanouts and openings. Grease duct cleanouts and openings shall comply with all of the following: 1. Grease ducts shall not have openings except where required for the operation and maintenance of the system. 2. Sections of vertical grease ducts that are inaccessible from the hood or discharge openings shall be provided with cleanout openings spaced not more than 20 feet apart and not more than 10 feet from changes in direction greater than 45 degrees. 3. Cleanouts and openings shall be equipped with tight-fitting doors constructed of steel having a thickness not less than that required for the duct. 4. Cleanout doors shall be installed liquid tight. 5. Door assemblies including any frames and gaskets shall be approved for the application and shall not have fasteners that penetrate the duct. 6. Gasket and sealing materials shall be rated for not less than 1500ºF (816ºC). 7. Listed door assemblies shall be installed in accordance with the manufacturer's instructions.			X	$500 - $700 per door location quantity
M87-12	Section(s): 506.3.7.1 506.3.7.1 Grease reservoirs. Grease reservoirs shall: 1. Be constructed as required for the grease duct they serve. 2. Be located on the bottom of the horizontal duct or the bottommost section of the duct riser. ~~3. Have a length and width of not less than 12 inches (305 mm). Where the grease duct is less than 12 inches (305 mm) in a dimension, the reservoir shall be not more than 2 inches (51 mm) smaller than the duct in that dimension.~~ 3. Extend across the full width of the duct and have a length of not less than 12 inches. 4. Have a depth of not less than 1 inch (25.4 mm). 5. Have a bottom that ~~is sloped to a point for drainage.~~ slopes to a drain. 6. Be provided with a cleanout opening constructed in accordance with Section 506.3.8 and installed to provide direct access to the reservoir. The cleanout opening shall be located on a side or on top of the duct so as to permit cleaning of the reservoir. 7. Be installed in accordance with the manufacturer's instructions where manufactured devices are utilized.		X		
M88-12	Section(s): 506.3.11 506.3.11 Grease duct enclosures. A grease duct serving a Type I hood that penetrates a ceiling, wall or floor shall be enclosed from the point of penetration to the outlet terminal. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the International Building Code . The duct enclosure shall serve a single grease duct and shall not contain other ducts, piping or wiring systems. Duct enclosures shall be either field-applied or factory-built. Duct enclosures shall have a fire resistance rating not less than that of the floor assembly		X		

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	penetrated, and not less than 1 hour. Fire dampers shall not be installed in grease ducts. Duct enclosures shall be as prescribed by Sections 506.3.11.1, 506.3.11.2 or 506.3.11.3.				
M90-12	Section(s): 506.3.11 506.3.11 Grease duct enclosures. A grease duct serving a Type I hood that penetrates a ceiling, wall, floor or any concealed spaces shall be enclosed from the point of penetration to the outlet terminal. In-line exhaust fans not located outdoors shall be enclosed as required for grease ducts. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the International Building Code.			X	$200 - $300 per LF of Enclosure
M92-12	Section(s): 506.3.11, 506.3.11.1, 506.3.11.2, 506.3.11.3, Chapter 15 506.3.11 Grease duct enclosures. A commercial kitchen grease duct serving a Type I hood that penetrates a ceiling, wall, floor or any concealed spaces shall be enclosed from the point of penetration to the outlet terminal. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the International Building Code. The duct enclosure shall serve a single grease duct and shall not contain other ducts, piping or wiring systems. Duct enclosures shall be ~~either~~ a shaft enclosure in accordance with Section 506.3.11.1, a field-applied enclosure assembly in accordance with 506.3.11.2 or a factory-built enclosure assembly in accordance with Section 506.3.11.3. Duct enclosures shall have a fire-resistance rating of not less than that of the assembly penetrated and not less than 1 hour. ~~Duct enclosures shall be as prescribed by Section 506.3.11.1, 506.3.11.2 or 506.3.11.3.~~ 506.3.11.1 Shaft enclosure. ~~Commercial kitchen grease~~ Grease ducts constructed in accordance with Section 506.3.1 shall be permitted to be enclosed in accordance with the International Building Code requirements for shaft construction. 506.3.11.2 Field-applied grease duct enclosure. Commercial kitchen grease Grease ducts constructed in accordance with Section 506.3.1 shall be enclosed by a listed and labeled field-applied grease duct enclosure ~~that is a listed and labeled~~ material, systems, product, or method of construction specifically evaluated for such purpose in accordance with ASTM E 2336. The surface of the duct shall be continuously covered on all sides from the point at which the duct originates to the outlet terminal. Duct penetrations shall be protected with a through-penetration ~~fire-stop~~ firestop system ~~classified~~ tested and listed in accordance with ASTM E 814 or UL ~~1497~~ 1479 and having a "F" and "T" rating equal to the fireresistance rating of the assembly being penetrated. The grease duct enclosure and firestop system shall be installed in accordance with the listing and the manufacturer's instructions. Such fire-stop systems shall be installed in accordance with the listing and the manufacturer's installation instructions. 506.3.11.3 Factory-built grease duct enclosure assemblies. Factory-built grease ducts ~~assemblies~~ incorporating integral enclosure materials shall be listed and labeled for use as ~~commercial kitchen~~ grease duct enclosure assemblies specifically evaluated for such purpose in accordance with UL 2221. Duct penetrations shall be protected with a through-penetration		X		

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	firestop system ~~classified~~ tested and listed in accordance with ASTM E 814 or UL 1479 and having an "F" and "T" rating equal to the fire resistance rating of the assembly being penetrated. ~~Such assemblies~~ The grease duct enclosure assembly and firestop system shall be installed in accordance with the listing and the manufacturer's instructions.				
M97-12	Section(s): 506.5.1.1 (NEW) 506.5.1.1 In line fan Location. Where enclosed duct systems are connected to in line fans, the fan shall be located in a room or space having the same fire resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of fan components. Such rooms or spaces shall be ventilated in accordance with the fan manufacturers' installation instructions.		X		
M100-12	Section(s): 506.5.3 506.5.3 Exhaust fan mounting ~~An~~ Up-blast fans serving Type I hoods and installed in a vertical or horizontal position shall be hinged, and supplied with a flexible weatherproof electrical cable to permit inspection and cleaning and shall be equipped with a means of restraint to limit the swing of the fan on its hinge. The ductwork shall extend a minimum of 18 inches (457 mm) above the roof surface.			X	$200 - $300 per Fan quantity
M101-12	Section(s): 507 The scope of this section has become much too large and non-cohesive due to multiple "tweaks" in the past. Requirements are "jumbled" and bounce around between the different types of hoods. There has been no change to intent in this proposed reorganization, only the presentation of the text has changed.		X		
M103-12	Section(s): 507.2.1.1.1 (New) 507.2.1.1.1 Multiple hoods utilizing a single exhaust system. Where heat or radiant energy sensors are utilized in hood systems consisting of multiple hoods served by a single exhaust system, such sensors shall be provided in each hood. Sensors shall be capable of being accessed from the hood outlet or from a cleanout location.			X	$200 - $300 per LF of Enclosure
M104-12	Section(s): 507.2 507.2 Where required. A Type I or Type II hood shall be installed at or above all commercial cooking appliances in accordance with Sections 507.2.1 and 507.2.2 Where any cooking appliance under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust equipment and makeup air system shall comply with the requirements of Sections 506, 507, 508 and 509.			X	$10,000 - $15,000 per Hood System
M106-12	Section(s): 507.2.1 507.2.1 Type I hoods. Type I hoods shall be installed where cooking appliances produce grease or smoke. Type I hoods shall be installed over medium-duty, heavy-duty and extra-heavy-duty cooking appliances~~. Type I hoods shall be installed over light-duty cooking appliances that produce grease or smoke.~~		X		
M107-12	Section(s): 507.2.1.1		X		

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	507.2.1.1 Operation. ~~Type I hood systems shall be designed and installed to automatically activate the exhaust fan whenever cooking operations occur. The activation of the exhaust fan shall occur through an interlock with the cooking appliances, by means of heat sensors or by means of other approved methods~~. The exhaust fan serving a Type I hood shall have automatic controls that will activate the fan when any appliance that requires such Type I Hood is turned on, or a means of interlock shall be provided that will prevent operation of such appliances when the exhaust fan is not turned on. Where one or more temperature or radiant energy sensors are used to activate a Type I hood exhaust fan, the fan shall activate not more than 15-minutes after the first appliance, served by that hood, has been turned on.				
M110-12	Section(s): 507.11 507.11 Grease filters. Type I hoods shall be equipped with grease filters listed and labeled in accordance with UL 1046 and ~~designed for the specific purpose~~. Grease-~~collecting *equipment*~~ filters shall be provided with access for cleaning or replacement. The lowest edge of a grease filter located above the cooking surface shall be not less than the height specified in Table 507.11.		X		
M111-12	507.11.1 Criteria. Filters shall be of such size, type and arrangement as will permit the required quantity of air to pass through such units at rates not exceeding those for which the filter or unit was designed or *approved*. Filter units shall be installed in frames or holders so as to be readily removable without the use of separate tools, unless designed and installed to be cleaned in place and the system is equipped for such cleaning in place. Where filters are designed to be and required to be cleaned, removable filter units shall be of a size that will allow them to be cleaned in a dishwashing machine or pot sink. Filter units shall be arranged in place or provided with drip-intercepting devices to prevent grease or other condensate from dripping into food or on food preparation surfaces.		X		
M112-12	Section(s): 508.1.2 (New) 508.1.2 Air balance. Design plans for a facility with a commercial kitchen ventilation system shall include a schedule or diagram indicating the design outdoor air balance. The design outdoor air balance shall indicate all exhaust and replacement air for the facility, plus the net exfiltration if applicable. The total replacement air airflow rate shall equal the total exhaust airflow rate plus the net exfiltration.		X		
M113-12	Section(s): 510.4, 510.5 510.4 Independent system. Hazardous exhaust systems shall be independent of other types of exhaust systems. ~~Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area. Exception: The provision of this section shall not apply to laboratory exhaust systems where all of the following conditions apply:~~		X		

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	~~1. All of the hazardous exhaust ductwork and otherlaboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation.~~ ~~2. The hazardous exhaust ductwork manifolded together within the occupied space must~~ ~~originate within the same fire area.~~ ~~3. Each control branch has a flow regulating device.~~ ~~4. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding.~~ ~~5. Radioisotope hoods are equipped with filtration and/ or carbon beds where required by the *registered design professional*.~~ ~~6. Biological safety cabinets are filtered.~~ ~~7. Provision is made for continuous maintenance of negative static pressure in the ductwork. Contaminated air shall not be recirculated to occupiable areas. Air containing explosive or flammable vapors, fumes or dusts; flammable, highly toxic or toxic gases; or radioactive material shall be considered to be contaminated.~~ 510.5 Incompatible materials and common shafts. Incompatible materials, as defined in the International Fire Code, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area. Exception: The provisions of this section shall not apply tolaboratory exhaust systems where all of the following conditions apply: 1. All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation. 2. The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area. 3. Each control branch has a flow regulating device. 4. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding. 5. Radioisotope hoods are equipped with filtration and/or carbon beds where required by the registered design professional. 6. Biological safety cabinets are filtered. 7. Provision is made for continuous maintenance of negative static pressure in the ductwork. Contaminated air shall not be recirculated to occupiable areas. Air containing explosive or flammable vapors, fumes or dusts; flammable, highly toxic or toxic gases; or radioactive material shall be considered to be contaminated.				
M114-12	Section(s): 510.4 510.4 Independent system. Hazardous exhaust systems shall be independent of other types of exhaust systems. Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not		X		

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	share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area. Exception: The provision of this section shall not apply to laboratory exhaust systems where all of the following conditions apply: 1. All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation. 2. The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area. 3. Each control branch has a flow regulating device. 4. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding. 5. Radioisotope hoods are equipped with filtration and/or carbon beds where required by the *registered design professional*. 6. Biological safety cabinets are filtered. 7. Provision is made for continuous maintenance of negative static pressure in the ductwork. ~~Contaminated air shall not be recirculated to occupiable areas. Air containing explosive or flammable vapors, fumes or dusts;~~				
M116-12	Section(s): 510.4, 510.5 510.4 Independent system. Hazardous exhaust systems shall be independent of other types of exhaust systems. Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area. Exception: The provision of this section shall not apply to laboratory exhaust systems where all of the following conditions apply: 1. All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation. 2. The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area. <u>3. Hazardous exhaust ductwork originating in different fire areas and manifolded together in an unoccupied common shaft shall meet the provisions of Section 717.5.3, Exception 1.1 of the *International Building Code*.</u> 4. Each control branch has a flow regulating device. 5. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding. 6. Radioisotope hoods are equipped with filtration and/or carbon beds where required by the *registered design professional*. 7. Biological safety cabinets are filtered. 8. Provision is made for continuous maintenance of negative static pressure in the ductwork. <u>510.5 Contaminated air.</u> Contaminated air shall not be recirculated to occupiable areas. Air containing explosive or flammable vapors, fumes or		X		

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	dusts; flammable, highly toxic or toxic gases; or radioactive material shall be considered to be contaminated.				
M117-12	Section(s): 510.4 Independent system. Hazardous exhaust systems shall be independent of other types of exhaust systems. Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area. Exceptions: The provision of this section shall not apply to laboratory exhaust systems where all of the following conditions apply: 1. All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation. 2. The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area. 3. Each control branch has a flow regulating device. 4. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding. 5. Radioisotope hoods are equipped with filtration and/ or carbon beds where required by the *registered design professional*. 6. Biological safety cabinets are filtered. ~~7. Provision is made for continuous maintenance of negative static pressure in the ductwork.~~ Each hazardous exhaust duct system shall be served by redundant exhaust fans that comply with either of the following: 7.1 The fans shall operate simultaneously in parallel and each fan shall be individually capable of providing the required exhaust rate. 7.2 Each of the redundant fans is controlled so as to operate when the other fan has ailed or is shut down for servicing.			X	$10,000 .00 to $15,000 .00 per Hood System
M118-12	Section(s): 510.5.5 510.5.5 Makeup air. Makeup air shall be provided at a rate approximately equal to the rate that air is exhausted by the hazardous exhaust system. Makeup-air intakes shall be located ~~so as to avoid recirculation of contaminated air.~~ in accordance with Section 401.4.		X		
M119-12	Section(s): 510.6.1.1(New) 510.6.1.1 Hazardous exhaust ducts that penetrate fire-resistance-rated shafts shall comply with Section 714.3.1 or 714.3.1.2 of the International Building Code.			X	$200 - $300 per linear foot of Enclosure
M120-12	Section(s): 510.8 ~~510.8 Duct construction. Ducts used to convey hazardous exhaust shall be constructed of *approved* G90 galvanized sheet steel, with a minimum nominal thickness as specified in Table 510.8. Nonmetallic ducts used in systems exhausting nonflammable corrosive fumes or vapors shall be *listed*~~		X		

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		Decrease	None	Increase	
Sub Code:					
	~~and *labeled*. Nonmetallic ducts shall have a flame spread index of 25 or less and a smoke-developed index of 50 or less, when tested in accordance with ASTM E 84 or UL 723. Ducts shall be *approved* for installation in such an exhaust system. Where the products being exhausted are detrimental to the duct material, the ducts shall be constructed of alternative materials that are compatible with the exhaust.~~ 510.8 Duct construction. Ducts used to convey hazardous exhaust shall be constructed of materials *approved* for installation in such an exhaust system and shall comply with one of the following: 1. Ducts shall be constructed of *approved* G90 galvanized sheet steel, with a minimum nominal thickness as specified in Table 510.8. 2. Ducts used in systems exhausting nonflammable corrosive fumes or vapors shall be constructed of nonmetallic materials that exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E84 or UL 723 or that are *listed* and *labeled* for the application. 3. Where the products being exhausted are detrimental to the duct material, the ducts shall be constructed of alternative materials that are compatible with the exhaust.				
M126-12	Section(s): 602.1 602.1 General. Supply, return, exhaust, relief and ventilation air plenums shall be limited to uninhabited crawl spaces, areas above a ceiling or below the floor, attic spaces and mechanical equipment rooms. Plenums shall be limited to one fire area. Return and transfer air shall be ducted from the boundary of the fire area directly to the air handling equipment. Fuel-fired appliances shall not be installed within a plenum.		X		
M130-12	**Section(s): 602.2** **602.2 Construction.** *Plenum* enclosures shall be constructed of materials that comply with the requirements of section 703.5 of the *International Building Code* or of materials that have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723 ~~permitted for the type of construction classification of the building~~. The use of gypsum boards to form plenums shall be limited to systems where the air temperatures do not exceed 125ºF (52ºC) and the building and mechanical system design conditions are such that the gypsum board surface temperature will be maintained above the airstream dew-point temperature. Air plenums formed by gypsum boards shall not be incorporated in air-handling systems utilizing evaporative coolers.			X	$200 - $300 per SF of Enclosure
M134-12	Section(s): 202, 602.2.1.4 602.1 General. Supply, return, exhaust, relief and ventilation air plenums shall be limited to uninhabited crawl spaces, areas above a ceiling or below the floor, attic spaces and mechanical equipment rooms. Plenums shall be limited to one fire area. Return and transfer air shall be ducted from the		X		

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Sub Code:					
	boundary of the fire area directly to the air handling equipment. Fuel-fired appliances shall not be installed within a plenum.				
M136-12	Section(s): 602.2.1.6 (New) 602.2.1.6 Plastic piping and tubing used in plumbing systems shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E84 or UL 723. The fire test report shall indicate that the materials were tested at full width of the tunnel and without water or any other liquid in the piping or tubing during the test.		X		
M142-12	Section(s): 603.2, 918.2 603.2 Duct sizing. Ducts installed within a single dwelling unit shall be sized in accordance with ACCA Manual D, the appliance manufacturer's installation instructions or other approved methods. Ducts installed within all other buildings shall be sized in accordance with the ASHRAE Handbook of Fundamentals or other equivalent computation procedure. ~~918.2 Minimum duct sizes. The minimum unobstructed total area of the outdoor and return air ducts or openings to a forced-air warm-air furnace shall be not less than 2 square inches per 1,000 Btu/h (4402 mm2/kW) output rating capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions. The minimum unobstructed total area of supply ducts from a forced-air warm-air furnace shall not be less than 2 square inches for each 1,000 Btu/h (4402 mm2/kW) output rating capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions. Exception: The total area of the supply air ducts and outdoor and return air ducts shall not be required to be larger than the minimum size required by the furnace manufacturer's installation instructions.~~ 918.3 2 Heat pumps. ~~The minimum unobstructed total area of the outdoor and return air ducts or openings to a heat pump shall be not less than 6 square inches per 1,000 Btu/h (13 208 mm2/kW) output rating or as indicated by the conditions of listing of the heat pump~~ Electric heat pumps shall be tested in accordance with UL 1995.		X		
M143-12	Section(s): Table 603.4 This proposed change seeks to return to the requirements of 2006 and previous IMC editions which have historically recognized 30 gauge sheet metal as being appropriate for round ducts 14 inches or less diameter in "Single Dwelling Units".		X		
M145-12	Section(s): 603.4.2 (New) 603.4.2 Duct lap. Crimp joints for round and oval metal ducts shall be lapped not less than one inch and the male end of the duct shall extend into the adjoining duct in the direction of airflow.		X		
M149-12	Section(s): 603.9		X		

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Sub Code:					
	603.9 Joints, seams and connections All longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC Duct Construction Standards-Metal and Flexible and NAIMA Fibrous Glass Duct Construction Standards. All joints, longitudinal and transverse seams and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. ~~Closure systems~~ Tapes and mastics used to seal metallic and fibrous glass ductwork shall be listed and labeled in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Closure systems used to seal flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181B-FX" for pressure-sensitive tape or "181B-M" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked "181B-C." Closure systems used to seal metal all ductwork shall be installed in accordance with the manufacturer's ~~installation~~ instructions~~. Unlisted duct tape is not permitted as a sealant on any duct.~~				
M151-12	Section(s): 603.9 603.9 Joints, seams and connections. Exception: ~~Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems~~ For ducts having a static pressure classification of less than 2 inches of water column (500Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types.		X		
M153-12	Section(s): 603.10 603.10 Supports. Ducts shall be supported ~~at intervals not to exceed 12 feet (3658 mm) and shall be~~ in accordance with SMACNA HVAC Duct Construction Standards—Metal and Flexible. ~~Flexible and other factory-made ducts shall be supported in accordance with the manufacturer's instructions~~			X	$30 - $50 per LF of ductwork
M156-12	Section(s): 605.1 605.1 General. Heating and air-conditioning systems of the central type shall be provided with approved air filters. Filters shall be installed such that all return air, outdoor air and makeup air is filtered ~~in the return air system~~, upstream from any heat exchanger or coil. Filters shall be installed in an approved convenient location. Liquid adhesive coatings used on filters shall have a flash point not lower than 325ºF (163ºC).		X		
M157-12	Section(s): [B] 607.5.4.1 [B] 607.5.4.1 Smoke damper. Smoke dampers shall close as required by Section 607.3.3.2. ~~The smoke damper shall close upon actuation of a listed smoke detector or detectors installed in accordance with the International Building Code and one of the following methods, as applicable: 1. Where a smoke damper is installed within a duct, a smoke detector shall be installed~~		X		

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Sub Code:					
	~~in the duct within 5 feet (1524 mm) of the damper with no air outlets or inlets between the detector and the damper . The detector shall be listed for the air velocity, temperature and humidity anticipated at the point where it is installed. Other than in mechanical smoke control systems, dampers shall be closed upon fan shutdown where local smoke detectors require a minimum velocity to operate. 2. Where a smoke damper is installed above smoke barrier doors in a smoke barrier , a spot-type detector listed for releasing service shall be installed on either side of the smoke barrier door opening. 3. Where a smoke damper is installed within an air transfer opening in a wall, a spot-type detector listed for releasing service shall be installed within 5 feet (1524 mm) horizontally of the damper . 4. Where a smoke damper is installed in a corridor wall or ceiling, the damper shall be permitted to be controlled by a smoke detection system installed in the corridor . 5. Where a total-coverage smoke detector system is provided within areas served by a heating, ventilation and air-conditioning (HVAC) system, smoke dampers shall be permitted to be controlled by the smoke detection system.~~				
M159-12	Section(s): 701.2 (New) 701.2 Dampered openings Where combustion air openings are provided with volume, smoke or fire dampers, the dampers shall be interlocked with the firing cycle of the appliances served, so as to prevent operation of any appliance that draws combustion air from the room or space when any of the dampers are closed. Manual dampers shall not be installed in combustion air ducts. Ducts not provided with dampers and that pass through rated construction shall be enclosed in a shaft in accordance with the International Building Code.		X		
M161-12	Section(s): 802.10 802.10 Door swing. Appliance and equipment vent terminals shall be located such that doors cannot swing within 12 inches (305 mm) horizontally of the vent terminals. Door stops or closures shall not be installed to obtain this clearance.		X		
M163-12	Section(s): 903.4 (New) 903.4 Gasketed fireplace doors. A gasketed fireplace door shall not be installed on a factory-built fireplace except where the fireplace system has been specifically tested, *listed* and *labeled* for such use in accordance with UL 127.		X		
M164-12	908.5 Water supply. Cooling towers, evaporative coolers and fluid coolers shall be provided with an approved water supply, sized for peak demand. The quality of water shall be provided in accordance with the equipment manufacturer's recommendations. ~~Water supplies~~ The piping system and protection of the potable water supply system shall be installed as required by the International Plumbing Code.		X		
M165-12	Section(s): 908.8 (New), Chapter 15 908.8 Cooling Towers. Cooling towers greater than 150 tons in capacity shall comply with Sections 908.8.1 through 908.8.4. 908.8.1 Conductivity or Flow-based Control. Cooling towers shall include of controls that maximize the cycles of concentration based on local water quality conditions. Such			X	$3 -$5 per Ton

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Sub Code:					
	controls shall automate system bleed and chemical feed based on conductivity or in proportion to metered makeup volume, metered bleed volume, or bleed time. 908.8.2 Flow Meter. A water meter or sub-meter shall be installed to measure the volume of makeup water entering the cooling tower. Where both potable and non-potable water are supplied to the tower, a meter or sub-meter shall be installed to measure each source separately. 908.8.3 Overflow Alarm. Cooling towers shall include of an overflow alarm to prevent overflow of the sump in case of makeup water valve failure. Such overflow alarm shall send an audible signal or provide an alert by means of the Building Management System to the tower operator in case of sump overflow. 908.8.4 Drift Eliminators. Cooling towers shall be equipped with drift eliminators that achieve drift reduction to 0.002 percent of the circulated water volume. Drift eliminators shall be tested using the Isokinetic Drift Measurement Test Cost for Water Cooling Tower – ATC – 140" testing code from the Cooling Technology Institute.				
M167-12	Section(s): 918.6(NEW), 918.8, 601.5 (NEW) ~~918.6 Prohibited sources. Outdoor or return air for forced air heating and cooling systems shall not be taken from the following locations: 1. Less than 10 feet (3048 mm) from an appliance vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outdoor air inlet. 2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway. 3. A hazardous or insanitary location or a refrigeration machinery room as defined in this code. 4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system. Where connected by a permanent opening having an area sized in accordance with Sections 918.2 and 918.3, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces. Exception: The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space. 5. A closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic. Exceptions: 5.1 Where return air intakes are located not less than 10 feet (3048 mm) from cooking appliances, and serve the kitchen area only, taking return air from a kitchen shall not be prohibited. 5.2 Dedicated forced-air systems serving only a garage shall not be prohibited from obtaining return air from the garage. 6. An unconditioned crawl space by means of direct connection to the return side of a forced air system. Transfer openings in the crawl space enclosure shall not be prohibited. 7. A room or space containing a fuel-burning appliance where such room or space serves as the sole source of return air. Exceptions: 7.1. This shall not apply where the fuel-burning appliance is a direct-vent appliance. 7.2. This shall not apply where the room or space complies with the following requirements: 7.2.1. The return air shall be taken from a room or space having a volume~~		X		

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		Decrease	None	Increase	
Sub Code:					
	~~exceeding 1 cubic foot for each 10 Btu/h (9.6 L/W) of combined input rating of all fuelburning appliances therein. 7.2.2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space. 7.2.3. Return-air inlets shall not be located within 10 feet (3048 mm) of any appliance firebox or draft hood in the same room or space. 7.3. This shall not apply to rooms or spaces containing solid-fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of the appliances. 918.8 Return-air limitation. Return air from one dwelling unit shall not be discharged into another dwelling unit.~~ 918.6 Outdoor and Return air openings. Outdoor intake openings shall be located in accordance with Section 401.4. Return air openings shall be located in accordance with Section 601.5. 601.5. Return air openings. Return air openings for heating, ventilation and air conditioning systems shall comply with all of the following: 1. Openings shall not be located less than 10 feet measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space. 2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code. 3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space. 4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturers' installation instructions, ACCA Manual D or the design of the registered design professional. 5. Return air from one dwelling unit shall not be discharged into or taken from another dwelling unit. 6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited. 7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic. Exceptions: 1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only, and are located not less than 10 feet from the cooking appliances. 2. Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage				
M168-12	Section(s): 928.1 928.1 General. Evaporative coolers equipment shall: 1. Be installed in accordance with the manufactures instructions. 2. Be installed on a level platform in accordance with section 304.10. 3. Have openings in exterior walls or roofs flashed in accordance with the International Building Code. 4. ~~Be provided with potable water backflow protection in accordance with section 608 of the International Plumbing Code~~ .Be provided with an approved water supply, sized for peak demand. The quality of water shall be provided in accordance with the equipment manufacturer's recommendations. The piping system and protection of the potable water supply system shall be installed as required by the International Plumbing Code. 5. Have air intake opening locations in accordance with Section 401.4.		X		

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		Decrease	None	Increase	
Sub Code:					
M169-12, Part I	Section(s): 923.1 923.1 General. ~~The provisions of this section shall apply to kilns that are used for ceramics, have a maximum interior volume of 20 cubic feet (0.566 m3) and are used for hobby and noncommercial purposes~~. Kilns shall be listed and labeled unless otherwise approved in accordance with Section 105.2. Electric kilns shall comply with UL 499. The approval of unlisted appliances in accordance with Section 105.2 shall be based upon approved engineering evaluation.		X		
M169-12, Part II	Section(s): 923.1 629.1 General. ~~Ceramic Kilns with a maximum interior volume of 20 cubic feet and used for hobby and noncommercial purposes~~ shall be installed in accordance with the manufacturer's installation instructions and the provisions of this code. Kilns shall comply with Section 301.3		X		
M171-12	Section(s): 1003.1 1003.1 General. All pressure vessels, unless otherwise approved shall be constructed and certified in accordance with the ASME Boiler and Pressure Vessel Codes, ~~shall bear the label of an approved agency~~ and shall be installed in accordance with the manufacturer's instructions and nationally recognized standards. Directly fired pressure vessels shall meet the requirements of Section 1004.		X		
M172-12	Section(s): 1003.3, Chapter 15 1003.3 Welding. Welding on pressure vessels shall be performed by ~~approved welders in compliance with nationally recognized standards~~. an R-Stamp holder in accordance with the National Board Inspection Code, Part 3 or in accordance with an approved standard. Add new standard to Chapter 15 as follows: National Board Inspection Code 2011, Part 3		X		
M173-12	Section(s): 1004.1 1004.1 Standards. ~~Oil-fired boilers and their control systems shall be listed and labeled in accordance with UL 726. Electric boilers and their control systems shall be listed and labeled in accordance with UL 834. Solid-fuel-fired boilers shall be listed and labeled in accordance with UL 2523. Boilers shall be designed and constructed in accordance with the requirements of ASME CSD-1 and as applicable, the ASME Boiler and Pressure Vessel Code, Section I or IV; NFPA 8501; NFPA 8502 or NFPA 8504~~. Boilers shall be designed, constructed and certified in accordance with the ASME Boiler and Pressure Vessel Code, Section I or IV. Controls and safety devices for boilers with fuel input ratings of 12,500,000 Btu/hr or less shall meet the requirements of ASME CSD-1. Controls and Safety devices for boilers with inputs greater than 12,500,000 shall meet the requirements of NFPA 85. Package oil fired boilers shall be listed and labeled in accordance with UL 726 or other approved standard. Packaged electric boilers shall be listed and labeled in accordance with UL 834 or other approved standard.		X		
M175-12	Section(s): 1007.1, 1007.2, 1007.3 1007.1 General. All Steam and hot water boilers shall be protected with a low-water cutoff control except as required by Section 1007.2.		X		

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Sub Code:					
	1007.2 Flow sensing control. Coil-type and water-tube-type boilers that require forced circulation of water through the boiler shall be protected with a flow sensing control. 1007.2 3 Operation. The Low-water cutoff controls and flow sensing controls required by Sections 1007.1 and 1007.2 shall automatically stop the combustion operation of the appliance when the water level drops below the lowest safe water level as established by the manufacturer or when water circulation stops, respectively.				
M176-12	Section(s): 1008, 1008.1 1008.1 General. Every steam boiler shall be equipped with ~~a quick-opening blowoff valve.~~ bottom blowoff valve(s). The valve(s) shall be installed in the opening provided on the boiler. The minimum size of the valve(s) and associated piping shall be the size specified by the boiler manufacturer or the size of the boiler blowoff-valve opening. Where the maximum allowable working pressure of the boiler exceeds 100 psig, two bottom blowoff valves shall be provided consisting of either two slow opening valves in series or one quick opening valve and one slow opening in series with the quick opening valve installed closest to the boiler.			X	$500 - $700 per Valve
M177-12	Section(s): 1009.2 1009.2 Closed-type expansion tanks. Closed-type expansion tanks shall be installed in accordance with the manufacturer's instructions. Expansion tanks for systems designed to have an operating pressure in excess of 30 psi shall be constructed and certified in accordance with the ASME Boiler and Pressure Vessel Codes. The size of the tank shall be based on the capacity of the hot-water-heating system. The minimum size of the tank shall be determined in accordance with the following equation where all necessary information is known		X		
M179-12	Section(s): 1101.10 1101.10 Locking access port caps. Refrigerant circuit access ports located outdoors shall be fitted with locking-type tamper-resistant caps or shall be otherwise secured to prevent unauthorized access. Exception: This section shall not apply to refrigerant circuit access ports on equipment installed in controlled areas such as on roof tops with locked and alarmed access hatches or doors.		X		
M181-12	Section(s): 1102.3 (NEW) 1102.3 Access port protection. Refrigerant access ports shall be protected in accordance with Section 1101.10 whenever refrigerant is added to or recovered from refrigeration or air conditioning systems.		X		
M185-12	Section(s): 1107.1, Chapter 15 1107.1 General. The design of refrigerant piping shall be in accordance with ASME B31.5. All Refrigerant piping shall be installed, tested and placed in operation in accordance with this chapter. ASME B31.5-2001 Refrigerant Piping and Heat Transfer Components		X		
M188-12	Section(s): Table 1202.4, 1203.15, 1208, 1210 (New), 1211 (New), 1212 (New), 1213 (New), 1214 (New), 1215 (New), 1216 (New), Chapter 15		X		

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Sub Code:					
	Water based geothermal PE piping is currently listed in the hydronics section where it doesn't quite fit. This special and growing application should have its own section, and it should cover other materials that could potentially be used. Green building rating systems are promoting geothermal ground loop heating and cooling systems, and the code should have more information. I am re-introducing this proposal to accomplish that and would accept friendly amendments to it for any other materials. While HDPE dominates the water based technology with an expected 95% of the systems, other materials can be utilized. Copper is used in direct expansion systems that do not run on water.				
M189-12	Section(s): Table 1202.4, Chapter 15 ASTM F2806-10 Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Metric SDR-PR)		X		
M191-12	Section(s): Table 1202.4 Brass pipe and tubing are copper alloys. Moving brass under the applicable heading cleans-up the table and provides the appropriate terminology and correct information to the end user.		X		
M192-12	Section(s): Table 1202.5, Chapter 15 ASTM A234 / A234M - 11a Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service ASTM A395 / A395M - 99(2009) Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures ASTM A536 - 84(2009) Standard Specification for Ductile Iron Castings ASTM B152 / B152M – 09 Standard Specification for Copper Sheet, Strip, Plate, and Rolled Bar ASTM B584 – 11 Standard Specification for Copper Alloy Sand Castings for General Applications ASTM F1548 - 01(2006) Standard Specification for the Performance of Fittings for Use with Gasketed Mechanical Couplings Used in Piping Applications AWWA C153/A21.53-06 Ductile-Iron Compact Fittings for Water ServiceSection(s): Table 1202.5, Chapter 15		X		
M193-12	Section(s): Table 1202.5 Brass and Bronze are copper alloys. Moving the standards under the applicable heading cleans-up the table and provides the appropriate terminology and correct information to the end user.		X		
M194-12	Section(s): Table 1202.5, Chapter 15 ISO 15493 Annex A-2003 Plastics piping systems for industrial applications - Acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U) and chlorinated poly(vinyl chloride) (PVC-C) - Specifications for components and the system Metric series		X		
M197-12	Section(s): Table 1202.5, 1209.3.4 (New), Chapter 15 1209.3.4 Polyethylene of raised temperature (PE-RT) joints. PE-RT tubing shall be installed in continuous lengths or shall be joined by hydronic fittings listed in Table 1202.5. ASTM F2098 – 08 Standard Specification for Stainless Steel Clamps for Securing SDR9 Cross-linked Polyethylene (PEX) Tubing to Metal Insert and Plastic Insert Fittings		X		

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Sub Code:					
M198-12	Section(s): Table 1202.5, Chapter 15 ASME B16.51-2011 Copper and Copper Alloy Press-Connect Pressure Fittings Table 605.5		X		
M206-12	Section(s): 1209.3.2 1209.3.2 Copper tubing joints. Copper tubing shall be joined by brazing complying with Section 1203.3.1. ~~with filler metals having a melting point of not less than 1,000°F (538°C).~~		X		
M208-12	Section(s): Table 1302.3 Brass pipe and tubing are copper alloys. Moving brass under the applicable heading cleans-up the table and provides the appropriate terminology and correct information to the end user.		X		
M210-12	Section(s): 1303.3.2 1303.3.2 MECHANICAL JOINTS. Mechanical joints shall be installed in accordance with the manufacturer's instructions. Press connect joints shall conform to one of the standards listed in Table 1302.3.		X		
M211-12	Section(s): 1303.7 1303.7 Copper or copper-alloy tubing. Joints between copper or copper alloy pipe or fittings shall be brazed, or mechanical joints complying with Section 1303.3, press connect joints that conform to one of the standards in Table 1302.2 or flared joints. Flared joints shall be made by a tool designed for that operation. ASME B16.51-2012 Copper and copper-alloy press-connect pressure fittings		X		
M215-12	Section(s): 307.3 (New) (IPC [M]314.3 New) 307.3 (IPC [M] 314.3) Condensate pumps. Condensate pumps located in uninhabitable spaces, such as attics and crawl spaces, shall be connected to the appliance or equipment served such that when the pump fails, the appliance or equipment will be prevented from operating. Pumps shall be installed in accordance with the manufacturers' installation instructions.		X		
G8-12 Part II	Section(s): 202 IMC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).		X		
FS104-12	Section: 717.3.1 (IMC 607.3.1) 717.3.1 (IMC 607.3.1) Damper testing. Dampers shall be listed and labeled in accordance with the standards in this section. Fire dampers shall comply with the requirements of UL 555. Only fire dampers and ceiling radiation dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire. Smoke dampers shall comply with the requirements of UL 555S. Combination fire/smoke dampers shall comply with the requirements of both UL 555 and UL 555S. Ceiling radiation dampers shall comply with the requirements of UL 555C or shall be tested as part of a fire-resistance-		X		

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Sub Code:					
	rated floor/ceiling or roof/ceiling assembly in accordance with ASTM E119 or UL 263.				
FS115-12	Section: 717.6.2.1 (IMC 607.6.2.1) 717.6.2.1 (IMC 607.6.2.1) Ceiling radiation dampers. Ceiling radiation dampers shall be tested in accordance with Section 717.3.1. Ceiling radiation dampers shall be installed in accordance with the details listed in the fire-resistance rated assembly and the manufacturer's installation instructions and the listing. Ceiling radiation dampers are not required where ~~either~~ one of the following applies: 1. Tests in accordance with ASTM E 119 or UL 263 have shown that ceiling radiation dampers are not necessary in order to maintain the fire-resistance rating of the assembly. 2. Where exhaust duct penetrations are protected in accordance with Section 714.4.1.2, are located within the cavity of a wall and do not pass through another dwelling unit or tenant space. 3. Where duct and air transfer openings are protected with a duct outlet protection system tested as part of a fire-resistance-rated assembly in accordance with ASTM E 119 or UL 263.		X		
FS116-12	Section(s): 717.6.3 (IMC 607.6.3) 717.6.3 (IMC 607.6.3) Non-fire-resistance-rated floor assemblies. Duct systems constructed of approved materials in accordance with the International Mechanical Code that penetrate non-fire-resistance-rated floor assemblies shall be protected by any of the following methods: 1. A shaft enclosure in accordance with Section 713. 2. The duct connects not more than two stories, and the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion. ~~3. The duct connects not more than three stories, and the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion and a fire damper is installed at each floor line. Exception: Fire dampers are not required in ducts within individual residential dwelling units.~~		X		

*For prescriptive Code changes only.

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APPENDIX E

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RM2-13	Section(s): M1305.1 M1305.1 Appliance access for inspection service, repair and replacement. Appliances shall be accessible for inspection, service, repair and replacement without removing permanent construction, other appliances, or any other piping or ducts not connected to the appliance being inspected, serviced, repaired or replaced. A level working space at least 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an appliance~~. Installation of room heaters shall be permitted with at least an 18-inch (457 mm) working space. A platform shall not be required for room heaters.~~ Exception: The installation of room heaters shall comply with manufacturer's instructions.		X		
RM3-13	Section(s): M1305.1.3.1 M1305.1.3.1 Electrical requirements. A luminaire controlled by a switch located at the required passageway opening and a receptacle outlet shall be installed at or near the appliance location in accordance with Chapter 39. Exposed lamps shall be protected from damage by location or lamp guards.		X		
RM4-13	Section(s): M1305.1.4.3 M1305.1.4.3 Electrical requirements. A luminaire controlled by a switch located at the required passageway opening and a receptacle outlet shall be installed at or near the appliance location in accordance with Chapter 39. Exposed lamps shall be protected from damage by location or lamp guards.		X		
RM5-13	Section(s): M1306.2, M1306.2.1, M1306.2.2 M1306.2 Clearance reduction. The reduction of required clearances to combustible assemblies or combustible materials shall be based on Section M1306.2.1 or Section M1306.2.2. M1306.2.1 Labeled assemblies. The allowable clearance shall be based on an approved reduced clearance protective assembly that is listed and labeled in accordance with UL 1618. M1306.2.2 Reduction table. ~~M1306.2 Clearance Reduction~~. Reduction of clearances shall be in accordance with the appliance manufacturer's instructions and Table M1306.2.		X		
RM6-13	Section(s): M1307.2, P2801.7 M1307.2 Anchorage of appliances. Appliances designed to be fixed in position shall be fastened or anchored in an approved manner. In Seismic Design Categories D0, D1 and D2, and in townhouses in Seismic Design Category C, water heaters shall be anchored or strapped to resist horizontal displacement caused by earthquake motion in accordance with one of the following: 1. Anchorage and strapping shall be designed to resist a horizontal force equal to one-third of the operating weight of the water heater storage tank, acting in any horizontal direction. Strapping shall be at points within the upper one-third and lover one-		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	third of the appliance's vertical dimensions. At the lower point, the strapping shall maintain a minimum distance of 4 inches (102mm) above the controls. 2. The anchorage strapping shall be in accordance with the appliance manufacturer's recommendations. P2801.7 Water heater seismic bracing. In Seismic Design Categories D0, D1 and D2 and in townhouses in Seismic Design Category C, water heaters shall be anchored or strapped in accordance with Section M1307.2.~~the upper one-third and in the lower one third of the appliance to resist a horizontal force equal to one-third of the operating weight of the water heater storage tank, acting in any horizontal direction, or in accordance with the appliance manufacturer's recommendations.~~				
RM7-13	Section(s): M1307.2, M2301.2, M2301.2.10 (New) M1307.2 Anchorage of appliances. Appliances designed to be fixed in position shall be fastened or anchored in an approved manner. In Seismic Design Categories D1 and D2, water heaters and thermal storage units shall be anchored or strapped to resist horizontal displacement caused by earthquake motion. Strapping shall be at points within the upper one-third and lower one-third of the appliance's vertical dimensions. At the lower point, the strapping shall maintain a minimum distance of 4 inches (102mm) above the controls. M2301.2 Installation. Installation of thermal solar energy systems shall comply with Sections M2301.2.1 through M2301.2.910. M2301.2.10 Thermal storage unit seismic bracing. In Seismic Design Categories D0, D1 and D2 and in townhouses in Seismic Design Category C, thermal storage units shall be anchored in accordance with Section M1307.2.		X		
RM9-13	Section(s): M1401.3 M1401.3 Equipment/appliance Sizing. Heating and cooling equipment and appliances 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 calculation methodologies. Exception: Heating and cooling equipment and appliances shall not be limited to the capacities determined in accordance with Manual S where any of the following conditions apply: 1. The specified equipment or appliance utilizes multi-stage technology or variable refrigerant flow technology and the loads calculated in accordance with Manual J fall within the range of the manufacturer's published capacities for that equipment or appliance. 2. The specified equipment or appliance manufacturer's published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with Manual J and the manufacturer's next larger standard size unit is specified. 3. The specified equipment or appliance is the lowest capacity unit available from the specified manufacturer.		X		
RM11-13	Section(s): M1403.1, M1601.1, Chapter 44 M1403.1 Heat pumps.~~The minimum unobstructed total area of the outdoor and return air ducts or openings to a heat pump shall be not less than 6 square inches per 1,000 Btu/h (13 208 mm2/kW) output rating or~~		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~as indicated by the conditions of listing of the heat pump~~. Electric heat pumps shall be conform to listed and labeled in accordance with UL 1995 or UL/CSA/ANCE 60335-2-40. M1601.1 Duct design. Duct systems serving heating, cooling and ventilation equipment shall be installed in accordance with the provisions of this section and ACCA Manual D, the appliance manufacturer's installation instructions or other approved methods.				
RM12-13	Section(s): M1403.1, M1601.1 M1403.1 Heat pumps. ~~The minimum unobstructed total area of the outdoor and return air ducts or openings to a heat pump shall be not less than 6 square inches per 1,000 Btu/h (13 208 mm2/kW) output rating or as indicated by the conditions of listing of the heat pump.~~ Electric heat pumps shall be tested in accordance with UL 1995. M1601.1 Duct design. Duct systems serving heating, cooling and ventilation equipment shall be installed in accordance with the provisions of this section and ACCA Manual D, the appliance manufacturer's installation instructions or other approved methods		X		
RM13-13	Section(s): M1403.1, Chapter 44 M1403.1 Heat pumps. The minimum unobstructed total area of the outside and return air ducts or openings to a heat pump shall be not less than 6 square inches per 1,000 Btu/h (13 208 mm2/kW) output rating or as indicated by the conditions of the listing of the heat pump. Electric heat pumps shall conform to UL 1995 or UL/CSA/ANCE 60335-2-40.		X		
RM14-13	Section(s): M1403.2 ~~M1403.2 Foundations and supports. Supports and foundations for the outdoor unit of a heat pump shall be raised at least 3 inches (76 mm) above the ground to permit free drainage of defrost water, and shall conform to the manufacturer's installation instructions.~~		X		
RM15-13	Section(s): M1410.1 M1410.1 General. Vented room heaters shall be tested in accordance with ASTM E 1509 for pellet-fuel burning, UL 896 for oil-fired or UL 1482 for solid fuel-fired and installed in accordance with their listing, the manufacturer's installation instructions and the requirements of this code.		X		
RM16-13	Section(s): M1410.2 M1410.2 Floor mounting. Room heaters shall be installed on noncombustible floors or approved assemblies constructed of noncombustible materials that extend at least 18 inches (457 mm) beyond the appliance on all sides. Exceptions: 1. Listed room heaters shall be installed on noncombustible floors, assemblies constructed of noncombustible materials or ~~listed~~ floor protectors listed and labeled in accordance with UL 1618. The with materials and dimensions shall be in accordance with the appliance manufacturer's instructions.		X		
RM19-13	Section(s): M1411.3.2 M1411.3.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be ABS, cast iron, copper, cross-linked		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	polyethylene, CPVC, galvanized steel, copper, polybutylene, PE-RT, polyethylene~~, ABS, CPVC~~, polypropylene or PVC, pipe or tubing.				
RM20-13	Section(s): M1411.3.2 M1411.3.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 30. Condensate waste and drain line size shall be not less than ¾-inch (19 mm) nominal ~~internal~~ diameter and ~~shall not decrease in size~~ from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an approved method.		X		
RM21-13	Section(s): M1411.3.3 (New) M1411.3.3 Drain Line Maintenance. Condensate drain lines shall be configured to permit the clearing of blockages and performance of maintenance without requiring the drain line to be cut.			X	$15/unit
RM22-13	Section(s): M1411.4 (New) M1411.4 Condensate pumps. Condensate pumps located in uninhabitable spaces, such as attics and crawl spaces, shall be connected to the appliance or equipment served such that when the pump fails, the appliance or equipment will be prevented from operating. Pumps shall be installed in accordance with the manufacturer's instructions.		X		
RM23-13	Section(s): M1411.6 (New) M1411.6 Location and protection of refrigerant piping. Refrigerant piping installed within 3 inches of the underside of roof decks shall be protected from damage caused by nails and other fasteners.		X		
RM25-13	Section(s): M1412.1, Chapter 44 M1412.1 Approval of equipment. Absorption systems shall be installed in accordance with the manufacturer's installation instructions. Absorption equipment shall comply with UL 1995 or UL/CSA/ANCE 60335-2-40.		X		
RM26-13	Section(s): M1413.1, Chapter 44 M1413.1 General. Evaporative cooling equipment and appliances shall comply with UL 1995 or UL/CSA/ANCE 60335-2-40		X		
RM27-13	Section(s): M1501.2 (New) M1501.2 Transfer air. Air transferred from occupiable spaces, other than kitchens, bathrooms and toilet rooms, shall not be prohibited from serving as makeup air for exhaust systems. Transfer openings between spaces shall be of the same cross-sectional area as the free area of the makeup air openings. Where louvers and grilles are installed, the required size of openings shall be based on the net free area of each opening. Where the design and free area of louvers and grilles are not known, it shall be assumed that wood louvers have 25-percent free area and metal louvers and grilles have 75-percent free area.		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RM29-13	Section(s): M1502.4.5 M1502.4.5 Length identification. Where the exhaust duct <u>equivalent length exceeds 35 feet</u> is ~~concealed within the building construction~~, the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6 feet (1829 mm) of the exhaust duct connection.		X		
RM30-13	Section(s): M1503.1, M1503.2 Stating "single- wall" is unnecessary		X		
RM34-13	Section(s): M1503.4 M1503.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m3/s) shall be <u>mechanically or naturally</u> provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with ~~a~~ <u>not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates</u> ~~means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system~~. <u>Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.</u>		X		
<u>RM36-13</u>	<u>Section(s): M1506, M1507, and Chapter 44</u> <u>M1506.2. Duct length. The length of exhaust and supply ducts used for ventilating equipment shall not exceed the maximum lengths determined in accordance with Table M1506.2. Exception: Duct length shall not be limited where the duct system complies with the manufacturer's design criteria or where the flow rate of the installed ventilating equipment is verified by the installer or approved third party using a flow hood, flow grid, or other airflow measuring device.</u> <u>M1507.2 Flow Rate Verification. The flow rate for ventilating equipment shall be verified in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51 or the flow rate shall be verified by the installer or approved third party using a flow hood, flow grid, or other airflow measuring device.</u>		X		
RM46-13	Section(s): M1601.1.1, Table M1601.1(1), M1601.2 Item #2 can be simplified by stating what is already required by Current Section M1601.2. There is no need to state the burning classifications of 0 and 1 and there is no need for Table M1601.1.1(1) because this is already covered in UL 181. Current Section M1601.2 is redundant with the proposed revision to Item #2 of Section M1601.1.1 and should be deleted. Item #4 is simplified and refers to ducts that are fabricated anywhere		X		
RM47-13	Section(s): Table M1601.1.1(2) This revised table was approved for the 2015 IMC. The change that was previously made in the 2009 IRC (and carried forward to the 2012 IRC) unnecessarily increased the material thickness required for round sheet metal ducts		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RM48-13	Section(s): M1601.1.1 ~~4. Minimum thickness of metal duct material shall be as listed in Table M1601.1.1~~(2). Galvanized steel shall conform to ASTM A 653. Rigid metallic ducts shall be fabricated in accordance with SMACNA Duct Construction Standards Metal and Flexible except as allowed by Table M1601.1.1(2).		X		
RM51-13	Section(s): R202, M1601.3, Chapter 44 The goal of this proposal is to define an existing commonly installed insulation that should be properly included in the ICC Codes. This proposal will provide clear requirements for a duct insulation that has been in the market for many years and has nationwide distribution and installation. This proposal includes the specific requirements for reflective duct insulation.		X		
RM52-13	Section(s): M1601.4.1 Sealants and tapes should be listed. The proposal provides specific guidance on what can be used for specific duct materials.		X		
RM53-13	Section(s): M1601.4.1 Exceptions: 1. Spray polyurethane foam shall be permitted to be applied without additional joint seals. 2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect. 3. ~~Continuously welded and locking type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.~~ For ducts having a static pressure classification of less than 2 inches of water column (500Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types.		X		
RM55-13	Section(s): M1601.4.2 (New) M1601.4.2 Duct lap. Crimp joints for round and oval metal ducts shall be lapped not less than one inch and the male end of the duct shall extend into the adjoining duct in the direction of airflow.		X		
RM56-13	Section(s): M1601.4.3 M1601.4.3 Support~~. Metal ducts shall be supported by 1/2-inch (13-mm) wide 18-gage metal straps or 12-gage galvanized wire at intervals not exceeding 10 feet (3048 mm) or other approved means. Nonmetallic ducts shall be supported in accordance with the manufacturer's installation instructions.~~ Ducts shall be supported in accordance with SMACNA HVAC Duct Construction Standards—Metal and Flexible.		X		
RM57-13	Section(s): M1602 This is an attempt to reorganize and delete language in this section that contains outdated legacy code language. This Section is much more complicated than it needs to be as the foremost concern regarding return air is to keep contaminants out of the openings and air stream.		X		
RM59-13	Section(s): M1804.4 (New)		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	M1804.4 Door swing. Appliance and equipment vent terminals shall be located such that doors cannot swing within 12 inches (305 mm) horizontally of the vent terminals. Door stops or closures shall not be installed to obtain this clearance.				
RM61-13	Section(s): M1901.3 ~~M1901.3 Prohibited location. Cooking appliances designed, tested, listed and labeled for use in commercial occupancies shall not be installed within dwelling units or within any area where domestic cooking operations occur.~~		X		
RM62-13	Section(s): M2001.1 M2001.1 Standards. Packaged oil-fired boilers and ~~their control systems~~ shall be listed and labeled in accordance with UL 726. Packaged electric boilers and ~~their control systems~~ shall be listed and labeled in accordance with UL 834. Solid-fuel-fired boilers shall be listed and labeled in accordance with UL 2523. Boilers shall be designed, and constructed and certified in accordance with the requirements of ASME CSD-1 and as applicable, the ASME Boiler and Pressure Vessel Code, Section I or IV. Controls and safety devices for boilers with fuel input ratings of 12,500,000 Btu/hr (3 663 388 watts) or less shall meet the requirements of ASME CSD-1. Gas fired boilers shall conform to the requirements listed in Chapter 24.		X		
RM63-13	Section(s): M2002.5, M2002.6 (New) M2002.5 Boiler low-water cutoff. All steam and hot water boilers shall be protected with a low-water cutoff control. ~~The low-water cutoff shall automatically stop the combustion operation of the appliance when the water level drops below the lowest safe water level as established by the manufacturer.~~ Exception: A low-water cutoff is not required for coil-type and water-tube-type boilers that require forced circulation of water through the boiler and that are protected with a flow sensing control. M2002.6 Operation. Low-water cutoff controls and flow sensing controls required by Section M2002.5 shall automatically stop the combustion operation of the appliance when the water level drops below the lowest safe water level as established by the manufacturer or when the water circulation flow is less than that required for safe operation of the appliance, respectively.		X		
RM64-13	Section(s): M2005.1 M2005.1 General. Water heaters shall be installed in accordance with Chapter 28, the manufacturer's instructions and the requirements of this code.		X		
RM65-13	Section(s): TABLE M2101.1, Chapter 44 ASTM F2806-10 Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Metric SDR-PR) ASTM F2969-12 Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) IPS Dimensioned Pressure Pipe		X		
RM66-13	Section(s): Table M2101.1, M2101.10, M2104, M2105, M2106 thru M2110 (New), Chapter 44 M2107 (New), M2108 (New), M2109 (New), M2110 (New), Chapter 44		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	This revised language, new sections and standards were approved for the 2015 IMC. Water based geothermal PE piping is currently listed in the hydronics section where it doesn't quite fit. This special and growing application should have its own section, and it should cover other materials that could potentially be used. Green building rating systems are promoting geothermal ground loop heating and cooling systems, in both commercial and residential construction, and the IRC should also have more information				
RM67-13	Section(s): Table M2101.1, M2104.2.1 thru M2104.2.1.3, M2101.10, M2105, M2106 (New), The proposal picks up NSF standards that were not included in RM66-13.		X		
RM68-13	Section(s): Table M2101.9 Add support dimensions for polyethylene of raised temperature (PE-RT). PE-RT is already in the International Codes and adding the support spacing will provide additional information for installation. All other dimensions in the table remain unchanged.		X		
RM69-13	Section(s): Table M2101.9 The addition of the PE-RT information to the table was approved for the 2015 IMC. Footnote "a" is added to the table to be in coordination with the same requirement found in IMC Table 305.4. Support dimensions for polyethylene of raised temperature (PE-RT) are added. PE-RT is already in the International Codes and adding the support spacing will provide additional information for installation. All other dimensions in the table remain unchanged.		X		
RM70-13	Section(s): M2103.1 M2103.1 Piping materials. Piping for embedment in concrete or gypsum materials shall be standardweight steel pipe, <u>copper and copper alloy pipe</u> and tubing, cross-linked polyethylene/aluminum/crosslinked polyethylene (PEX-AL-PEX) pressure pipe, chlorinated polyvinyl chloride (CPVC), polybutylene, cross-linked polyethylene (PEX) tubing or polypropylene (PP) with a minimum rating of 100 psi at 180°F (690 kPa at 82°C).		X		
RM71-13	Section(s): M2103.1 M2103.1 Piping materials. Piping for embedment in concrete or gypsum materials shall be standard weight steel pipe, copper tubing, cross linked polyethylene aluminum polyethylene (PEX-AL-PEX) pressure pipe, chlorinated polyvinyl chloride (CPVC), polybutylene, cross-linked polyethylene (PEX) tubing, <u>polyethylene of raised temperature (PE-RT)</u> or polypropylene (PP) with a minimum rating of 100psi at 180°F (690kPa at 82°C).		X		
RM72-13	Section(s): M2103.3, Chapter 44 M2103.3 Piping joints<u>. Copper and copper alloys systems shall be soldered in accordance with ASTM B828. Fluxes for soldering shall be in accordance with ASTM B813 and shall become noncorrosive and non-toxic after soldering. Brazing fluxes shall be in accordance with AWS A5.31.</u>		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RM73-13	Section(s): M2103.3, Chapter 44 M2103.3 Piping joints 7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.		X		
RM74-13	Section(s): M2103.3 M2103.3 Piping joints. Piping joints that are embedded shall be installed in accordance with the following requirements: 1. Steel pipe joints shall be welded. 2. Copper tubing shall be joined ~~with~~ by brazing complying with Section P3003.5.1. ~~material having a melting point exceeding 1,000°F (538°C).~~		X		
RM75-13	Section(s): M2104.2, M2104.3 M2104.2 Piping Joints. Piping joints, other than those in Section M2103.3, that are embedded shall comply with the following requirements: 1. Cross-Linked Polyethylene (PEX) tubing shall be installed in accordance the manufacturer's instructions. 2. Polyethylene tubing shall be installed with heat fusion joints. 3. Polypropylene (PP) shall be installed in accordance with the manufacturer's instructions. 4. Raised temperature polyethylene (PE-RT) shall be installed in accordance with the manufacturer's instructions. M2104.3.3 PE-RT insert fittings. PE-RT insert fittings shall be installed in accordance with the manufacturer's instructions.		X		
RM76-13	Section(s): M2202.1, Chapter 44 ANSI/AWS A5.31M/A5.31:2012 Specification for Fluxes for Brazing and Braze Welding Edition: 2nd		X		
RM77-13	Section(s): M2301.2.2 (New), M2301.2.2, M2301.2.2.2 (New), Chapter 44 M2301.2.2 Collectors and panels. Solar collectors and panels shall comply with Sections M2301.2.2.1 and M2301.2.2.2. M2301.2.2.1 ~~M2301.2.2~~ Roof-mounted collectors. The roof shall be constructed to support the loads imposed by roof-mounted solar collectors. Roof-mounted solar collectors that serve as a roof covering shall conform to the requirements for roof coverings in Chapter 9 of this code. Where mounted on or above the roof coverings, the collectors and supporting structure shall be constructed of noncombustible materials or fire-retardant-treated wood equivalent to that required for the roof construction. M2301.2.2.2 Collector sensors. Collector sensor installation, sensor location and the protection of exposed sensor wires from ultraviolet light shall be in accordance with SRCC 300.			X	
RM79-13	Section(s): M2301.2 M2301.2 Design and installation. The design and installation of thermal solar energy systems shall comply with Sections M2301.2.1 through M2301.2.9.		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RM82-13	Section(s): R202, M2301.2.3, Chapter 44 M2301.2.3 Relief valves and system components. System components containing fluids shall be protected with temperature and pressure ~~and temperature~~ relief valves or pressure relief valves. Relief devices shall be installed in sections of the system so that a section cannot be valved off or isolated from a relief device. Direct systems and the potable water portion of indirect systems shall be equipped with a relief valve in accordance with Section P2803, For indirect systems, pressure relief valves in solar loops shall comply with SRCC 300. System components shall have a working pressure rating of not less than the setting of the pressure relief device. Add new standard to Chapter 44 as follows: SRCC 300-13 Standard 300 For Solar Water Heating Systems			X	Negligible cost as change should reflect an update to the design and contract documents
RM84-13	Section(s): M2301.2.5 (New) M2301.2.5 Piping insulation. Piping shall be insulated in accordance with the requirements of Chapter 11. Exterior insulation shall be protected from ultraviolet degradation. The entire solar loop shall be insulated. Where split-style insulation is used, the seam shall be sealed. Fittings shall be fully insulated.			X	Negligible cost as change should reflect an update to the design and contract documents
RM85-13	Section(s): Section R202, M2301.2.6, Chapter 44 DRAIN-BACK SYSTEM. A solar thermal system in which the fluid in the solar collector loop is drained from the collector into a holding tank under prescribed circumstances. M2301.2.6 Expansion tanks. Expansion tanks in solar energy systems shall be installed in accordance with Section M2003 in ~~closed fluid~~ solar collector loops that contain pressurized heat transfer fluid. Where expansion tanks are used, the system shall be designed in accordance with SRCC 300 to provide an expansion tank that is sized to withstand the maximum operating pressure of the system. Exception: Expansion tanks shall not be required in drain-back systems.		X		
RM86-13	Section(s): M2301.2.6 (New), Chapter 44 M2301.2.6 Storage tank sensors. Storage tank sensors shall comply with SRCC 300.			X	Negligible cost as change should reflect an update to the design and contract documents
RM87-13	Section(s): M2301.2.6 (New), M2301.2.7 (New) M2301.2.6 Mixing valves. Where heated water is discharged from a solar thermal system to a hot water distribution system, a thermostatic mixing valve complying with ASSE 1017 shall be installed to temper the water to a temperature of not greater than 140o F. Solar thermal systems supplying hot water for both space heating and domestic uses shall comply with Section P2802.2. A temperature indicating device shall be installed to indicate the temperature of the water discharged from the outlet of the mixing valve. The thermostatic mixing valve required by this			X	Negligible cost as change should reflect an update to the design and contract documents

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	section shall not be a substitute for water temperature limiting devices required by Chapter 27 for specific fixtures. M2301.2.7 Isolation valves. Isolation valves shall be provided on the cold water feed to the water heater. Isolation valves and associated piping shall be provided to bypass solar storage tanks where the system contains multiple storage tanks. P2802.1 Water temperature control. Where heated water is discharged from a solar thermal system to a hot water distribution system, a thermostatic mixing valve complying with ASSE 1017 shall be installed to temper the water to a temperature of not greater than 140o F. Solar thermal systems supplying hot water for both space heating and domestic uses shall comply with Section P2802.2. A temperature indicating device shall be installed to indicate the temperature of the water discharged from the outlet of the mixing valve. The thermostatic mixing valve required by this section shall not be a substitute for water temperature limiting devices required by Chapter 27 for specific fixtures. P2802.2 Isolation valves. Isolation valves in accordance with P2903.9.2 shall be provided on the cold water feed to the water heater. Isolation valves and associated piping shall be provided to bypass solar storage tanks where the system contains multiple storage tanks.				
RM88-13	Section(s): M2301.2.8 (New), M2301.2.9 (New), M2301.9.1, M2301.2.9.2 (New), Chapter 44 M2301.2.8 Description and warning labels. Solar thermal systems shall comply with description label and warning label requirements of Section M2301.2.9.2 and SRCC 300. M2301.2.9 Solar loop. Solar loops shall be in accordance with Sections M2301.2.8.1 and M2301.2.8.2. M2301.9.1 ~~M2301.2.8~~ Solar loop isolation. Valves shall be installed to allow the solar collectors to be isolated from the remainder of the system. ~~Each isolation valve shall be labeled with the open and closed position.~~ M2301.2.9.2 Drain and fill valve labels and caps. Drain and fill valves shall be labeled with a description and warning that identifies the fluid in the solar loop and a warning that the fluid might be discharged at high temperature and pressure. Drain caps shall be installed at drain and fill valves. Add new standard to Chapter 44 as follows: SRCC 300-13 Standard 300 For Solar Water Heating Systems			X	Negligible cost as change should reflect an update to the design and contract documents
RM89-13	Section(s): M2301.3.1, Chapter 44 M2301.3.1 Collectors and panels. Solar thermal collectors and panels shall be listed and labeled in accordance with SRCC 100 or SRCC 600. Collectors and panels shall be listed and labeled to show the manufacturer's name, model number, serial number, collector weight, collector maximum allowable temperatures and pressures, and the type of heat transfer fluids that are compatible with the collector or panel. The label shall clarify that these specifications apply only to the collector or panel.		X		
RM90-13	Section(s): Section M2301.4, Chapter 44 M2301.4 Heat transfer gasses or liquids and heat exchangers. ~~Prohibited heat transfer fluids~~. Flammable gases and liquids shall not be used as			X	Negligible cost as change

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Sub Code:					
	heat transfer fluids. Heat transfer gasses and liquids shall be rated to withstand the system's maximum design temperature under operating conditions without degradation. Heat exchangers used in solar thermal systems shall comply with Section P2902.5.2 and SRCC 300. Add new standard to Chapter 44 as follows: SRCC 300-13 Standard 300 For Solar Water Heating Systems				should reflect an update to the design and contract documents
RM91-13	Section(s): M2301.4, Chapter 44 M2301.4 Prohibited Heat transfer fluids. Essentially toxic transfer fluids, ethylene glycol, flammable gases, and flammable liquids shall not be used as heat transfer fluids. Heat transfer fluids shall be in accordance with SRCC 300. The flash point of the heat transfer fluids utilized in solar thermal systems shall be not less than 50°F (28°C) above the design maximum non-operating or no-flow temperature attained by the fluid in the collector.			X	Negligible cost as change should reflect an update to the design and contract documents
RM93-13	Section(s): M2301.6 (New), M2301.6.1 (New), M2301.6.2 (New), P2902.5.5 M2301.6 Solar systems for heating potable water. Where a solar energy system heats potable water to supply a potable hot water distribution system, the solar energy system shall be in accordance with Sections M2301.6.1, M2301.6.2 and P2902.5.5. M2301.6.1 Indirect systems. Heat exchangers that are components of indirect heating systems shall comply with Section P2902.5.2. M2301.6.2 Direct systems. Where potable water is directly heated, the pipe, fittings and valves between the solar collectors and the hot water storage tanks shall comply with NSF 61. Revise as follows: P2902.5.5 Solar systems. ~~The potable water supply to a solar system shall be equipped with a backflow preventer with intermediate atmospheric vent complying with ASSE 1012 or a reduced pressure principle backflow preventer complying with ASSE 1013. Where chemicals are used, the potable water supply shall be protected by a reduced pressure principle backflow preventer.~~ Where a potable water supply is connected to the solar collector circulation loop piping of an indirect solar water heating system and chemicals are not used in the circulation loop piping, a backflow preventer in accordance with ASSE 1012 shall be installed between the potable water system and the circulation loop piping. Where chemicals are used in the solar collector circulation loop piping, such backflow preventer shall be in accordance with ASSE 1013.			X	Negligible cost as change should reflect an update to the design and contract documents
RM97-13 Part II	Section(s): M2302 The modification clarifies how to design the PV system for roof live load and correlates with previous action on RM98-13, Part II.	X			
RM98-13 Part I	Section(s): 202, M2302 This proposed change consolidates and organizes these provisions, with necessary section revisions, and section additions, in an easily used format that also sets the stage for easy integration of code requirements for new solar energy technology and applications as they emerge in the market.		X		

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Sub Code:					
RM99-13	Section(s): M1411.3 (New), Chapter 44 M1411.3 Refrigeration line sets. Line sets connecting to cooling coils shall comply with ASTM BXXX-13. Fittings for line sets shall comply with ASME B16.22, ASME B16.26, or UL 207 and shall be rated for refrigeration tubing. The joints and connections for line sets shall be brazed, flared, or a type that is listed and labeled for refrigeration tubing. Brazing material shall have a melting point exceeding 1,000°F (538°C).		X		
RM100-13	Section(s): M1502.4.4, M1502.4.4.3 (New) M1502.4.4.3 Dryer exhaust duct power ventilator. The maximum length of the exhaust duct shall be determined in accordance with the manufacturer's instructions for the dryer exhaust duct power ventilator.		X		
RM101-13	Section(s): M1502.4.4 (New), Chapter 44 M1502.4.4 Dryer Exhaust Duct Power Ventilators. Domestic dryer exhaust duct power ventilators shall conform to UL 705 for use in dryer exhaust duct systems. The dryer exhaust duct power ventilator shall be installed in accordance with the manufacturer's instructions.		X		
RP1-13	Section(s): P2502.1 P2502.1 Existing building sewers and building drains. ~~Existing building sewers and drains shall be used in connection with new systems when found by examination and/or test to conform to the requirements prescribed by this document.~~ Where the entire sanitary drainage system of an existing building is replaced, existing building drains under concrete slabs and existing building sewers that will serve the new system shall be internally examined to verify that the piping is sloping in the correct direction, is not broken, is not obstructed and is sized for the drainage load of the new plumbing drainage system to be installed.		X		
RP4-13	Section(s): P2503.4 P2503.4 Building sewer testing. The building sewer shall be tested by insertion of a test plug at the point of connection with the public sewer and filling the building sewer with water to the highest point thereof., ~~testing with not less than a 10-foot (3048) head of water and be able to maintain such pressure for 15 minutes.~~ The building sewer shall be watertight at all points. Forced sewer tests shall consist of pressurizing the piping to a pressure of not less than 5 psi (34.5 kPa) greater than the pump rating and maintaining such pressure for not less than 15 minutes. The forced sewer shall be watertight at all points.		X		
RP6-13	Section(s): P2503.5 P2503.5 ~~DWV~~ Drain, waste and vent systems testing. Rough-in and finished plumbing installations of drain, waste and vent systems shall be tested in accordance with Sections P2503.5.1 and P2503.5.2.		X		
RP8-13	Section(s): P2503.5.1 Lowering the fill stack to 5 feet enables both the installer and the inspector to put eyeballs on the water level inside the pipe		X		
RP11-13	Section(s): P2601.2 P2601.2 Connections to drainage system. Plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of		X		

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Sub Code:					
	the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent indirect waste connections where required by the code. ~~waste systems~~. Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an ~~approved gray water systems~~ complying with Section P3009. ~~for flushing of water closets and urinals or for subsurface landscape irrigation.~~				
RP12-13	Section(s): P2602.1, P2602.2, Chapter 14 P2602.1 General. The water-distribution and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public water supply or sewer system, respectively, if available. When either a public water supply or sewer system, or both, are not available, or connection to them is not feasible, an individual water supply or individual (private) sewage-disposal system, or both, shall be provided. Individual water supplies shall be constructed in accordance with state and local laws or in accordance with ANSI/NGWA-01-07		X		
RP14-13	Section(s): P2603.2.1 This proposal is consistent with the National Electrical Code, which also specifies a 1-1/4-inch setback from the edge of a stud.		X		
RP16-13	Section(s): P2603.3 ~~P2603.3 Breakage and corrosion. Pipes passing through concrete or cinder walls and floors, coldformed steel framing or other corrosive material shall be protected against external corrosion by a protective sheathing or wrapping or other means that will withstand any reaction from lime and acid of concrete, cinder or other corrosive material. Sheathing or wrapping shall allow for movement including expansion and contraction of piping. The wall thickness of material shall be not less than 0.025 inch (0.64 mm).~~ P2603.3 Protection against corrosion. Metallic piping, except for cast iron, ductile iron and galvanized steel, shall not be placed in direct contact with steel framing members, concrete or masonry. Metallic piping shall not be placed in direct contact with corrosive soil. Where sheathing is used to prevent direct contact, the sheathing material thickness shall be not less than 0.008 inch (8 mil) (0.203 mm) and shall be made of plastic. Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.		X		
RP17-13	Section(s): P2604.2 P2604.2 ~~Common~~ Water service and building sewer in same trench. Where the water service piping and building sewer piping is installed in same trench, the installation shall be in accordance with ~~See~~ Section P2905.4.2.		X		
RP18-13	Section(s): P2604.4		X		

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Sub Code:					
	~~P2604.4 Protection of footings. Trenching installed parallel to footings shall not extend below the 45- degree (0.79 rad) bearing plane of the footing or wall (See Figure P2604.4).~~ P2604.4 Protection of footings. Trenching installed parallel to footings and walls shall not extend into the bearing plane of a footing or wall. The upper boundary of the bearing plane is a line that extends downward, at an angle of 45 degrees from horizontal, from the outside bottom edge of the footing or wall.				
RP19-13	Section(s): P2605.1 PEX tubing, like other materials currently in the table, is being made in larger diameters that are stiffer and require less support.		X		
RP20-13	Section(s): Table P2605.1 Brass and Bronze are copper alloys and are covered under the copper and copper alloys listed elsewhere in the table. This proposal eliminates outdated language		X		
RP21-13	Section(s): Table P2605.1 b. ~~Mid-story guide~~ For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe.		X		
RP23-13	Section(s): P2607.1, P2607.2 (New) P2607.1 ~~General~~ Pipes penetrating roofs. Where a pipe penetrates a roof, a flashing of lead, copper, galvanized steel or an approved elastomeric material shall be installed in manner that prevents water entry into the building. Counterflashing into the opening of pipe serving as a vent terminal shall not restrict reduce the required internal cross-sectional area of the vent pipe to less than the internal cross-sectional area of one pipe size smaller. ~~any vent. and exterior wall penetrations shall be made water tight. Joints at the roof, around vent pipes, shall be made water tight by the use of lead, copper or galvanized iron flashings or an approved elastomeric material.~~ P2607.2 Pipes penetrating exterior walls. Where a pipe penetrates an exterior wall, a waterproof sealant shall be applied at the joint between the wall and the pipe, on the exterior of the wall.		X		
RP24-13	Section(s): P2609.1 P2609.1 Identification. Each length of pipe and each pipe fitting, trap, fixture, material and device utilized in a plumbing system shall bear the identification of the manufacturer and any markings required by the applicable referenced standards. Nipples created from the cutting and threading of approved pipe shall not be required to be identified.		X		
RP25-13	Section(s): P2609.1 Exception: Where the manufacturer identification cannot be marked on pipe fittings and pipe nipples because of the small size of such fittings, the identification shall be printed on the item packaging or on documentation provided with the item.		X		
RP27-13	Section(s): P2609.4		X		

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Sub Code:					
	P2609.4 Third-party certification. ~~All~~ Plumbing products and materials required by the code to be in compliance with a referenced standard shall be listed by a third-party certification agency as complying with the referenced standards. Products and materials shall be identified in accordance with Section P2609.1.				
RP28-13	Section(s): P2701.1 P2701.1 Quality of fixtures. Plumbing fixtures, faucets and fixture fittings shall be constructed of approved materials, shall have smooth impervious surfaces, shall be free from defects and concealed fouling surfaces, and shall conform to the standards cited in Table P2701.1 and elsewhere in this code. Plumbing fixtures shall be provided with an adequate supply of potable water to flush and keep the fixtures in a clean and sanitary condition without danger of backflow or cross connection.		X		
RP30-13	Section(s): Table P2701.1, Chapter 44 ANSI Z124.1.2-2005 Plastic Bathtub and Shower Units.		X		
RP32-13	Section(s): R202, P2702.1, P2706.1, P2706.1.1 (New), P2706.2, P2706.2.1 A definition for “waste receptor” is needed. The term is found in the code 11 times with no exact description. The definition identifies exactly what constitutes an ‘approved type” of waste receptor.		X		
RP33-13	Section(s): P2702.2 P2702.2 Waste fittings. Waste fittings shall conform to ASME A112.18.2/CSA B125.2, ASTM F 409 or shall be made from pipe and pipe fittings complying with any of the standards indicated in Tables P3002.1(1) and P3002.3. ~~to one of the standards listed in Table P3002.1(1) for above-ground drainage and vent pipe and fittings.~~		X		
RP34-13	Section(s): P2705.1 Changing “brass” to copper alloy is consistent with other proposals		X		
RP36-13	Section(s): P2701.1 P2701.1 Quality of fixtures. Plumbing fixtures, faucets and fixture fittings ~~shall be constructed of approved materials~~, shall have smooth impervious surfaces, shall be free from defects and shall not have concealed fouling surfaces., ~~and shall conform to the standards cited in this code. Plumbing fixtures shall be provided with an adequate supply of potable water to flush and keep the fixtures in a clean and sanitary condition without danger of backflow or cross connection.~~		X		
RP40-13	Section(s): P2712.1, Chapter 44 ASMEA112.19.14–2006(R2011) Six-Liter Water Closets Equipped with a Dual Flushing Device		X		
RP42-13	Section(s): P2716.2 P2716.2 Water supply required. A sink equipped with a food waste grinders shall be provided with a faucet. ~~be provided with an adequate supply of water at a sufficient flow rate to ensure proper functioning of the unit.~~		X		
RP43-13	Section(s): P2717.1		X		

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Sub Code:					
	P2717.1 Protection of water supply. ~~The water supply for dishwashers shall be protected by an air gap or integral backflow preventer.~~ The water supply to a dishwasher shall be protected against backflow by an air gap complying with ASME A112.1.3 or A112.1.2 that is installed integrally within the machine or a backflow preventer in accordance with Section P2902.				
RP44-13	Section(s): P2717.2, P2717.3 P2717.2 Sink and dishwasher. The combined discharge from a sink and dishwasher shall be served by ~~are permitted to discharge through~~ a single trap of not less than 1 1/2 inches (38 mm) in nominal diameter ~~trap~~. The discharge pipe from the dishwasher shall be increased in size to not less than 3/4 inch (19 mm) inside diameter and before shall be connecting ~~with~~ to a wye fitting in ~~to~~ the sink tailpiece. The waste discharge pipe from the dishwasher ~~waste line~~ shall rise and be ~~securely~~ fastened or held in a position to at the underside of the counter before connecting to the wye ~~sink tailpiece~~. P2717.3 Sink, dishwasher and food waste grinder. The combined discharge from a sink, dishwasher, and food waste grinder shall be served by a single trap of not less than ~~is permitted to discharge through a single~~ 1 1/2 inch (38 mm) in nominal diameter ~~trap~~ . The discharge pipe from the dishwasher shall be increased in size to not less than 3/4 inch (19 mm) inside diameter and shall before connecting with to a wye fitting between the discharge of the food-waste grinder and the trap inlet. Alternatively, the discharge pipe from the dishwasher shall connect or to the head of the food waste grinder. The dishwasher discharge pipe waste line shall rise and be ~~securely~~ fastened or held in a position to at the underside of the counter before connecting to the wye ~~sink tail piece~~ or the head of the food waste grinder.		X		
RP47-13	Section(s): P2725 (New), P2725.1 (New) P2725.1 General. Materials, design, construction and performance of non-liquid saturated treatment systems shall comply with NSF 41.		X		
RP48-13	Section(s): P2801.1 P2801.1 Hot water required. ~~Each dwelling~~ Hot water shall ~~have an approved automatic water heater or other type of domestic water-heating system sufficient to supply hot water to~~ be supplied to plumbing fixtures and appliances intended for bathing, washing or culinary purposes. Hot water shall be supplied by an approved automatic water heater or other type of approved domestic water-heating system. Storage water heaters and hot water storage tanks shall be constructed of ~~noncorrosive~~ corrosion-resistant metal or shall be lined with ~~noncorrosive~~ corrosion-resistant material.		X		
RP49-13	Section(s): P2801.2 (New) P2801.2 Drain valves. Drain valves for emptying shall be installed at the bottom of each tank-type water heater and hot water storage tank. The drain valve inlet shall be a ¾ inch nominal iron pipe size and the outlet shall be provided with a male garden hose thread.		X		

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Sub Code:					
RP50-13	Section(s): P2801.5 P2801.5 Required pan. Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a galvanized steel pan having a material thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage), or other pans approved for such use. ~~Listed pans shall comply with CSA LC3.~~		X		
RP51-13	Section(s): P2801.5 P2801.5 Required pan. Where a storage tank-type water heater or hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a pan constructed of one of the following: 1. galvanized steel ~~pan having a material thickness of not less than 0.0236 inch (0.6010 mm)~~ (No. 24) gage or a lesser gage number, 2. aluminum not less than 0.030 inch (0.8 mm) in thickness, 3. plastic not less than 0.036 inch (0.9 mm) in thickness ~~4. other pans~~ approved materials for such use. ~~Listed pans shall comply with CSA LC3~~. A plastic pan shall not be installed beneath a gas-fired water water.		X		
RP53-13	Section(s): P2801.5.2 P2801.5.2 Pan drain termination. The pan drain shall extend full-size and terminate over a suitably located indirect waste receptor or shall extend to the exterior of the building and terminate not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the adjacent ground surface. Where a pan drain was not previously installed, a pan drain shall not be required for a replacement water heater installation.		X		
RP55-13	Section(s): P2803.6.1 10. ~~Not~~ Terminate not more than 6 inches (152 mm) and not less than two times the discharge pipe diameter above the floor or waste receptor flood level rim.		X		
RP56-13	Section(s): P2803.6.1 14. Be one nominal size larger than the size of the relief valve outlet, where the relief valve discharge piping is constructed of PEX or PE-RT tubing. The outlet end of such tubing shall be fastened in place.		X		
RP57-13	Section(s): P2901.1, P2901.2 (New), P2901.2.1 (New), P2901.2.2 (New), P2901.2.3 (New) Water distribution systems of other than potable water are being installed in buildings and the code needs to require marking of the piping and signage for the outlets for safety reasons. The basis for this new language is text from the IgCC and is written to be in alignment with the IgCC requirements		X		
RP58-13	Section(s): P2902.1 P2902.1 General. A potable water supply system shall be designed and installed as to prevent contamination from nonpotable liquids, solids or gases being introduced into the potable water supply. Connections shall not be made to a potable water supply in a manner that could contaminate the water supply or provide a cross-connection between the supply and a source of contamination except where approved		X		

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	backflow prevention assemblies, backflow prevention devices or other means or methods are installed to protect the potable water supply. Cross-connections between an individual water supply and a potable public water supply shall be prohibited.				
RP61-13	Section(s): P2902.3.1 P2902.3.1 Air gaps. Air gaps shall comply with ASME A112.1.2 and air gap fittings shall comply with ASME A112.1.3. ~~The minimum~~ An air gap shall be measured vertically from the lowest end of a water supply outlet to the flood level rim of the fixture or receptor into which ~~such potable~~ the water outlets discharges or to the floor. The ~~minimum~~ required air gap shall be not less than twice the diameter of the effective opening of the outlet, ~~but in no case~~ and not less than the values specified in Table P2902.3.1. ~~An air gap is required at the discharge point of a relief valve or piping. Air gap devices shall be incorporated in dishwashing and clothes washing appliances.~~		X		
RP62-13	Section(s): P2902.3.2 P2902.3.2 Atmospheric-type vacuum breakers. ~~Pipe-applied~~ Atmospheric-type vacuum breakers shall conform to ASSE 1001 or CSA B64.1.1. Hose-connection vacuum breakers shall conform to ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA B64.2, CSA B64.2.1, CSA B64.2.1.1, CSA B64.2.2 or CSA B64.7. Both types of vacuum breakers shall be installed such with the outlet continuously open to the atmosphere. ~~These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height.~~		X		
RP63-13	Section(s): P2902.3.2 P2902.3.2 Atmospheric-type vacuum breakers. ~~Pipe applied~~ Atmospheric-type vacuum breakers shall conform to ASSE 1001 or CSA B64.1.1. Hose-connection vacuum breakers shall conform to ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA B64.2, CSA B64.2.1, CSA B64.2.1.1, CSA B64.2.2 or CSA B64.7. These ~~devices~~ vacuum breakers shall operate under normal atmospheric pressure when the critical level is installed at the required height. The critical level of the atmospheric vacuum breaker shall be set at not less than 6 inches (152 mm) above the highest elevation of downstream piping and the flood level rim of the fixture or device.		X		
RP65-13	Section(s): P2902.3.3 P2902.3.3 Backflow preventer with intermediate atmospheric vent. Backflow with intermediate atmospheric vents shall conform to ASSE 1012 or CSA B64.3. These devices shall be permitted to be installed where subject to continuous pressure conditions. These devices shall be prohibited as a means of protection where any chemical additives are introduced downstream of the device. The relief opening shall discharge by air gap and shall be prevented from being submerged.		X		
RP67-13	Section(s): P2902.3.4 P2902.3.4 Pressure vacuum breaker assemblies. Pressure vacuum breaker assemblies shall conform to ASSE 1020 or CSA B64.1.2. Spill-resistant vacuum breaker assemblies shall comply with ASSE 1056. These		X		

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	assemblies are designed for installation under continuous pressure conditions where the critical level is installed at the required height. The critical level of a pressure vacuum breaker and a spill resistant vacuum breaker assembly shall be set at not less than 12 inches (304 mm) above the highest elevation of downstream piping and the flood level rim of the fixture or device. Pressure vacuum breaker assemblies shall not be installed in locations where spillage could cause damage to the structure.				
RP70-13	Section(s): P2902.3.6 P2902.3.6 Double check ~~valve~~ backflow prevention assemblies. Double check ~~valve~~ backflow prevention assemblies shall conform to ASSE 1015, CSA B64.5, CSA B64.5.1 or AWWA C510. Doubledetector check ~~valve~~ detector fire protection backflow prevention assemblies shall conform to ASSE 1048. These ~~devices~~ assemblies shall be capable of operating under continuous pressure conditions.		X		
RP71-13	Section(s): Table P2902.3 The revised table provides needed clarity on the application of backflow preventers.		X		
RP72-13	Section(s): P2902.4 P2902.4 Protection of potable water outlets. Potable water openings and outlets shall be protected by an air gap, a reduced pressure principle backflow prevention assembly ~~with atmospheric vent~~, an atmospheric-type vacuum breaker, a pressure-~~type~~ vacuum breaker assembly or a hose connection backflow preventer.		X		
RP73-13	Section(s): P2902.4.1 P2902.4.1 Fill valves. Flush tanks shall be equipped with an antisiphon fill valve conforming to ASSE 1002 or CSA B125.3. The critical level of the fill valve ~~backflow preventer~~ shall be located not less than 1 inch (25 mm) above the ~~full opening~~ top of the flush tank overflow pipe		X		
RP74-13	Section(s): P2902.4.3 P2902.4.3 Hose connection. Sillcocks, hose bibbs, wall hydrants and other openings with a hose connection shall be protected by an atmospheric-type vacuum breaker, a pressure-~~type~~ vacuum breaker assembly or a permanently attached hose connection vacuum breaker.		X		
RP75-13	Section(s): P2902.5.1 P2902.5.1 Connections to boilers. ~~The potable supply to the boiler shall be equipped with a backflow preventer with an intermediate atmospheric vent complying with ASSE 1012 or CSA B64.3. Where conditioning chemicals are introduced into the system,~~ The potable water connection to a boiler shall be protected by an air gap or a reduced pressure principle backflow prevention assembly complying with ASSE 1013, CSA B64.4 or AWWA C511.		X		
RP76-13	Section(s): P2902.5.2 P2902.5.2 Heat exchangers. Heat exchangers using an essentially toxic transfer fluid shall be separated from the potable water by double-wall construction. An air gap open to the atmosphere shall be provided between the two walls. Single-wall construction heat exchangers shall be used only where an essentially nontoxic transfer fluid is utilized ~~is an~~		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~essentially nontoxic. transfer fluid shall be permitted to be of single-wall construction~~.				
RP77-13	Section(s): P2902.5.5 P2902.5.5 Solar systems. The potable water supply to a solar system shall be equipped with a backflow preventer with intermediate atmospheric vent complying with ASSE 1012 or a reduced pressure principle backflow prevention assembly complying with ASSE 1013. Where chemicals are used, the potable water supply shall be protected by a reduced pressure principle backflow prevention assembly. Exception: Where all solar system piping is a part of the potable water distribution system, in accordance with the requirements of the International Plumbing Code, and all components of the piping system are listed for potable water use, ~~cross-connection protection measures~~ backflow protection shall not be required.		X		
RP79-13	Section(s): Table P2903.1 The proposal updates the table to be aligned with newer low flow fixtures which will result in less expense for piping to some fixtures.		X		
RP82-13	Section(s): P2903.3 P2903.3 Minimum pressure. ~~The static water pressure (as determined by the local water authority) at the building entrance for either public or private water service shall be not less than 40 psi (276 kPa).~~ Where the water pressure supplied by the public water main or an individual water supply system is insufficient to provide for the minimum pressures and quantities for the plumbing fixtures in the building, the pressure shall be increased by means of an elevated water tank, a hydropnuematic pressure booster system or a water pressure booster pump.		X		
RP85-13	Section(s): P2903.8 P2903.8 Gridded and parallel water distribution systems. Hot water and cold water manifolds installed with ~~gridded~~ or parallel-connected individual distribution lines and cold water manifolds installed with gridded distribution lines to each fixture or fixture fittings shall be designed in accordance with Sections P2903.8.1 through P2903.8.6. Gridded systems for hot water distribution systems shall be prohibited.		X		
RP87-13	Section(s): P2903.8.3 P2903.8.3 Orientation. The installation orientation of manifolds shall not be limited ~~be permitted~~ to be installed in a horizontal ~~or~~ and vertical orientations.		X		
RP90-13	Section(s): P2903.9.3 P2903.9.3 Fixture valves and access. ~~An individual~~ Shutoff valves shall be required on t~~he~~ each fixture supply pipe to each plumbing appliance and to each plumbing fixture other than bathtubs and showers. Valves serving individual plumbing fixtures, plumbing appliances, risers and branches shall be ~~provided with~~ accessible.		X		
RP91-13	Section(s): P2903.9.4 P2903.9.4 Valve requirements. Valves shall be of an approved type and compatible with the type of piping material installed in the system. ~~Ball valves, gate valves, butterfly valves, globe valves and plug.~~ Valves		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	intended to supply drinking water shall meet the requirements of NSF 61.				
RP92-13	Section(s): P2903.9.4, Table P2903.9.4 (New), Chapter 44 P2903.9.4 Valves. Valves shall be ~~of an approved type and~~ compatible with the type of piping material installed in the system. Valves shall conform to one of the standards listed in Table 605.7 or shall be approved. Ball valves, gate valves, globe valves and plug valves intended to supply drinking water shall meet the requirements of NSF 61.		X		
RP102-13	Section(s): P2905.2, P2905.2.1 (New), Chapter 44 P2905.2 Lead content. The lead content in pipe and fittings used in the water supply system shall be ~~have lead content of~~ not greater than 8 percent lead. P2905.2.1 Lead content of drinking water pipe and fittings. Pipe, pipe fittings, joints, valves, faucets, and fixture fittings utilized to supply water for drinking or cooking purposes shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent lead or less.		X		
RP103-13	Section(s): P2905.4.1 ~~P2905.4.1~~ P2905.3.7 Dual check-valve-type backflow preventer. ~~Where~~ a Dual check ~~valve~~ backflow preventers is installed ~~on the water supply system,~~ it shall ~~comply~~ conform with ASSE 1024 or CSA B64.6.		X		
RP104-13	Section(s): P2905.4.2 The proposal was approved to make the IRC coordinate with the IPC.		X		
RP105-13	Section(s): Table P2905.4, P3004.3, Table P3302.1 Asbestos cement pipe is no longer manufactured in North America. The material needs to be removed from the code.		X		
RP106-13	Section(s): Table P2905.4 Polypropylene (PP) plastic tubing ASTM F 2389; CSA B137.11		X		
RP107-13	Section(s): Table P2905.4, Table P2905.5, P2905.9.1.3 (New), Chapter 44 CPVC/AL/CPVC pipe has been developed that is suitable for use as potable water piping, both as water service pipe and water distribution pipe. This product has been used successfully on a limited basis since 2007 based on NSF Standard 61 listing and a special engineered standard (SE) from NSF International. Including this product in the IRC will recognize another plumbing pipe option for installers.		X		
RP108-13	Section(s): Table P2905.4, Table P2905.5, Table P2905.6 Brass and Bronze are copper alloys. Moving the standards under the applicable heading eliminates outdated language and provides the appropriate terminology		X		
RP109-13	Section(s): Table P2905.6, Chapter 44 ASME B16.51-2011 Copper and Copper Alloy Press-Connect Pressure Fittings		X		
RP110-13	Section(s): Table P2905.6 ASSE 1061; ASME B16.15; ASME B16.18; ASME B16.22; ~~ASME B16.23~~; ASME B16.26~~; ASME B16.29~~		X		
RP111-13	Section(s): Table P2905.6		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	Add ASTM F2769 as a fittings standard for polyethylene of raised temperature (PE-RT)				
RP112-13	Section(s): Table P2905.5 ASME B16.12 is for threaded drainage fittings and is inappropriate to be listed in a water distribution pipe fitting table.		X		
RP114-13	Section(s): P2905.14, Chapter 44 P2905.14 Soldered and brazed joints. Soldered joints in copper and copper alloy tubing shall be made with fittings approved for water piping and shall conform to ASTM B 828. Surfaces to be soldered shall be cleaned bright. Fluxes for soldering shall be in accordance with ASTM B813 and shall become noncorrosive and non-toxic after soldering. Brazing fluxes shall be in accordance with AWS A5.31~~. The joints shall be properly fluxed and made with approved solder~~. Solders and fluxes used in potable watersupply systems shall have a lead content of not greater than 0.2 percent. ~~Fluxes shall conform to ASTM B 813.~~		X		
RP115-13	Section(s): P2905.17.1 This proposal was approved to be in-line with prior proposals that changed “brass” to “copper alloy”.		X		
RP116-13	Section(s): P2905.18 P2905.18 Press connect joints. Press-connect joints shall conform to one of the standards indicated in Table P2905.6. Press-type mechanical joints in copper tubing shall be made in accordance with the manufacturer’s instructions. Cut tube ends shall be reamed to the full inside diameter of the tube end. Joint surfaces shall be cleaned. The tube shall be fully inserted into the press connect fitting. Press connect joints shall be pressed with a tool certified by the manufacturer.~~ using approved tools which affix the copper fitting with integral O-ring to the tubing.~~		X		
RP118-13	Section(s): P2905.19.1 ~~P2905.19.1 Flared joints. Flared pipe ends shall be made by a tool designed for that operation.~~		X		
RP120-13	Section(s): 202, P2909 (New), P2910 (New), P2911 (New), P2912 (New), P3009 The sections shown to be added to the code are from the IgCC. These sections really need to be in the IRC as these subjects are more applicable to the IRC scope. Currently, the IRC does not address different types of nonpotable water (other than gray water) and therefore provides no guidance as to how nonpotable waters are to be collected, stored and distributed.		X		
RP122-13	Section(s): Table P3002.1(1) Brass and Bronze are copper alloys. Moving the standards under the applicable heading eliminates outdated language and provides the appropriate terminology		X		
RP123-13	Section(s): P3002.2.1 (New) P3002.2.1 Building sewer pipe near the water service. The proximity of a building sewer to a water service shall comply with Section P2905.4.2.		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RP124-13	Section(s): P3003.5, P3003.5.1, P3003.5.2, P3003.5.3, P3003.10, P3003.10.1, P3003.10.3, P3003.10.11, P3003.10.11.1, P3003.10.11.2, P3003.10.11.3 Brass and Bronze are copper alloys and by combining pipe and tubing section P3003.10, section P3003.11 is no longer necessary.		X		
RP126-13	Section(s): P3003.6.3. Chapter 44 P3003.6.3 Mechanical joint coupling. Mechanical joint couplings for hubless pipe and fittings shall consist of an elastomeric sealing sleeve and a metallic shield that comply with CISPI 310, or ASTM C1277 or ASTM C1540. The elastomeric sealing sleeve shall conform to ASTM C564 or CSA B602 and shall have ~~be provided with~~ a center stop. Mechanical joint couplings shall be installed in accordance with the manufacturer's installation instructions.		X		
RP127-13	Section(s): P3003.8, P3003.8.1, P3003.8.2 ~~P3003.8 Coextruded composite ABS pipe. Joints between coextruded composite pipe with an ABS outer layer or ABS fittings shall comply with Sections P3003.8.1 and P3003.8.2.~~ ~~P3003.8.1 Mechanical joints. Mechanical joints on drainage pipe shall be made with an elastomeric seal conforming to ASTM C 1173, ASTM D 3212 or CSA B602. Mechanical joints shall not be installed in above-ground systems, unless otherwise approved. Joints shall be installed in accordance with the manufacturer's instructions.~~ ~~P3003.8.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. Solvent cement that conforms to ASTM D 2235 or CSA B181.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet. Joints shall be made in accordance with ASTM D 2235, ASTM D 2661, ASTM F 628 or CSA B181.1. Solvent- cement joints shall be permitted above or below ground.~~		X		
RP128-13	Section(s): P3003.9, P3003.9.1, P3003.9.2 ~~P3003.9 Coextruded composite PVC pipe. Joints between coextruded composite pipe with a PVC outer layer or PVC fittings shall comply with Sections P3003.9.1 and P3003.9.2.~~ ~~P3003.9.1 Mechanical joints. Mechanical joints on drainage pipe shall be made with an elastomeric seal conforming to ASTM D 3212. Mechanical joints shall not be installed in above-ground systems, unless otherwise approved. Joints shall be installed in accordance with the manufacturer's instructions.~~ ~~P3003.9.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F 656 shall be applied. Solvent cement not purple in color and conforming to ASTM D 2564, CSA B137.3 or CSA B181.2 shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and shall be in accordance with ASTM D 2855. Solvent cement joints shall be permitted above or below ground.~~		X		
RP129-13	Section(s): P3003.9.2, P3003.14.2 P3003.9.2 ,P3003.14.2 Solvent cementing Solvent cementing. Exception: A primer shall not be required where both of the following conditions apply: 1. The solvent cement used is third-party certified as conforming		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	to ASTM D 2564. 2. The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in non-pressure applications in sizes up to and including 4 inch (102 mm) in diameter.				
RP130-13	Section(s): P3003.18.1, P3003.18.2, P3003.18.3 Brass and Bronze are copper alloys. Moving the standards under the applicable heading eliminates outdated language and provides the appropriate terminology		X		
RP132-13	Section(s): P3005.1.5 ~~P3005.1.5 Dead ends. Dead ends shall be prohibited except where necessary to extend a cleanout or as an approved part of a rough-in more than 2 feet (610 mm) in length.~~		X		
RP133-13	Section(s): P3005.2, P3005.2.1, P3005.2.2, P3005.2.3, P3005.2.4, P3005.2.5, P3005.2.6, P3005.2.7, P3005.2.8, P3005.2.9, P3005.2.10, P3005.2.10.1 (New), P3005.2.10.2 (New), P3005.2.11 This section has been reorganized in a more logical format for ease of understanding. Note that the requirement for a cleanout at the base of stacks was deleted. Cleanouts at the base of the stack can be installed in the horizontal drain line		X		
RP136-13	Section(s): P3007.3.2 P3007.3.2 Sump pit. The sump pit shall be not less than 18 inches (457 mm) in diameter and not less than 24 inches (610 mm) in depth, unless otherwise approved. The pit shall be accessible and located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, concrete, steel, plastic or other approved materials. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gas-tight removable cover that is installed above grade level or floor level, or not more than 2 inches (51 mm) below grade or floor level, The cover shall be adequate to support anticipated loads in the area of use. The sump pit shall be vented in accordance with Chapter 31.		X		
RP137-13	Section(s): P3008.1 P3008.1 Sewage backflow Exception: In existing buildings, fixtures above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not be prohibited from discharging through a backwater valve.		X		
RP138-13	Section(s): P3009.13.2, P3009.13.2.1 (New) P3009.13.2 Disinfection and treatment. ~~Gray water shall be disinfected by an approved method that employs one or more disinfectants such as chlorine, iodine or ozone that are recommended for use with the pipes, fittings and equipment by the manufacturer of the pipes, fittings and equipment.~~ Nonpotable water collected onsite for reuse shall be disinfected, treated or both to provide the quality of water needed for the intended end use application. Where the intended end use application does not have requirements for the quality of water, disinfection and treatment of water collected onsite for reuse shall not be required. Onsite collected nonpotable water that contains untreated		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	gray water ans is collected in reserviors shall be retained for not more than 24 hours. P3009.13.2.1 Gray water used for fixture flushing. Gray water used for flushing water closets and urinals shall be disinfected and treated by an on-site water reuse treatment system complying with NSF 350.				
RP139-13	Section(s): P3009.13.4 ~~P3009.13.4 Coloring. The gray water shall be dyed blue or green with a food grade vegetable dye before such water is supplied to the fixtures.~~		X		
RP140-13	Section(s): P3009.19 P3009.19 Joints between drainage piping and water closets. Joints between drainage piping and water closets or similar fixtures shall be made by means of a closet flange or a waste connector and sealing gasket compatible with the drainage system material, securely fastened to a structurally firm base. ~~The inside diameter of the drainage pipe shall not be used as a socket fitting for a 4-inch by 3-inch (102 mm by 76 mm) closet flange~~. The joint shall be bolted, with an approved gasket flange to fixture connection complying with ASME A112.4.3 or setting compound between the fixture and the closet flange or waste connector and sealing gasket. The waste connector and sealing gasket joint shall comply with the joint-tightness test of ASME A112.4.3 and shall be installed in accordance with the manufacturer's installation instructions		X		
RP141-13	Section(s): P3010 (New), Chapter 44 The IRC lacks coverage concerning the replacement of sewer systems by pipe bursting methods. These methods are being widely used throughout the country. Proper guidance concerning this type of replacement provides additional value to the code		X		
RP142-13	Section(s): P3101.2 P3101.2 Trap seal protection. The plumbing system shall be provided with a system of vent piping that will ~~permit~~ allow the admission or emission of air so that the liquid seal of any fixture trap shall not be subjected to a ~~pneumatic~~ pressure differential of more than 1 inch of water column (249 Pa).		X		
RP143-13	Section(s): P3103.1 P3103.1 Roof extension. Open vent pipes that extend through a roof shall be terminated not less than [NUMBER] inches (mm) above the roof or 6 inches (152 mm) above the anticipated snow accumulation, whichever is greater , ~~except that.~~ Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes ~~for any purpose other than weather protection,~~ the open vent pipes extensions shall terminate not less than 7 feet (2134 mm) above the roof.		X		
RP144-13	Section(s): P3103.2 P3103.2 Frost closure. Where the 97.5-percent value for outside design temperature is 0°F (-18°C) or less, every vent extensions through a roof or wall shall be not less than 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made not less than 1 foot inside the		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	~~structure at a point not less than 1 foot (305 mm) below the roof or inside the wall~~ thermal envelope of the building.				
RP145-13	Section(s): P3111.2.2 P3111.2.2 Connection. ~~The combination waste and vent pipe shall connect to a horizontal drain that is vented or a vent shall connect to the combination waste and vent. The vent connecting to the combination waste and vent pipe shall extend vertically not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented before offsetting horizontally.~~ The combination waste and vent system shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain that serves vented fixtures located on the same floor. Combination waste and vent systems connecting to building drains receiving only the discharge from a one or more stacks shall be provided with a dry vent. The vent connection to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented before offsetting horizontally.		X		
RP146-13	Section(s): P3114.5 P3114.5 Access and ventilation. Access shall be provided to all air admittance valves. ~~The~~ Such valves shall be installed in a location ~~within a ventilated space~~ that allows air to enter the valve.		X		
RP147-13	Section(s): P3114.8 P3114.8 Prohibited installations. Air admittance valves ~~without an engineered design~~ shall not be used to vent sumps or tanks except where the vent system for the sump or tank has been designed by an engineer. ~~of any type~~		X		
RP150-13	Section(s): P3201.2, P3201.2.1 (New), P3201.2.2 (New), P3201.2.3 (New), P3201.2.3 (New), Chapter 44 This modification adds language to identify all of the methods available for protecting the trap seal of emergency floor drain traps or traps subject to evaporation. The four methods available are: water supplied trap seal primers, waste supplied trap primer devices, trap seal protection devices, and reclaimed water. Waste supplied trap primer devices divert water from a sink or lavatory to the trap. Trap seal protection devices do not require any water. Reclaimed water can also be used to maintain the trap seal.		X		
RP152-13	Section(s): P3201.7, Table P3201.7 P3201.7 Size of fixture traps. ~~Fixture~~ Trap sizes for plumbing fixtures shall be ~~sufficient to drain the fixture rapidly and not less than the size~~ as indicated in Table P3201.7. Where the tailpiece of a plumbing fixture is larger than that indicated in Table P3201.7, the trap size shall be the same nominal size as the fixture tailpiece. A trap shall not be larger than the drainage pipe into which the trap discharges.		X		
RP153-13	Section(s): Table P3302.1 Plastic pipe (type sewer pipe, SDR 35, PS25, PS50 or PS100) ASTM D 3034		X		
RP154-13	Section(s): P2708.2 (New)		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	P2708.2 Shower drain. Shower drains shall have a outlet size of not less than 1-1/2 inches [38 mm] in diameter.				
RP155-13	Section(s): P2905.9.1.2 P2905.9.1.2 Solvent cementing. Joint surfaces shall be clean and free from moisture,. Joints shall be made in accordance with the pipe, fitting or solvent cement manufacturer's installation instructions. Where such instructions require a primer to be used, and an approved primer shall be applied,. and a solvent cement, orange in color and conforming to ASTM F 493, shall be applied to joint surfaces. Where such instructions allow for a one step solvent cement, yellow or red in color and conforming to ASTM F 493, to be used, the joint surfaces shall not require application of a primer before the solvent cement is applied. The joint shall be made while the cement is wet, and in accordance with ASTM D 2846 or ASTM F 493. Solvent cement joints shall be permitted above or below ground. ~~Exception: A primer is not required where all of the following conditions apply: 1. The solvent cement used is third-party certified as conforming to ASTM F 493. 2. The solvent cement used is yellow in color. 3. The solvent cement is used only for joining ½ inch (12.7 mm) through 2 inch (51 mm) diameter CPVC pipe and fittings. 4. The CPVC pipe and fittings are manufactured in accordance with ASTM D 2846.~~		X		
RP156-13	Section(s): P3007.5 P3007.5 Macerating toilet systems and pumped waste systems. Macerating toilet systems and pumped waste systems shall comply with CSA B45.9 or ASME A112.3.4 and shall be installed in accordance with the manufacturer's installation instructions.		X		
CE23-13 Part II	Section(s): C101.5.2, C402.1, R101.5.2 (IRC N1101.6), R402.1 (IRC N1102.1) ~~R101.5.2 (N1101.6) Low energy buildings. The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of this code: 1. Those with a peak design rate of energy usage less than 3.4 Btu/h ft2 (10.7 W/m2) or 1.0 watt/ft2 (10.7 W/m2) of floor area for space conditioning purposes. 2. Those that do not contain conditioned space.~~ R402.1 (N1102.1) General (Prescriptive). The building thermal envelope shall meet the requirements of Sections R402.1.1 through R402.1.4. Exception: The following low energy buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this section shall be exempt from the building thermal envelope provisions of Section R402. 1. Those with a peak design rate of energy usage less than 3.4 Btu/h ft2 (10.7 W/m2) or 1.0 watt/ft2 (10.7 W/m2) of floor area for space conditioning purposes. 2. Those that do not contain conditioned space.		X		
CE283-13, Part II	Section(s): C404.7 (NEW), Table C407.5.1(1), Chapter 5, R403.4.3 (NEW) (N1103.5 (NEW)), Chapter 5, IRC P2903.11 (NEW) R403.4.3 (N1103.4.3) Drain water heat recovery units. Drain water heat recovery units shall comply with CSA 55.2. Drain water heat recovery		X		

Table 5. 2015 IRC MEP Changes Cost Impact					
CODE CHANGE #	2015 IRC MEP CHANGE SUMMARY	2015 IRC MEP COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	units shall be in accordance with CSA 55.1. Potable water-side pressure loss of drain water heat recovery units shall be less than 3 psi (20.7 kPa) for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units shall be less than 2 psi (13.8 kPa) for individual units connected to three or more showers. CSA 55.1-2012 Test method for measuring efficiency and pressure loss of drain water heat recovery units CSA 55.2-2012 Drain water heat recovery units				
CE362-13, Part II	Section(s): C403.2.5 (New), R403.2 (New) (IRC N1103.2 (New)) R403.2 (N1103.2) Hot water boiler outdoor temperature setback. Hot water boilers that supply heat to the building through one- or two- pipe heating systems shall have an outdoor setback control that lowers the boiler water temperature based on the outdoor temperature.		X		

*For prescriptive Code changes only.

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APPENDIX F

Table 6. IEBC Changes Cost Impact					
CODE CHANGE #	2015 IEBC CHANGE SUMMARY	2015 IEBC COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
EB 1-13	Clarifies Section 202 and adds specificity as to how a building is officially determined to be eligible for the various lists of historic buildings.		X		
EB 2-13	Revises Chapter 3 and restructures Sections 302 and 501.3 to apply to all alterations, repairs, additions, relocations of structures and changes of occupancy regardless of the 3 compliance methods used.		X		
EB 4-13	Editorial changes to Section 301.1 to clarify content.		X		
EB 6-13	Modified Section 505.1 to clarify the scoping provisions for level 3 alterations.		X		
EB 18-13	Deleted without substitution Section 705.1.6.		X		
EB 19-13	Modified Sections 705.1.8 and 806.3 to require that alarms are only altered only when the system is being altered.		X		
EB 20-13	Modified Section 705.1.10 to add directional signage requirements for family/assisted-use bathrooms when the existing bathrooms are not fully accessible.		X		
EB 21-13	Modified Section 705.1 and added Section 705.1.15 added accessibility requirements for new construction for Amusement rides.		X		
EB 22-13	Modified Section 705.2 to require that restroom and drinking fountain renovations need to be considered on an equal basis to comply with accessibility requirements. The costs are not required to exceed existing 20% of the costs of alterations affecting area of *primary function requirement*.		X		
EB 23-13	Modified Section 202 and added Section 706 to address reroofing of existing buildings.		X		
EB 25-13	Modified 803.3, 803.3.1 and 803.3.2 to require that when Group I-2 occupancy hospitals and nursing homes undergo a substantial alteration, which is the case with a Level 2 Alteration where the space can be entirely configured, such work areas should be provided with a higher degree of fire safety		X		
EB 26-13	Added Section 802.6 to allow once an existing building is sprinklered throughout and meets the other fire protection requirements of Chapter 9 of the IBC, plans, investigation and evaluation reports, and other data can be submitted seeking approval of the code official for the assignment of the new fire-resistance ratings (reduction or increase).		X		
EB 28-13	Modified Section 804.2.1.1 so that when an entire floor is sprinklered, an occupied tenant space that is entirely outside the work area is exempt from retrofitting the space with fire sprinklers.		X		
EB 29-13	Modified Section 804.2.3 such that if a municipal water supply is available at the building site, and the work area exceeds 50% of the floor area, the installation of a new fire pump if needed to supplement the necessary flow and pressure for the sprinkler system should not be the deciding factor to address the need to increase the current degree of public safety in existing buildings.			X	
EB 30-13	Modified Section 804.2.3 such that if a municipal water supply is available at the building site, and the work area exceeds 50% of the floor area, the installation of a new fire pump if needed to supplement the necessary flow and pressure for the sprinkler system should not be the deciding factor to address the need to increase the current degree of public safety in existing buildings.		X		

EB 32-13	Modified Section 804.2.4 such that if a municipal water supply is available at the building site, and the work area exceeds 50% of the floor area, the installation of a new fire pump if needed to supplement the necessary flow and pressure for the sprinkler system should not be the deciding factor to address the need to increase the current degree of public safety in existing buildings.		X		
EB 33-13	Modified Section 804.4.1.3 to require installation of a fire alarm system installed in work areas of Group I-2 occupancies as required by the International Fire Code for existing <u>new</u> Group I-2 occupancies		X		
EB 34-13	Modified Section 805.3.1.1 to replace the term "community residence for the developmentally disabled" with Group R-4 residencies.		X		
EB 36-13	Modified Section 805.3.1.2 to limit the use of fire escapes to all occupancies other than hospitals.		X		
EB 37-13	Modified Section 805.5.2 to include Group I-2 occupancies.		X		
EB 39-13	Added Sections 805.1, 805.10.1 and 805.10.2 to require that when a space in a Group I-2 facility is being altered the designer needs to check that an alteration does not conflict with the area being used as a refuge area from an adjacent compartment.		X		
EB 40-13	Added Sections 805.1, 805.10.1 and 805.10.2 to require that when a jail is being altered the designer needs to check that an alteration does not conflict with the area being used as a refuge area from an adjacent compartment.		X		
EB 41-13	Added Sections 805.10, 805.10.1, 808.10.2 to address capacity of refuge areas for ambulatory care facilities.		X		
EB 43-13	Modified Sections 806.3, 806.4, 806.5 and 906.2 to clarify when Accessible, Type A and Type B units are required in alterations and additions.				
EB 44-13	Modified Section 808.1 to specify that all newly installed electrical equipment and wiring relating to work done in any *work area* shall comply with all applicable requirements of NFPA 70 except as provided for in Section 808.3.		X		
EB 46-13	Modified Sections 902.2 and 902.2.1 to clarify requirements for Groups I-1, I-2, I-4, R-1, R-2 and R-4 occupancies for boiler and furnace equipment rooms.		X		
EB 47-13	Modified Sections 904.1 and 904.1.1 to clarify sprinkler protection in Level 3 alterations.		X		
EB 48-13	Added Section 904.1.3 for sprinkler requirements upholstered furniture or mattresses work areas.			X	
EB 49-13	Modified Section 904.2 to require that Fire alarm and detection systems be provide in accordance with Section 907 of the International Building Code as required for new construction.			X	
EB 50-13	Modified Section 906.2 to clarify the requirements to provide Type B dwelling or sleeping units.		X		
EB 52-13	Modified Sections 202, 1001.1, 1001.2, 1001.2.1, 1001.3 and 1001.3.1 to clarify what a change in occupancy is,		X		
EB 53-13	Modified Sections 1001.1, 1001.2, 1004.1, 1012.1, 1012.1.1.1, 1012.1.1.2, 1012.2.1 and 1012.2.2 to require upgrading to automatic sprinkler protection for occupancies where manufacturing, storing or merchandizing upholstered furniture and mattresses occurred.			X	
EB 54-13	Modified Section 1002.1 to require that where a change in occupancy occurs, resulting in a Group I-2 classification, the new construction features must be employed to provide the requisite fire protection features		X		
EB 55-13	Modified Section 1009.1 to remove unenforceable intent requirement.		X		
EB 58-13	Modified Section 1012.2.2 to require that where the building is not equipped with a fire alarm system, alarm notification appliances be provided throughout the area where the change of occupancy occurs that are automatically activated in accordance with Section 907 of the BC required for new construction.			X	

EB 59-13	Modified Section 1012.5.1 to clarify that if the building is protected throughout with an automatic fire sprinkler system, designed to meet NFPA 13, then the column ratings can be what was allowed prior to the code change to the IBC.		X		
EB 60-13	Modified Section 1204.1.1 to require for historical buildings that the accessible routes from the site arrival point to the accessible entrance are the same as in IBC.		X		
EB 61-13	Modified Sections 1205.5 and 1205.9 and Chapter 16 to avoid confusion between Class C for roof coverings (Section 1205.5) and Class C for flame spread index (Section 1205.9)		X		
EB 62-13	Modified Sections 202 and 1301.1 to add relocatable buildings.		X		

*For prescriptive Code changes only.

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APPENDIX G

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1	NA	90.1(A)	Revised to include "This *Code* is not intended as a design specification or an instruction manual for untrained persons" under the scope of the *Code*.		X		
2	E3401.2	90.2(C)	Revised to clearly specify that installations qualify under this provision where the service equipment is either installed outside a building or structure or terminates inside at a readily accessible location.		X		
3	NA	90.8(B)	Revised by deleting "in one circuit" to enhance usability and understanding of the requirement of this section.		X		
4	NA	100 Scope and Part II	Revised the second sentence of the second paragraph of the Scope of Article 100 by adding "articles and" to precede "parts of articles." Revised the opening statement of Part II of Article 100 to clarify Part II is applicable to equipment and installations over 600 volts.		X		
5	E3501.1	Accessible , Readily (Readily Accessible)	Revised by adding the words "to actions such as; to use tools" to clarify the need to use a tool would add another level of action that would impede or delay access.		X		
6	E3501.1	Adjustable−Speed Drive	Revised to specify the function as power conversion equipment that adjusts the speed of a motor. Relocated to Article 100 because the term is used in Articles 100, 110, and 430.		X		
7	E3501.1	Adjust.−Speed Drive System	Revised to clarify the equipment that comprises the adjustable speed drive system. Relocated to Article 100 because the term is used in Articles 100, 110, and 430.		X		
8	E3501.1	Askarel	Revised by removing explanatory material and relocating it to a new Informational Note.		X		
9	E3501.1	Battery System	Relocated to Article 100 because the term is used in Articles 480, 517, 690, 694, 700, and 701.		X		
10	E3501.1	Cable Routing Assembly	Revised to include "power−limited fire alarm cables" and relocated to Article 100 because the term is used in Articles 725, 760, 770, 800, 820, and 830.		X		
11	E3501.1	Charge Controller	Relocated to Article 100 because the term is used in Articles 690 and 694.		X		
12	E3501.1	Commun. Equip.	Revised to include "and conductors dedicated solely for the operation of the equipment" to specify the conductors that are associated with the mentioned equipment.		X		
13	E3501.1	Communications Raceway	Relocated to Article 100 because the term is used in Articles 770, 800, 820, 830, and 840.		X		
14	E3501.1	Concealed	Revised by removing explanatory material and relocating to a new Informational Note.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
15	E3501.1	Control Circuit	Relocated to Article 100 because the term is used in Articles 225, 230, 240, 250, 300, 392, 409, 430, 440, 490, 517, 522, 604, 610, 620, 668, 685, 708,and 727		X		
16	E3501.1	Coordination (Selective)	Revised by deleting the word “choice” and adding “selection and installation” to improve clarity. Added the phrase “and for the full range of overcurrent protective device opening times associated with those overcurrents” to clarify the definition.		X		
17	E3501.1	Copper− Clad Alum Conductor	Revised to clearly describe the percentage of copper that comprises each solid conductor or conductor strand.		X		
18	E3501.1	Device	Revised by adding “other than a conductor” to clearly state a device does not include a conductor.		X		
19	E3501.1	Effective G−Fault Current Path	Relocated to Article 100 because the term is used in Articles 250, 404, and 517.		X		
20	E3501.1	Electric− Discharge Lighting	Relocated to Article 100 because the term is used in Articles 100, 210, 225, 300, 310, 410, 450, 501, 502, 530, 600, and 604.		X		
21	E3501.1	Electronically Actuated Fuse	Revised by removing explanatory material and relocating to a new Informational Note: “Electronically actuated fuses may or may not operate in a current−limiting fashion, depending on the type of control selected.”		X		
22	E3501.1	Exposed	Revised by removing explanatory material and relocating to a new Informational Note: “It is applied to parts that are not suitably guarded, isolated, or insulated.”		X		
23	E3501.1	G−Fault Current Path	Relocated to Article 100 because the term is used in Articles 100, 250, 610, and 690.		X		
24	E3501.1	Grounding ConductorEquip-EGC	Revised to clearly describe the ground−fault current path function of the EGC.		X		
25	E3501.1	Hermetic Refrig. Motor− compresor	Relocated to Article 100 because the term is used in Articles 220, 422, 424, 430, and 440.		X		
26	E3501.1	Industrial Control Panel	Relocated to Article 100 because the term is used in Articles 110, 409, 440, 670, 500, 505, 520, 620, 665, 675, 680, and 760.		X		
27	E3501.1	Intersys, Bonding Terminat.	Revised to clarify that the bonding conductors connected to this equipment are only those required by 250.94 for intersystem bonding.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
28	E3501.1	Lighting Track (Track Lighting)	Relocated to Article 100 because the term is used in Articles 220 and 410.		X		
29	E3501.1	Location, Damp	Revised by removing explanatory material and relocating to a new Informational Note.		X		
30	E3501.1	Overcur. Protective Device, Branch−Circuit	Revised by removing explanatory material and relocating to a new Informational Note.		X		
31	E3501.1	Photovolt. (PV) System	Revised by removing “solar” from the defined term. Relocated to Article 100 because the term is used in Articles 100, 200, 220, 225, 230, 240, 250, 300, 340, 625, 690, and 705.		X		
32	E3501.1	Premises Wiring (System) Info Note	New Informational Note: “Power sources include, but are not limited to, interconnected or stand−alone batteries, solar photovoltaic systems, other distributed generation systems, or generators.”		X		
33	E3501.1	Raceway	Revised by removing examples of raceways and providing an Informational Note indicating that the use of a particular wiring method as a raceway is defined in the Chapter 3 article covering that wiring method.		X		
34	E3501.1	Retrofit Kit	New definition for a type of equipment associated with luminaires and electric signs that is covered by requirements in Articles 410 and 600.		X		
35	E3501.1	Sealable Equip.	Revised by removing explanatory material and relocating to a new Informational Note: “The equipment may or may not be operable without opening the enclosure.”		X		
36	E3501.1	Separate Derived System	Revised for simplicity and to clearly describe the types of electrical supply systems that are subject to the requirements in Article 250 covering separately derived systems.		X		
37	E3501.1	Substation	Relocated to Article 100 because the term is used in Articles 90, 110, 225, 240, 250, 490, and 530. Revised to describe that this equipment is used for the distribution of, in addition to switching and changing the characteristic(s) of, electric energy.		X		
38	E3501.1	Switchbd.	Revised by removing explanatory material and relocating to a new Informational Note: “Switchboards are generally accessible from the rear as well as from the front and are not intended to be installed in cabinets.”		X		
39	E3501.1	Switchgear	Revised the definition title *Metal−Enclosed Power Switchgear* to *Switchgear*. Added a new Informational Note: “All switchgear subject to *NEC* requirements is metal enclosed. Switchgear rated below 600 (or 1000) volts may be identified as “Low−Voltage Power Circuit Breaker Switchgear.” Switchgear rated over 1000 volts may be identified as “Metal−Enclosed Switchgear” or “Metal−Clad Switchgear.”		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			Switchgear is available in non−arc−resistant or arc−resistant constructions."				
40	E3501.1	Voltage, Nominal	Revised by removing explanatory material and relocating to a new Informational Note: "The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment."		X		
41	E3404.3	110.1	A new informational note points to the new Annex J covering standards for accessible design that have particular significance to electrical design constraints		X		
42	NA	*110.9	Revised for clarity and usability.		X		
43	NA	110.12 Info Note	Revised by updating the title and edition year of the standard referenced.		X		
44	NA	110.14 Informational Note	Revised the Informational Note to recognize that terminations and equipment may be identified by tightening torque in the installation instructions provided.		X		
45	E3406.11	110.14(B)	Revised by including the term "identified" and deleting "identified for the purpose" to provide consistency with the definition of *identified* in Article 100.		X		
46	NA	110.16	Revised by adding the term "switchgear" and providing provisions for durability requirements for labels.		X		
47	NA	110.16	Revised to require marking to meet requirements in new Section 110.21(B).		X		
48	NA	110.16	Revised to include "factory" to the rule, to allow label application to be either field or factory applied.		X		
49	NA	110.16 Info Note1	Revised by updating reference to latest edition of NFPA 70E.		X		
50	E3404.11	110.21(A) and (B) Informational Note	Revised to include requirements for hazard marking where caution, warning, or danger signs or labels are required by the *Code*. Marking shall adequately warn of the hazard using effective words and for colors and for symbols. A new Informational Note refers to ANSI Z535.4−2011, Product Safety Signs and Labels, for guidelines.			X	Minimal cost required for add.l warning signs.
51	E3404.12	110.22(B) and (C)	Revised to require marking to meet requirements in new Section 110.21(B).		X		
52	NA	110.24 Informational Note	New Informational Note: "The available fault current marking(s) addressed in 110.24 are related to required short−circuit current ratings of equipment. NFPA 70E−2012, *Standard for Electrical Safety in the Workplace,* provides assistance in determining severity of potential exposure,		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			planning safe work practices, and selecting personal protective equipment.”				
53	NA	110.25	New section that provides consistent requirements for *Code* rules that require a lockable disconnecting means. The new section includes an exception for cord and plug connection, in that locking provisions are not required to remain in place.		X		
54	E3405.1	110.26(A)(1)	Revised to include switchgear as equipment exempt from working space in the back or sides, where all connections and renewable or adjustable parts are accessible from other than the back or sides.		X		
55	NA	110.26(C)(3)	Revised personnel door requirements by reducing the 1200−ampere threshold to 800 amperes.			X	$400
56	E3405.5	110.26(C)(3)	Revised to require “listed panic hardware” and to remove the phrase “simple pressure plates.”		X		
57	E3405.6	110.26(D)	Revised to include switchgear as equipment requiring illumination.		X		
58	NA	110.26(E)	Revised to include switchgear as equipment required to be located in dedicated space and protected from damage.		X		
59	NA	110.26(E)(2)(a) & (b)	Revised to include requirements for outdoor installations dedicated space requirements.		X		
60	NA	110.27(A)(4)	Revised to reflect differing elevation requirements for differing voltage thresholds.			X	Min. cost impact
61	NA	110.27(C)	Revised to require marking to meet requirements in new Section 110.21(B).		X		
62	NA	110.28	Revised to include switchgear as equipment required to be marked with an enclosure−type number as shown in Table 110.28.		X		
63	NA	110.31(A)(3)(1)	Revised by replacing the term “switchboard” with “switchgear,” to correlate with the revised defined term in Article 100.		X		
64	NA	110.31(A)(5)	Revised by updating the edition of the ASTM Standard, and deleted reference to NFPA 251.		X		
65	NA	110.33(A)(3)	Revised to require “listed panic hardware” and to remove the terms “simple pressure plates.”		X		
66	NA	110.31(B)(1)	Revised the term “metal−enclosed switchgear” to “switchgear” for correlation with the revision made to the defined term in Article 100.		X		
67	NA	110.34(A) Exception	Revised by replacing the term “dead−front switchboards” with “switchgear” to correlate with the revised defined term in Article 100.		X		
68	NA	110.34(C)	Revised to require marking to meet requirements in new Section 110.21(B).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
69	NA	110.34(F)	Revised by replacing the term “switchboard” with “switchgear” to correlate with the revised defined term in Article 100.		X		
70	NA	110.36	Revised by adding Type MC to the description for metal clad cable.		X		
71	NA	200.2(A)	Revised the phrase “circuits of less than 1000 volts” to “systems of 1000 volts and less” for correlation with other standards and with Part X of Article 250.		X		
72	E3701.5.2	200.4(B)	New requirement for grouping of circuit conductor sets where the grounded conductors of different circuits are installed in the same enclosure.			X	Minimal cost impact
73	E3407.1	200.6(A)(3),(B)(3), 200.6(E), 200.7, 200.7(A)(2), 200.7 (B), 200.7(C)(1) & (C)(2)	Revised to permit three continuous gray stripes on conductor insulation as a means to identify the grounded conductor of a circuit.		X		
74	E3701.5.2	210.4(D) Exception	Revised to permit “numbered” tags at conductor terminations as a means of identifying the ungrounded and grounded conductors associated with a specific multiwire branch circuit.		X		
75	NA	210.5(C)(2)	New requirement for 6 AWG and smaller and for 4 AWG and larger conductors that provides specific color or marking identification means for the positive and negative branch circuit conductors where supplied by a dc system operating at greater than 50 volts.		X		
76	NA	210.7	Revised by adding “or mounting strap” after “Yoke” to clarify intent.		X		
77	E3902.7	210.8(A)(7)	Revised to require GFCI protection of 125−volt, 15− and 20−ampere receptacles installed within 6 ft. of a sink that are not covered by the kitchen countertop rule in 210.8(A)(6).			X	$25
78	E3902.1	210.8(A)(9)	New requirement for GFCI protection of 125−volt, 15− and 20−ampere receptacles installed within 6 ft. of the outside edge of a bathtub or shower stall.			X	$25
79	NA	210.8(A)(10)	New requirement for GFCI protection of 125 volt, 15− and 20−ampere receptacles installed in laundry areas.			X	$25

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
80	NA	210.8(B)(3) Exception No. 1	Revised to specify that receptacles installed on a rooftop are only required to be readily accessible from the rooftop level.		X		
81	NA	210.8(B)(8)	Revised to require GFCI protection of all 125−volt, 15− and 20−ampere receptacles installed in garages located at other than dwelling units. The requirement does not apply to receptacles installed in showroom or exhibition areas.			X	$25
82	NA	210.8(D)	New requirement for GFCI protection of outlets that supply dishwashers installed in dwelling units.			X	$25
83	E3703.4	210.11(C)(3)	Revised to specify the voltage rating (120 volts) for the required 20− ampere branch circuit(s) supplying dwelling unit bathrooms.		X		
84	E3902.12	210.12	Revised to require AFCI devices be installed in *readily accessible* locations.		X		
85	NA	210.12(A)	Revised to expand the AFCI protection requirement to kitchens and laundry areas, and to specify that AFCI protection is required for branch circuits supplying outlets and devices.			X	$200
86		210.12(A)	Revised to identify six permitted methods of providing AFCI protection for branch circuits, and to provide specific requirements covering the use of supplemental and outlet branch−circuit−type AFCIs.		X		
87		210.12(B)	New exception permitting branch circuit conductors to be extended 6 ft. or less, provided no new outlets or devices are supplied by those conductors.		X		
88	E3902.12[1]	210.12(C)	New requirement for AFCI protection of outlets supplied by 120 volt, 15− and 20−ampere branch circuits that are installed in certain rooms of dormitories.			X	$40

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
89	NA	210.13	New requirement for ground−fault protection of equipment where a branch−circuit disconnecting means is rated 1000 amperes or more and is supplied from a solidly−grounded, wye−connected system operating over 150 volts to ground, but not more than 600 volts phase to phase.			X	$3,000
90	NA	210.17	New requirement specifying that branch circuits supplying electric vehicle charging equipment are to be dedicated to the EV charging equipment and are not permitted to supply any other outlets or equipment.		X		
91	E3701.2	210.19(A)(1)	Revised to clarify that it is only required to increase ampacity of branch− circuit conductors for ampacity correction adjustment or for supplying a continuous load, but not for both. Conductor selection is to be based on whichever calculation yields the highest ampacity.		X		
92	E4002.1.2	210.21(B)(3) Exceptions No. 1 and No. 2	Revised exceptions for language, to be consistent with the same exceptions in 210.21(B)(1).		X		
93	NA	210.22	New section that relocates existing provisions into a separate requirement covering loads permitted to be supplied by an individual branch circuit.		X		
94	E3702.5	210.23	Revised to cover only loads permitted to be supplied by a multi-outlet branch circuit or a branch circuit with more than one receptacle.		X		
95	NA	210.50 Informationa l Note	New Informational Note referencing Annex J for information contained in Americans with Disabilities Act (ADA) design documents relating to wiring device location.		X		
96	E3901.6	210.52(D)	Revised to provide a minimum height requirement for all locations (wall, cabinet, or other) for a receptacle outlet(s) installed to serve a bathroom basin(s).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
97	E3901.7	210.52(E)(1)	Revised to specify that required outdoor receptacle outlets installed at one− and two−family dwellings be *readily accessible from* grade, instead of *accessible while standing* at grade.		X		
98	E3901.7	210.52(E)(2)	Revised to specify that required outdoor receptacle outlets installed at multifamily dwellings be *readily accessible* from grade.		X		
99	E3901.7	210.52(E)(3)	Revised to permit the receptacle outlet required for porches, balconies, and decks to be located outside the perimeter of the structure, provided it is accessible from the porch, balcony, or deck.		X		
100	E3901.8	210.52(F)	Revised to provide specific location and purpose of the laundry receptacle outlet.		X		
101	NA	210.52(G)(1)	Revised to require at least one receptacle outlet for each car parking space in a dwelling unit garage and to restrict the branch circuit supplying garage receptacle outlets from supplying outlets located outside of the garage.			X	$50
102	E3901.11	210.52(I)	Revised to clarify that the space occupied by door side windows or “lights” that extend to the floor are not required to be included in the measurement of a foyer’s wall space.		X		
103	NA	210.62	Revised to specify that the required outlets are for the installation of 125− volt, 15− or 20−ampere receptacles.		X		
104	NA	210.64	New requirement specifying the installation of at least one 125−volt, 15− or 20−ampere receptacle outlet within 50 ft. of electrical service equipment for all buildings other than one− and two−family dwelling units.			X	$50
105	NA	215.2(A)(1)	Revised to clarify that it is only required to increase ampacity of feeder conductors for ampacity correction andfor adjustment or for supplying a continuous load, but not for both. Conductor selection is to be based on whichever calculation yields the highest ampacity.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
106	NA	215.2(A)(4)	Deleted this provision because the determination of feeder conductor ampacity for dwelling units and mobile homes is adequately covered by the requirements of Article 310, including the provisions specified in 310.15(B)(7).		X		
107	NA	215.3 Exception No. 2	Revised to specify that overcurrent protection for feeder circuits rated over 1000 volts is to comply with Part IX of Article 240, and that overcurrent protection for feeder circuits rated from 600 volts to 1000 volts is to comply with Parts I through VII of Article 240. This action correlates 215.3 Exception No. 2 with 240.1.		X		
108	NA	215.12(C)	New requirement for 6 AWG and smaller and for 4 AWG and larger conductors that provides specific color or marking identification means for the positive and negative feeder conductors where supplied by a dc system operating at greater than 50 volts. This requirement corresponds with the new requirement in 210.5(C) that resulted from CMP−2 action on Proposal 2−23.		X		
109	NA	220.12 Exception	New exception to permit calculation of the general lighting load to be performed per locally adopted energy codes, provided the feeder demand factors permitted by the *Code* are not applied to the general lighting load. The general lighting load is required to be continually monitored by equipment with an alerting feature that activates when the load determined through energy code calculation is exceeded.			X	Would lead to smaller electrical systems, but the cost of monitoring would likely outweigh any cost savings.
110	NA	220.14(B)	Revised the title of this section to identify that this load calculation is also permitted to be used to determine the load of household ranges used in instructional programs as specified in Note 5 to Table 220.55.	X			$750

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
111	NA	220.14(C)	Revised to clarify that this calculation is to be used for sizing the branch circuit supplying a motor outlet, and to distinguish that this calculated value is not the actual load that the motor imposes on the electrical supply system.		X		
112	NA	225.1 Informational Note	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
113	NA	225.8	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
114	NA	225.1	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
115	NA	225.11	Revised to clarify requirements for outdoor feeder and branch circuit conductors that enter, exit, and for are attached to buildings or structures.		X		
116	NA	225.14	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
117	NA	225.17	Revised for usability and to prohibit overhead conductors from being attached between the weatherhead or end of the conduit and a coupling that has been installed above the last point at which a conduit has been secured to a building or structure.		X		
118	NA	225.18	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
119	NA	225.19	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
120	NA	225.21	Revised to also apply to installations of outside branch circuits and feeders on *structures*.		X		
121	NA	225.25(2)	Revised for correlation with new general requirement for lockable disconnecting means in 110.25.		X		
122	NA	225.27	Revised to require raceway sealants to be compatible with insulated single conductors, bare conductors, and cable shields.		X		
123	NA	225.30(C)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
124	NA	225.33	Revised to include switchgear as equipment in which an outside feeder or branch−circuit disconnecting means can be located or installed.		X		
125	NA	225.36	Revised by requiring that the feeder or branch−circuit disconnecting means be suitable for use as service equipment only where the feeder grounded conductor is also used as the return path for ground−fault current per 250.32(B)(1). The exception permitting a three− or four−way snap switch to be used as a disconnecting means for an outside branch circuit or feeder has been deleted.	X			Service entrance equipment would generally not be required for out buildings and structures. $50
126	NA	225.38	Revised by deleting the exception permitting a three− or four−way snap switch to be used as a disconnecting means for an outside branch circuit or feeder (for correlation with the same action taken in 225.36).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
127	NA	225.38(C)	Revised to include switchgear as equipment covered by the provision for disconnecting the grounded feeder or branch−circuit conductor.		X		
128	NA	225.5	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
129	NA	225.51 Exception	Revised the term “metal−enclosed switchgear” to “switchgear” for correlation with the revision made to the defined term in Article 100.		X		
130	NA	225.52(A)	Revised to permit overhead disconnects on medium voltage feeders operable through a mechanical linkage, or generally by electronic control in some occupancies, comparable to those allowed for services in 230.205(A).		X		
131	NA	225.52(B) Exception	Revised to provide the specific warning message to be displayed on the sign required adjacent to the fused cutouts.		X		
132	NA	225.52(C)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
133	NA	225.56(A)	Revised to provide more detail on the electrical system design information that must be provided to the AHJ upon request, and to specify that adjustments are to be made in accordance with the electrical system design.		X		
134	NA	225.56(A)(6)	Revised the undefined term *station* to the defined term *substation.*		X		
135	NA	Figure 230.1, Part VIII	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
136	NA	230.2(C)(1)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
137	NA	230.6(5)	Revised to restrict service masts running through the eave of a building to rigid metal conduit and intermediate metal conduit.			X	Although a potential cost increase, not aware of utility companies that do not already require this.
138	E3601.4	230.7 Exception No. 1	Revised to use grounding and bonding terms that are defined in the current edition of the *NEC*.		X		
139	NA	230.24	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
140	E3604.2	230.24 Except. # 4	Revised to extend application of the exception to overhead service conductors that are attached to the side of a building.		X		
141	E3604.2	230.24(B)(1)	Revised for correlation with the definitions of *service drop* and *overhead service conductors*.		X		
142	E3604.3	230.26	Revised for correlation with the definitions of *service drop* and *overhead service conductors.*		X		
143	E3604.5	230.28	Revised for usability, and to prohibit overhead service or service−drop conductors from being attached between the weatherhead or end of the conduit and a coupling that has been installed above the last point where a conduit has been secured to a building or structure. Also revised to extend application of the service mast requirements to overhead service conductors.		X		
144	E3601.3	230.3	Revised to list the specific wiring methods permitted for underground service conductor installations.		X		
145	E3605.2	230.43	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
146	NA	230.44	Revised to provide specific intervals for marking of cable trays containing service−entrance conductors.			X	Minimal
147	NA	230.44(5)	Revised to permit the use of single conductors with thermoplastic insulation or with thermoset insulation as service−entrance conductors in cable trays.		X		
148	NA	Table 230.51(C)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
149	E3606.4	230.66	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
150	NA	230.71(A)	Revised to include switchgear as equipment in which service disconnecting means can be located or installed.		X		
151	NA	230.75	Revised to include switchgear as equipment covered by the provision for disconnecting the grounded service conductor.		X		
152	NA	230.82(2) and (3)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
153	NA	230.82(3)	Revised to require specific marking for meter disconnecting means.		X		
154	NA	230.95	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
155	NA	230 Part VIII	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
156	E3601.2	230.2	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
157	NA	230.204(A) Exception	Revised the term *metal−enclosed switchgear* to *switchgear* for correlation with the revision made to the defined term in Article 100.		X		
158	NA	230.208(B)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
159	NA	230.211	Revised the term *metal−enclosed switchgear* to *switchgear* for correlation with the revision made to the defined term in Article 100.		X		
160	NA	230.212	Revised the term *metal−enclosed switchgear* to *switchgear* for correlation with the revision made to the defined term in Article 100.		X		
161	NA	240.1	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
162	E3705.5.4	Table 240.4(G)	Revised by adding “Part II” of Article 430 for specific conductor applications referenced in the Table.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
163	NA	240.13	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
164	NA	240.21(B)(1) b Exception	Revised by adding “equipment containing an overcurrent” to clarify the device is intended to be an overcurrent device. New exception to address the installation of surge protective device(s) (SPD).		X		
165	NA	240.21(B)(1)(2 & 3)	Revised to include switchgear as equipment for feeder tap conductor requirements.		X		
166	NA	240.21(B)(5)	Revised by adding the word "tap" before "conductors" in all subsections to provide specific language that will clarify which conductors are being referred to.		X		
167	NA	240.21(C)(2)(1)(b)	Revised by adding “equipment containing an overcurrent” to clearly specify the device is intended to be an overcurrent device. Added a new exception to address the installation of surge protective device(s) (SPD).		X		
168	NA	240.21(C)(2)(2 & 3)	Revised to include switchgear as equipment for transformer secondary tap conductor requirements.		X		
169	NA	240.21(C)(3)	Revised by adding the words “the supply of switchgear or switchboards in” to clearly specify the applicability of this section.		X		
170	NA	240.61	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
171	NA	240.83	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
172	NA	240.87	Revised by limiting the application of this requirement to circuit breakers that are rated or can be adjusted to 1200 amperes or more. Also revised to add more methods that can be used to provide arc flash mitigation.			X	Broadens the range of installs requiring arc energy reduction strategy. Estimate of $5,000
173	NA	240.92(C)(2)(2)	Revised to include switchgear as equipment for transformer secondary conductor requirements in supervised industrial installations.		X		
174	NA	240.92(D)(2)	Revised to include switchgear as equipment for outside feeder tap conductor requirements in supervised industrial installations.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
175	NA	240, Part IX	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
176	NA	Figure 250.1	Revised the phrase “systems and circuits of 1 kV and over” to “systems and circuits over 1000 volts” ” for correlation with other standards and with Part X of Article 250.		X		
177	E3908.15	250.8(A)	Revised to clarify that a combination of connection methods prescribed by this section is permitted.		X		
178	E3611.5	250.1	Revised for simplicity to clarify the requirements used where wiring and equipment is exposed to physical damage		X		
179	E3607.1	250.20(B)	Revised “systems 50 volts to less than 1000 volts” to “systems 50 volts to 1000 volts” for correlation with other standards and with Part X of Article 250.		X		
180	NA	250.20(C)	Revised “1 kV and over” to “Over 1000 volts” for correlation with other standards and with Part X of Article 250.		X		
181	NA	250.21(A)	Revised “systems 50 volts to less than 1000 volts” to “systems 50 volts to 1000 volts” for correlation with other standards and with Part X of Article 250.		X		
182	NA	250.21(A)(3)	Revised “voltage rating less than 1000 volts” to “voltage rating 1000 volts or less” for correlation with other standards and with Part X of Article 250.		X		
183	NA	250.21(B)(1)	Revised “not less than 120 volts and not exceeding 1000 volts” to “not less than 120 volts and 1000 volts or less” for correlation with other standards and with Part X of Article 250.		X		
184	NA	250.21(C)	Revised to correlate with the marking requirements prescribed 408.3(F)(2).		X		
185	E3607.2	250.24(A)(1)	Revised to include “overhead service conductors” and “underground service conductors” for proper application of the requirements.		X		
186	NA	250.24(C)	Revised “operating at less than 1000 volts” to “operating at 1000 volts or less” for correlation with other standards and with Part X of Article 250.		X		
187	NA	250.24(E)	Revised to include “overhead service conductors” and “underground service conductors” for proper application of the requirements.		X		
188	NA	250.26	Revised to correlate with the definition of *neutral conductor* in Article 100.		X		
189	NA	250.3	New requirement specifying that separately derived systems that are operating in parallel must comply with 250.30.		X		
190	NA	250.3	Revised to clearly state that compliance requirements for this section are based on the type of ac system employed.		X		
191	NA	250.30(A)(1) Exception No. 2	Revised to describe conditions where it is permitted to install a system bonding jumper at the source of a separately derived system and at the building or structure being supplied.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
192	NA	250.30(A)(2) Except.	New exception to correlate with 250.30(A)(1), Exception No. 2.		X		
193	NA	250.30(A)(5) Except. No. 2	Revised to clearly specify that the separately derived system must be located within equipment listed and identified *suitable for use as service equipment* in order to effect this exception.		X		
194	NA	250.30(A)(6)(b) Exception	Revised to clearly specify that the separately derived system must be located within equipment listed and identified *suitable for use as service equipment* in order to effect this exception.		X		
195	E3607.3.1	250.32(B) Exception No. 2	New exception to provide requirements for the grounded conductor in a building or structure served by a feeder from an outdoor transformer separately derived system installed in accordance with 250.30(A)(1) Exception No. 2.		X		
196	`NN	250.36(C) Info. Note	Revised to update to the current edition of the referenced standard.		X		
197	NA	250.36(F)	Revised to clarify the grounding electrode conductor connection location for services or separately derived systems.		X		
198	E3610.2	250.64(B)	Revised by adding "Grounding electrode conductors and grounding electrode bonding jumpers shall not be required to comply with 300.5" after the last sentence.		X		
199	NA	250.64(D)	Revised to include feeders under the requirements of this section.		X		
200	NA	250.64(D)(1)	Revised to include “overhead service conductors” and “underground service conductors” for proper application of the requirements.		X		
201	NA	250.64(D)(1)(3)	Revised to clarify that the busbar must be of sufficient length to accommodate the number of terminations necessary for the installation.		X		
202	E3610.3	250.64(E)	Revised for usability by restructuring the existing paragraph into a list format.		X		
203	E3603.4	Table 250.66 Note 1	Revised to clarify the method for calculating the size of a grounding electrode conductor when multiple sets of service conductors are installed.		X		
204	E3603.4	250.66(A)	Revised to clarify that the term “sole connection” includes connecting to single or multiple electrodes of the same type.		X		
205	E3603.4	250.66(B)	Revised to clarify that the term "sole connection” includes connecting to single or multiple electrodes of the same type.		X		
206	NA	250.68(C)(2)	Revised to clarify that the structural metal frame of a building can serve as a conductor to interconnect electrodes that are part of the grounding electrode system, or as a grounding electrode conductor.		X		
207	NA	250.68(C)(3)	Added a new subsection to permit a concrete encased electrode of the conductor type, reinforcing rod, or bar to extend from its location within the concrete to an accessible location above the concrete.		X		
208	E3908.8	250.118(9)	Revised by adding “Type MI” to the description for mineral insulated cable.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
209	E3611.5	250.1	Revised by adding references to 505.5 and 506.5 to include zone classifications for required bonding requirements in accordance with one of the specific methods in 250.92(B)(2).		X		
210	NA	250.102(C)	New table to provide minimum sizes for other than grounding electrode conductors. References to this table have been inserted into appropriate sections throughout the *Code*.		X		
211	NA	250.104	Revised by changing the term “steel” to “metal” to correlate with 250.104(C) and (D)(2).		X		
212	NA	250.104(A)(2)	Revised for correlation of the definition of *switchgear*.		X		
213	NA	250.104(A)(3)	Revised by adding “or structure” to clarify that the requirements of this section apply to structures not classed as a building.		X		
214	E3609.7	250.104(B)	Revised for usability by restructuring the existing paragraph into a list format.		X		
215	E3609.7	250.104(B) Inf Note 2	Revised to update to the current edition of the referenced standard.		X		
216	E3609.7	250.104(B) Info Note 2	Revised by changing the parenthetical statement “(or other structures)” to “or structures” to provide consistency with where this is used elsewhere in the code.		X		
217	NA	250.112(A)	Revised to include switchgear as equipment required to be connected to an equipment grounding conductor.		X		
218	NA	250.118 Info Note	Revised by including a reference to Article 100.		X		
219	E3407.2	250.119 Except. No. 2	New Exception to permit flexible cords having an integral insulation and jacket without an equipment grounding conductor to have a continuous outer finish that is green.		X		
220	E3407.2	250.119 Exception No. 3	New exception recognizes the use of green insulation on ungrounded conductors used in traffic signal work. The associated equipment grounding conductor, if a wire, must be bare or green with yellow striping.		X		
221	E3407.2	250.119(A)	Revised by changing the phrase “larger than 6 AWG” to 4 AWG and larger” to correlate with 200.6.		X		
222	E3610.4	250.121 Exception	New exception allows a wire−type equipment grounding conductor to simultaneously function as a grounding electrode conductor provided its size and continuity and any other requirements are fully met for both functions.		X		
223	NA	250.122(B)	Revised to clarify that the increase in size is from the minimum conductor size required for the load served.		X		
224	NA	250.126(3)	Revised by adding the word “equipment” in front of “grounding conductor” to provide consistency in the use of *NEC* defined grounding and bonding terms.		X		
225	NA	250.130(C)	New list item permitting connection to an equipment grounding conductor that is part of another branch circuit that originates from the enclosure where the branch circuit for the receptacle or branch circuit originates.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
226	E3908.7	250.142(B) Exception No. 4	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
227	E3908.14	250.146(B)	Revised by adding "equipment bonding" to clarify that an effective ground fault path must be established when relying on contact devices or yokes as the equipment bonding jumpers.		X		
228	NA	250.146(D)	Revised by adding "Ground" to the title to correlate with terminology in other sections of the *Code.*		X		
229	NA	250.162(A) Exception No. 1	Revised by increasing the lower voltage threshold from 50 volts to 60 volts to correlate with Chapter 9, Table 11(B) and 110.26(A)(1)(b). Revised the exception to require that the ground detection system be installed adjacent to or integral with the source of supply.		X		
230	NA	250.166	Revised to clarify that the maximum size required for grounding electrode conductors installed for dc systems must comply with 250.166 and is not required to exceed the values in Table 250.66.		X		
231	NA	250.167	New section that requires ground fault detection for dc systems.			X	$500.00
232	NA	250.17	Revised for correlation with the definition of *switchgear.*		X		
233	NA	250.170 Except No.1	Revised "less than 1000 volts" to "1000 volts or less" for correlation with other standards and with Part X of Article 250.		X		
234	NA	250.174	Revised "less than 1000 volts" to "1000 volts or less" for correlation with other standards and with Part X of Article 250.		X		
235	NA	250.174(B)	Revised for correlation of the definition of *switchgear.*		X		
236	NA	250.176	Revised "1 kV" to "1000 volts" for correlation with other standards and with Part X of Article 250.		X		
237	NA	250.178	Revised for correlation of the definition of *switchgear*.		X		
238	NA	250.23	Revised "1 kV" to "1000 volts" for correlation with other standards and with Part X of Article 250.		X		
239	NA	250 Part X	Revised "1 kV" to "1000 volts" for correlation with other standards and with other sections of the *Code.*		X		
240	NA	250.184(A)(1) Except. No. 1(2)	Revised by including "underground service conductors" for proper application of the requirements.		X		
241	NA	250.186	Revised to include requirements that a grounded conductor to be brought to each service disconnecting means for systems over 1000 volts.		X		
242	NA	250.188	Revised "1 kV" to "1000 volts" for correlation with other standards and with other sections of the *Code.*		X		
243	NA	250.188(A)	Revised "1 kV" to "1000 volts" for correlation with other standards and with other sections of the *Code.*		X		
244	NA	250.188(D)	Revised "1 kV" to "1000 volts" for correlation with other standards and with other sections of the *Code.*		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
245	NA	250.188(F)	Revised “1 kV” to “1000 volts” for correlation with other standards and with other sections of the *Code*.		X		
246	NA	250.192	Added a new section that includes requirements for bonding and grounding fences and other metal structures around substations.		X		
247	NA	280 (Title)	Revised “1 kV” to “1000 volts” for correlation with other standards and with Part X of Article 250.		X		
248	NA	280.1	Revised “1 kV” to “1000 volts” for correlation with other standards and with Part X of Article 250.		X		
249	NA	280.4(B) Info Note No. 1	Revised to update to the current edition of the referenced standard.		X		
250	NA	285	Revised “1 kV” to “1000 volts” for correlation with other standards and with Part X of Article 250.		X		
251	NA	285.1	Revised “1 kV” to “1000 volts” for correlation with other standards and with Part X of Article 250.		X		
252	NA	285.3	Revised “exceeding 1 kV” to “over 1000 Volts” for correlation with other standards and with Part X of Article 250.		X		
253	NA	285.13	New section that clarifies that Type 4 and other component−type SPDs are only intended for factory installation and must not be installed in the field.		X		
254	NA	Article 300 Title	Revised by adding “General Requirements for” to better reflect what is covered by Article 300.		X		
255	E3801.1	300.1	Revised by adding “General Requirements.” Also revised by inserting the words "and materials" after "methods," and by adding "in Chapter 3" after the word "articles" to more clearly state that the general requirements provided in Article 300 for the wiring methods and materials in Chapter 3 apply, unless modified by Chapters 5 through 7.		X		
256	NA	300.2	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
257	NA	300.3	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
258	NA	300.3(C)(2)(c)	Revised by adding “switchboards” to cover all of the types of equipment that can have these different voltages contained within the same enclosures.		X		
259	NA	300.5	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
260	E3803.11	300.5(B)	Revised by removing the phrase “shall be listed for use in wet locations and” to correlate with Section 310.10(C).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
261	E3803.11	300.5(C)	Revised by adding “and conductors” to the title and section text, to clarify that the requirement applies to both conductors and cables.		X		
262	E3803.3	300.5(D)(4)	Revised by adding “RTRC−XW” to the types of raceways specified in this section.		X		
263	NA	300.6(A) Info Note	New Informational Note to clarify that field−cut threads are those not cut in the factory where the product is manufactured and listed.		X		
264	NA	300.7(B)	Revised by replacing “rigid conduit" with "rigid metal conduit" to correlate with terminology used elsewhere in the *Code.*		X		
265	NA	300.11 Info Note No. 1	Revised by replacing NFPA 251 with ANSIƒ ASTM E119−2012a, *Method for Fire Tests of Building Construction and Materials,* as the referenced standard.		X		
266	E3904.4	300.11(B)(1)	Revised by replacing “identified for the purpose” with “identified as a means of support” to clarify that identified as required by this section pertains to “means of support.”		X		
267	NA	300.22(B)	Revised by adding "without an overall nonmetallic covering" after "MI Cable" to correlate with listing requirements.		X		
268	NA	300.22(B)	Revised by moving the last two sentences of the existing text into a new first paragraph and changing the word “wiring” to “wiring methods specified in this section” to provide clarity for proper application of this section.		X		
269	E3904.7	300.22(C)(1)	Revised by adding "without an overall nonmetallic covering" after "MI Cable" to correlate with listing requirements.		X		
270	E3904.7	300.22(C)(1)	Revised by adding language requiring that cable ties used in “other spaces for environmental air” be listed as having adequate fire−resistant and low smoke−producing characteristics. The Informational Note and mandatory text were also edited to conform with text throughout the *NEC* where dealing with low smoke and fire resistance characteristics.		X		
271	NA	Article 300 Part II	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
272	NA	300.38	New section to specify that the interior of raceways shall be considered to be a wet location where the raceways are installed in wet locations above grade, and to require conductors to comply with 310.10(C) for wet locations.		X		
273	NA	300.45	Relocated requirement for “high−voltage” warning labels from 225.70(A)(1)(b).		X		
274	NA	Table 300.50	Revised the first row in the table to read: "Over 1000V through 22 kV" to correlate with the revised threshold from 600 to 1000 volts.		X		
275	NA	300.50(A)(2)	Revised by changing the title of (A)(2) to “Industrial Establishments,” and recognizes the use of non−shielded single conductor cables with insulation types up to 2000 volts that		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			are listed for direct burial. This revision requires that the installation must be performed by qualified persons. Existing (A)(2) has been changed to (A)(3).				
276	NA	310.2 and 310.60	Revised by removing explanatory material and relocating it to new Informational Note: "Thermal resistivity is the reciprocal of thermal conductivity and is designated Rho, which is expressed in the units ˚C− cmƒW." Deleted the *thermal resistivity* definition within the text in 310.60(A).		X		
277		310.10 Info Note	Revised by deleting the Informational Note which has been relocated to Section 310.104 via ROP 6−71.		X		
278	NA	310.10(F)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
279	NA	310.10(H)(6)	Revised by adding "or supply side bonding jumpers" to correlate with Section 250.102.		X		
280	E3705.3	310.15(B)(3)(b)	Revised to clarify that spacing between raceways must be maintained.		X		
281	E3705.3	310.15(B)(3(c) & Table 310.15(B)(3)(c)	Revised by adding "cables" to the temperature adjustment factors required for rooftops and changing "conduit" to "raceway" to correlate with the table title.		X		
282	E3705.3	Table 310.15(B)(3)(a)	Revised by adding "including spare conductors" and clarified that conductors subject to noncoincident loading are not subject to the adjustment factors prescribed by this table.		X		
283	E3705.3	310.15(B)(3)(c) Except.	New exception that exempts conductors with thermoset insulation rated at 90˚C or higher from this ampacity adjustment.		X		
284	E3705.3	310.15(B)(3)(a)	Revised title to clarify that ampacity adjustment applies to conductors in raceways, cables and in other applications where no spacing exists between conductors.		X		
285	E3705.3	Table 310.15(B)(3)(c) Info Note	Revised to clarify the temperature "adders" are the measured temperature rise above the local climatic ambient temperatures due to sunlight heating.		X		
286	E3603.1	310.15(B) (7)	Revised by deleting the table and replacing it with a provision for a .83 reduction in ampacity for dwelling services and feeder conductors. The reduction is the same as that permitted by former Table 310.15(B)(7), but presented in a user−friendly format. A new example is included in Annex D to describe how to apply the revised rule.		X		
287	NA	310.15(C)	Revised by adding the units "one foot" and "micro ohms" to provide values necessary for performing the calculation prescribed by this section.		X		
288	NA	310.60(C)(1) Info Note	New informational note: "Tables other than those listed contain the ampacity of cables with shields grounded at multiple points."		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
289	NA	310.104	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
290	NA	Table 310.104(A)	Revised to include “switchgear” in the “application provisions” for both Type SIS and Type TBS building wire		X		
291	E3907.2	310.2 and 310.60	Revised by removing explanatory material and relocating it to a new Informational Note: “Thermal resistivity is the reciprocal of thermal conductivity and is designated Rho, which is expressed in the units ˚C– cmƒW.” Deleted the "thermal resistivity" definition within the text in 310.60(A).		X		
292	E3907.8	312.5(C) Except.(g)	Revised to clarify that this condition does not imply that the cable sleeve covered in the exception is a complete system.		X		
293	E3907.1	312.8(3)	Revised to require warning labels to meet requirements in new Section 110.21(B).		X		
294	NA	312.11(3) (A)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
295	NA	314 Part IV Title	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
296	NA	314.15	Revised by including outlet box hoods to be listed for use in wet locations.		X		
297	NA	314.15	Revised by including provisions for approved field installed drainage openings not larger than 6 mm (¼ in.).		X		
298	NA	314.16(B)(2)	Revised to provide a limitation that a clamp assembly be listed and marked for use with a specific nonmetallic box, and to provide guidance on box fill requirements that apply to such listed assemblies.		X		
299	E3906.8	314.23(D)(2)	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
300	E3906.8.4	314.23(E)	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
301	E3906.8.5	314.23(F)	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
302	E3906.8.5	314.23(F) Exception No. 2 (f)	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
303	NA	314.23(H)(2)	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
304	E3906.9	314.25	Revised to clarify that drywall screws are not permitted for use on box covers or other equipment fastened to the box and fastened either with machine screws or in accordance with manufacturer's instructions.		X		
305	E3906.11	314.25(B)	Revised to correlate with revised Section 410.23, which establishes a 180− square inch limit below which protection between a luminaire canopy and a combustible surface is not required.		X		
306	NA	314.25(C)	Revised by including the term "identified" and deleting "designed for the purpose" to provide consistency with the definition of *identified* in Article 100.		X		
307	E3905.6	314.27(A)(1)	"Wall" replaced by "Vertical" to describe the application of this provision.		X		
308	E3905.6	314.27(A)(2)	Revised to require that the luminaire weight to be supported must be marked on the interior of the box.		X		
309	E3905.7	314.27(C)	Revised to include two family dwellings under the scope of this requirement.		X		
310	NA	314.28(A)(3)	Revised to clarify the conductor fill requirement for boxes and conduit bodies, specifically covering right−angle conduit bodies with each entry at a 45˚ angle to its long axis.		X		
311	NA	314.30(A)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
312	NA	314.70(A)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
313	NA	314.70(B)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
314	NA	314.70(C)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
315	NA	324.2	New Informational Note supporting the definition of *FCC System* that describes the various components used in a typical system installation.		X		
316	NA	324.41	Revised the requirement on maximum carpet square size to recognize standard SI unit measurement of 1.0 m^2 in addition to carpet squares sized 36 $in.^2$.		X		
317	NA	326.10(3)	Revised for consistency with terms associated with underground service conductors that are within the scope of the *Code*.		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
318	NA	330.10(A)(11)	Revised for consistency with MC cable product standards, and to extend the requirement for a corrosion−resistant jacket over the metal covering to all conditions where MC cable is used in wet locations.		X		
319	TABLE E3802.1[2]	330.30(B)	New permissive provision for 250 kcmil and larger cable constructions to be supported at intervals as great as 10 feet in vertical installations.	X			Minimal
320	NA	330.30(D)(3)	New condition permitting an unsupported 3−foot length of interlocking armor Type MC cable, to provide a flexible connection to accommodate equipment vibration or movement.		X		
321	NA	330.12	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
322	NA	334.1	Revised to clearly identify that all permitted uses for Type NM cable are acceptable unless specifically prohibited under any of the conditions specified in 334.12.		X		
323	NA	334.40(B)	Revised to specify that concealed interconnection devices are permitted only for repair of an existing installation of Type NM cable. The term “tap” has been revised to “interconnector” to clearly reflect the splicing function of these listed devices.		X		
324	NA	338.10(B)(4)(b)	Revised so that the ampacity selection for Type USE cable used as an underground feeder need not be limited to the 60°C column in the applicable table from Article 310.		X		
325	NA	344.2	Revised the definition of *rigid metal conduit* (RMC) by removing the permitted construction materials and relocating them to new Section 344.100.		X		
326	NA	344.3	Revised for usability by restructuring the existing paragraph into a list format.		X		
327	NA	344.1	New section for permitted construction materials for rigid metallic conduit.		X		
328	NA	Table 348.22	Revised by adding “FMC” to the description for flexible metal conduit.		X		
329	NA	348.30(A) Exception No. 4	Revised to clarify that flexible metal conduit fittings are permitted as a support means for the purpose of applying the exception.		X		
330	NA	350.30(A) Exception No. 4	Revised to clarify that liquidtight flexible metal conduit fittings are permitted as a support means for the purpose of applying the exception.		X		
331	NA	350.42	Revised to permit straight LFMC fittings for direct burial where marked.		X		
332	NA	350.42	Revised to specify that only fittings listed for the use with LFMC can be used, and to permit straight LFMC fittings for direct burial where marked.		X		
333	NA	352.2	Revised by replacing the term “conduit” with “raceway” to correlate with the definition of *raceway* in Article 100.		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
334	NA	352.24	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
335	NA	354.2	Revised by replacing the term “conduit” with “raceway” to correlate with the definition of *raceway* in Article 100.		X		
336	NA	355.2	Revised by replacing the term “conduit” with “raceway” to correlate with the definition of *raceway* in Article 100.		X		
337	NA	355.24	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
338	NA	356.2	Revised by replacing the term “conduit” with “raceway” to correlate with the definition of *raceway* in Article 100.		X		
339	NA	356.12(4)	Revised by removing the restriction on the use of LFNC for over 600−volt installations.		X		
340	NA	356.30(4)	Revised to clarify that LFNC−B fittings are permitted as a support means for the purpose of applying the exception.		X		
341	NA	356.6	Revised to harmonize with the provisions in Article 250.		X		
342	NA	366.1, 366.10, 366.22,	Revised by replacing “sheet metal auxiliary gutter” with “metallic auxiliary gutter” to correlate with the definition in 366.2.		X		
	NA	366.23, 366.30, and 366.60					
343	NA	366.2	Revised the term “metal−enclosed switchgear” to “switchgear” for correlation with the revision made to the defined term in Article 100.		X		
344	NA	368.2	Revised by including the term “raceway” to clarify that a busway is a raceway, and to correlate with the definition of *raceway* in Article 100.		X		
345	NA	368.12(E)	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
346	NA	Article 370	Revised by reformatting the entire article in accordance with the revised Chapter 3 format. Section 370.2 has been revised to clarify that cablebus is a support system and is not to be considered a raceway system.		X		
347	NA	374.2	Revised by replacing the term “enclosures” with “enclosed channel” to clearly describe a cellular metal floor raceway.		X		
348	NA	374.11	Revised to clarify the types of “nonmetallic conduit” by including rigid polyvinyl chloride conduit and reinforced thermosetting resin conduit.		X		
349	NA	376.2	Revised by replacing the term “wireway” with “raceway” to correlate with the definition of *raceway* in Article 100.		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
350	NA	376.22(B)	Revised to clarify that the 30 conductor maximum before application of correction factors applies at any cross section of the wireway.		X		
351	NA	376.56(B)(1)	Revised to require that power distribution blocks installed on the line side of the service equipment be listed for the purpose.		X		
352	NA	376.56(B)(5)	New requirement for dressing conductors in a wireway order to provide unobstructed access to power distribution blocks; correlates with 314.28(E)(5)		X		
353	NA	378.2	Revised by replacing the term “wireway” with “raceway” to correlate with the definition of *raceway* in Article 100.		X		
354	NA	380.22	Revised by adding the phrase “as applicable,” allowing the user to apply either “(A)” or “(B)” or both, since both may be applicable.		X		
355	NA	384.30(B)	Revised by adding “identified” and deleting “approved appropriate” and “designed for the purpose,” to provide consistency with the definition of *identified* in Article 100.		X		
356	NA	386.3	Revised to specify that associated fittings must be supported in accordance with the manufacturer’s installation instructions.		X		
357	NA	386.12	New section requiring each length of surface metal raceway to be identified and marked according to 110.21 (manufacturer’s marking requirements).		X		
358	NA	388.3	Revised to specify that associated fittings must be supported in accordance with the manufacturer’s installation instructions.		X		
359	NA	388.12	New section requiring each length of surface nonmetallic raceways to be identified and marked according to 110.21 (manufacturer’s marking requirements).		X		
360	NA	Table 392.10(A)	Revised table to clarify the acceptable wiring methods used in a cable tray.		X		
361	NA	392.18(H)	Revised to require that danger marking(s) or labels meet requirements in new Section 110.21(B).		X		
362	NA	392.18(H), Exception	New exception for industrial establishments. The exception applies to cable trays that are “not accessible (as applied to equipment)”and requires markings to be applied where necessary to assure safe maintenance and operation.		X		
363	NA	392.20(A) and (B)	Revised by changing “cables rated” to “cables operating at” to clarify that the application of this requirement is based on the operating voltage of circuits and not on the insulation rating of cables.		X		
364	NA	Article 393	New article covering an electrical distribution system that employs a traditional suspended ceiling support system with an integrated electrical power distribution busbar to supply equipment supported by or located above the ceiling system. These electrical distribution systems are limited to 30 volts ac or 60 volts dc and are limited to the output of a Class 2 power supply, and they are required to be listed.		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
365	NA	Article 399 Title	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
366	NA	399.1	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
367	NA	399.2	Revised to indicate that the conductors covered in Article 399 are installed in *free air* on support structures (such as poles) in a manner similar to those employed by electric utility companies.		X		
368	NA	399.1	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
369	NA	399.10(1)	Revised to indicate that the conductors covered in Article 399 are installed in *free air* on support structures (such as poles) in a manner similar to those employed by electric utility companies.		X		
370	NA	399.30(B)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
371	E4001.7	400.4	Revised to allow cords and cables other than those listed in Table 400.4, but only by special permission.		X		
372	NA	Table 400.4	Revised by adding 15 AWG to various cord types in Table 400.4.		X		
373	NA	Table 400.4	Revised by changing Types SPT−1, SPT−1W, SPT−2, SPT−2W, and SPT−3 to “All thermoplastic parallel cord” to make the format of the names consistent.		X		
374	NA	Table 400.4	Revised by specifying Types EV, EVJ, EVE, EVJE, EVT, and EVJT outer covering material be oil resistant.		X		
375	NA	Table 400.4	Revised by specifying flexible stage and lighting power cable Type SC insulation material to be “thermoset.”		X		
376	NA	Table 400.4	Revised to clearly specify that types SO and SOW are available in sizes greater than 16 AWG, and that types SOO and SOOW are available is sizes less than 14 AWG.		X		
377	Table E3909.2	Table 400.4 &Table 400.5(A)(1)	Revised by adding types HSJOW and HSJOOW to Table 400.4 and Table 400.5(A)(1).		X		
378	NA	Table 400.4	Revised by changing AWG sizes to accurately reflect conductor sizes for flexible cords used in the industry.		X		
379	NA	Table 400.4 Note 3	Revised by adding types SPT−1W and SPT−2W to clarify that these types do not have individual conductors twisted together.		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
380	NA	Table 400.4 Note 10	Revised by adding types SEW, SEOW, SEOOW, SOW, SOOW, STW, STOW, and STOOW to the list.		X		
381	Table E3909.2	400.5(A)	Revised by adding a reference to Table 400.5(A)(1) and a requirement to use the 90˚C column of Table 310.15(B)(2)(a) for temperature correction factors for 105˚C cords and cables.		X		
382	Table E3909.2	Table 400.5(A)(1)	Revised by adding conductor sizes 9, 11, and 13 AWG.		X		
383	NA	400.6(A)	Revised by requiring markings on tags, cords, and cables to include the maximum operating temperature of the flexible cord or cable.		X		
384	E3909.1	400.7(A)(11)	New list item permitting flexible cords and cables between an existing receptacle outlet and an inlet, where the inlet provides power to an additional single receptacle outlet. The wiring interconnecting the inlet to the single receptacle outlet must be a Chapter 3 wiring method. The inlet, receptacle outlet, and Chapter 3 wiring method, including the flexible cord and fittings, must be a listed assembly specific for this application.		X		
385	NA	400.10 Info Note	Revised by changing “fittings designed for the purpose” to “using support or strain relief fittings” to clarify the intended purpose.		X		
386	NA	400.23	Revised to permit cords or cables consisting of integral insulation and jacket without a non−integral grounding conductor to be green.		X		
387	NA	400.3	Revised to specify that Part III is applicable to single and multiconductor cable.		X		
388	NA	400.31(B)	Revised to specify that equipment grounding conductor(s) are required in cables with three or more conductors.		X		
389	NA	404.1	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
390	E4001.15	404.2(C)	Revised into a list format to clearly state the conditions where a grounded conductor is not required to be provided at a switch location.		X		
391	NA	404.6(C) Exception	Revised to require a warning sign or label to meet the requirements of new Section 110.21(B).		X		
392	E4001.13	404.8(C)	Revised to clarify that a multipole snap switch is not permitted to be fed from more than a single circuit unless it is listed and marked as a two− circuit or three−circuit switch.		X		
393	NA	404.10(B)	Revised to clarify that drywall screws are not permitted to be used to fasten snap switches to boxes.		X		
394	NA	404.13	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
395	NA	404.16	Revised by changing the title to read "Knife Switches Rated 600 to 1000 Volts" and changing 600 volts to "600 to 1000 volts" in the text, to correlate with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
396	NA	406.3(E)	New requirement for field marking of 125 volt, 15− and 20−ampere receptacles that are controlled by an energy management system, timer, or some other automatic means. This marking must be made using the standard symbol shown in Figure 406.3(E).			X	$5
397	NA	406.4(D)	Revised to require ready access to GFCI and AFCI receptacles that are installed to replace existing receptacles.		X		
398	NA	406.4(D)(3)	Revised with a new exception clarifying that GFCI protection afforded by an upstream device is permitted for replacement receptacle(s).		X		
399	NA	406.5	Revised to specify the acceptable screws that can be used as the means to attach a receptacle to an outlet box, and by replacing the term “designed for the purpose” with “identified.”		X		
400	NA	406.5(E)	Revised to apply to receptacles installed in countertops, regardless of the occupancy type. Allowance included for listed “receptacle assemblies for countertop applications.”		X		
401		406.5(F)	New requirement providing the conditions under which receptacles are permitted to be installed in seating areas and similar horizontal surfaces.		X		
402		406.9(B)	Revised to require receptacle outlet box covers to be listed for “extra duty” regardless of how the box is mounted. The requirement now applies to all occupancy types.		X		
403	E4002.14	406.12	Revised to include all occupancy types where tamper−resistant receptacles are required. The exception is no longer limited to only dwelling unit receptacles.	X			Minimal
404	E4002.13	406.15	New requirement prohibiting control of receptacles with a dimmer switch unless the receptacle and dimmer combination meets specific listing and configuration provisions.		X		
405	NA	408.1	Revised by including “switchboards” to the title and scope of Article 408, and revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
406	E3706.1	408.2 & 408.3	Revised to include switchgear in Section 408.2, requiring compliance with Article 408 and other Articles as applicable. Revised 408.3(E) by placing bus arrangements in a list format and incorporating a requirement for field−marking the bus arrangements for dc systems.		X		
407		408.3(F)(1)(7) (2)	Revised to require a warning sign or label to meet the requirements of new Section 110.21(B).		X		

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Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
408	NA	408.4(B)	Revised to recognize that switchboards and panelboards may have multiple sources of power, so they must be marked to indicate where the power originates.		X		
409	NA	408.38	Revised by including the term “identified” and deleting “designed for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
410	NA	408.55	New subsection to provide requirements for back−wire bending space.		X		
411	NA	Table 408.56	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
412	NA	Table 408.56	Revised the leftmost column heading, the text “ac or dc” is added to the original, “voltage” to clarify the table is applicable to either ac or dc voltages.		X		
413	NA	408.58	Revised by adding “ac phases or dc buses” to clarify the marking requirements for panelboards.		X		
414	NA	409.1	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
415	NA	409.1 & 409.110(4) Info Note	Revised by updating the edition of the referenced standard.		X		
416	NA	409.2	Revised by removing the term “resistance,” the result is that induction heating loads will be required to be included when calculating the ampacity of conductors.		X		
417	NA	410.6	Revised to include *retrofit kits* in the listing requirement.		X		
418	NA	410.10(F)	New requirement providing the minimum clearance between the top of luminaires and the bottom surface of metal−corrugated sheet roof decking.		X		
419	E4004.2	410.23	Revised to establish a specific threshold at which a combustible wall or ceiling surface behind a luminaire is required to be covered with a noncombustible material.		X		
420	NA	410.130(G)(1) Except. No. 4	Deleted the exception permitting luminaires installed within industrial occupancies to be installed without an individual disconnecting means.		X		
421	NA	410.141(B)	Revised for correlation with new 110.25 covering requirements for lockable disconnecting means.		X		
422	E4005.3	410.151(B)	Revised to state that the load calculation in 220.43 is for determining feeder and service loads and does not limit the amount of lighting track supplied by a branch circuit, nor does it limit the number of luminaires connected to a single transfer.		X		
423	NA	411.1	Revised to recognize ac and dc Class 2 power source limitations specified in Chapter 9, Tables 11(A) and 11(B).		X		
424	NA	411.3	Revised to recognize ac and dc Class 2 power source limitations specified in Chapter 9, Tables 11(A) and 11(B).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
425	NA	411.4	Listing requirement added for Class 2 power sources and equipment. Covered here, the power supply provision was deleted from the component list in 411.4 (B).		X		
426	NA	411.6	Revised to limit application of this requirement to only systems and equipment covered by Article 411.		X		
427	NA	422.5	New requirement for accessibility to devices providing GFCI protection where such protection is specified by an Article 422 requirement.		X		
428	NA	422.11(F)(3)	Revised to expand the types of water heating equipment covered by the requirement.		X		
429	E4101.3	422.16(B)(1)	Revised to expand the use of cord− and plug−connected “in−sink” waste disposers; no longer restricted to only those areas covered by the definition of *kitchen.*		X		
430	NA	422.19	New requirement covering the minimum conductor volume of outlet boxes and canopies at outlets supplying ceiling−suspended (paddle) fans.		X		
431	NA	422.2	New requirement to provide cover on outlet boxes unless a paddle fan canopy is in place.		X		
432	NA	422.21	New requirement on protecting exposed combustible material between the edge of an outlet box and the edge of a ceiling−suspended (paddle) fan canopy.		X		
433	NA	422.23	New requirement for GFCI protection of publically accessed tire inflation and vacuum machines.			X	$20
434	Table E4101.5	422.31(B)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
435	Table E4101.5	422.31(C)	Revised to require a disconnecting means within sight of all appliances with motors rated more than 1ƒ8 hp unless the appliance has a unit switch complying with 422.34.		X		
436	NA	422.49	Revised to require GFCI protection for high−pressure spray washing equipment supplied by three−phase, 208Yƒ120−volt circuits rated 60 amperes or less.			X	$200
437	NA	422.51	Revised to also include vending machines that are not cord−and plug− connected.			X	$20
438	NA	424.19	Revised to apply the requirement for grouping and marking of supply circuit disconnecting means to electric space heating equipment supplied by more than one feeder or branch circuit.		X		
439	NA	424.19(A)(1)(2)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
440	NA	424.19(B)(1)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
441	NA	424.66	New requirement covering minimum working space for enclosures associated with electric duct heaters located in the space above a ceiling that is accessed through a ceiling panel or an access panel.		X		
442	NA	424.86(5)	Revised to require field applied markings and labels to comply with new provisions in 110.21 covering field marking of equipment.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
443	NA	426.5	Revised to specify that the disconnecting means is to be "capable of being locked" in the open (off) position.		X		
444	NA	426.51(A)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
445	NA	426.51(D)(3)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
446	NA	427.55(A)	Revised to specify that the disconnecting means is to be "capable of being locked" in the open (off) position and for correlation with new general requirement for *lockable disconnecting means* in 110.25.h		X		
447	NA	430, Parts I through X	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
448	NA	Table 430.5	Revised by adding a reference to Article 506 for Zone 20, 21, and 22 locations.		X		
449	NA	430.22(G)	Revised to include Class 10A overload relays and to clarify that conductor selection is based on the full−load current rating of the motor, as determined by 430.6(A)(1).		X		
450	NA	430.21, 430.31, 430.40, 430.51, 430.71, 430.101	Revised to remove, modify or move several Informational Notes in Article		X		
		430.102(B)(2), 430.120,430.126(A), & 30.245(A)	430. The Informational Notes removed were determined to be no longer necessary. Several notes were moved so that they immediately follow the text to which they pertain.				
451	NA	430.32(C) Informational Note	Revised to include Class 10A overload relays to clarify that overload relays certified as Class 10A are also in conformity with the content of the Informational Note.		X		
452	NA	430.52(C)(5)	Revised to clarify that the fuses addressed in this section are "semiconductor fuses" intended to protect bypass contactors, isolation contactors, and conductors in a solid−state motor control system.		X		
453	NA	430.53(C)(4)	Revised by replacing "supply" with "branch circuit" to clearly indicate which specific conductors are being referenced.		X		
454	NA	430.53(D)	Revised to include "from the point of the tap" to clarify where the tap measurement is referenced.		X		
455	NA	430.102 Except. No. 1	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
456	NA	430.102(A) Except. No.3(b)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
457	NA	430.102(B) Exception to (1) & (2)	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
458	NA	430.113 Except No. 1	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
459	NA	430.130 and 430.131	New sections to address special requirements of the adjustable speed drive controller overcurrent protection functions.		X		
460	NA	430, Part XI	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
461	NA	430.227	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
462	NA	430.233	Revised to lower the voltage threshold from 150 volts to 50 volts, which will enhance worker safety.		X		
463	NA	Table 440.3(D)	Revised by adding a reference to Article 506 for Zone 20, 21, and 22 locations.		X		
464	NA	440.14 Except No. 1	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
465	NA	445.11	Revised to require marking of generators to indicate whether the neutral conductor is bonded to the frame of the generator.		X		
466	NA	445.11	Revised to specify that additional markings are required on stationary and portable generators rated more than 15 kW.		X		
467	NA	445.16	Revised to specify that the requirement applies only to field−installed generator conductors.		X		
468	NA	445.17	Revised by adding a new exception to exclude terminal housings for generators rated over 600 volts from the sizing requirements.		X		
469	NA	445.18	Revised to exclude cord− and plug−connected portable generators from the disconnecting means requirement and to specify the conditions under which engine shut−down can be used in lieu of an electrical disconnecting means.		X		
470	NA	445.2	New provision requiring portable generators rated 15 kW or less either provide GFCI protection of 15− and 20−ampere, 125−volt receptacles integral to the generator or, if not GFCI protected, that these receptacles be disabled while the generator's 125ƒ250−volt locking−type receptacle is in use.		X		
471	NA	Article 450	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
472	NA	Table 450.3(A) Note 1	Revised to allow the next standard ampere rating or setting that a manufacturer provides as a product offering for fuses or circuit breakers over 1000 volts.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
473	NA	450.5	New exception to allow an autotransformer to be installed on the load side of a system grounding connection provided it has a wye configuration on its line side and a zigzag configuration on its load side that does not permit neutral or ground−fault current to return over the line connection. The exception does not apply to a connection made from a high−resistance grounded system applied in accordance with 250.36.		X		
474	NA	450.10(A)	New provision incorporating specific requirements for installing an equipment grounding terminal bar in transformer enclosures but not on the vent screen portion.		X		
475	NA	450.11(A)	Revised into a list format. List item (5) now requires marking for transformers that can be reverse wired.		X		
476	NA	450.11(B)	New requirement covering “reverse wiring” of transformers in accordance with manufacturer’s instructions.		X		
477	NA	450.14	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		
478	NA	450.21 Info Note	Revised by updating the edition of the ASTM Standard and deleting the reference to NFPA 251.		X		
479	NA	450.42 Info Note	Revised by updating the edition of the ASTM Standard and deleting the reference to NFPA 251.		X		
480	NA	450.45(E) Info Note	Revised by updating the edition of the referenced standard.		X		
481	NA	480.1 Info Note	New Informational Note that lists standards related to the design, installation, maintenance, and use of stationary batteries.		X		
482	NA	480.2 Cell	New definition for term used in Article 480.		X		
483	NA	480.2 Container	New definition for term used in Article 480. “Container replaces the term “jar” in 480.7(B) & (C).		X		
484	NA	480.2 Electrolyte	New definition for this term used in Article 480.		X		
485	NA	480.2 Inter-cell Connect	New definition for this term used in Article 480.		X		
486	NA	480.2 Inter-tier Connect	New definition for this term used in Article 480.		X		
487	NA	480.2 Nominal Battery Volt	Revised definition to reflect unique characteristics of battery voltages when fully charged, discharged, or while being charged.		X		
488	NA	480.2 Terminal	New definition for this term used in Article 480.		X		
489	NA	480.3	New requirements covering the proper termination of conductors at batteries and cells.		X		
490	NA	480.4	Revised to specify that the nominal battery voltage is used as the benchmark voltage at which overcurrent protection is required.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
491	NA	480.5	Revised to specify that the nominal battery voltage is used as the benchmark voltage at which a disconnecting means for battery supply conductors is required. Also revised to include requirements covering remote actuation of disconnecting means, disconnecting means for dc busways, and marking maximum system short−circuit current on battery system disconnecting means.		X		
492	NA	480.8(C)	New requirement covering ready access to battery terminals.		X		
493	NA	480.9(A)	Revised to specify that the level of ventilation must be appropriate for the battery technology and to include two Informational Notes that provide additional guidance on determining the proper level of ventilation.		X		
494	NA	480.9(C)	Revised to specify how working space is determined around battery cabinets and trays as well as around battery racks, and to establish the minimum clearance from battery racks and stands to the adjacent wall or structures where access for maintenance is not required.		X		
495	NA	480.9(C) Informational Note	New Informational Note with guidance on designing extra working space into areas containing batteries to facilitate moving batteries in and out of their racks.		X		
496	NA	480.9(D)	New requirement and Informational Note on determining the minimum working space for top−terminal batteries that are installed on tiered racks.		X		
497	NA	480.9(E)	New requirement covering the installation of personnel doors to provide entrance to and egress from battery rooms.		X		
498	NA	480.9(F)	New requirement prohibiting gas piping in battery rooms.		X		
499	NA	480.9(G)	New requirement covering illumination of the working space about battery systems.			X	Minimal
500	NA	490.21(B)(7)	Revised the term “metal−enclosed switchgear” to “switchgear” for correlation with the revision made to the defined term in Article 100.		X		
501	NA	Article 490	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
502	NA	490.21(B)(6)	Revised to include signage requirements: “DANGER − DISCONNECT CIRCUIT BEFORE REPLACING FUSES” and to require that signage comply with new Section 110.21(B).		X		
503	NA	490.21(B)(6) Exception	Revised by including the term “identified” and deleting “designed for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
504	NA	490.22	Revised by including the term “identified” and deleting “designed for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
505	NA	490.22	Revised to require a warning sign or label to meet requirements in new Section 110.21(B).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
506	NA	490.25	Revised to include signage requirements: “DANGER — CONTACTS ON EITHER SIDE OF THIS DEVICE MAY BE ENERGIZED BY BACKFEED” and to			X	$25
	NA		require that signage comply with new Section 110.21(B).				
507	NA	490.35(A)	Revised to include signage requirements: “DANGER — HIGH VOLTAGE — KEEP OUT” and to require that signage comply with new Section 110.21(B).			X	$25
508	NA	490.44(C)	Revised for correlation with the new general requirement for *lockable disconnecting means* in 110.25.		X		
509	NA	490.46	Revised for correlation with the new general requirement for *lockable disconnecting means* in 110.25.		X		
510	NA	490.47	Revised by including additional warning sign requirements where the compartment door or panel gives access to parts that can only be de− energized and visibly isolated by the serving utility.			X	$25
511	NA	490.48	New section that includes requirements for substation design by a qualified licensed professional, and also includes engineer, documentation, and diagram requirements.			X	$1,200. Cost varies with scope.
512	NA	490.53	Revised to require a warning sign or label to meet requirements in new 110.21(B).		X		
513	NA	490.55	Revised to require a warning sign or label to meet requirements in new 110.21(B).		X		
514	NA	500.2	Revised to include definitions from Articles 500 through 516 that are used in two or more of these articles. This action results in definitions being relocated from Articles 504 through 516 to 500.2.		X		
515	NA	500.2 Combustible Dust	Revised the dust particle size threshold to correlate with other national and international area classification standards.		X		
516	NA	500.2 Cord Connector	New definition to provide consistency in applying requirements covering cord connectors in Articles 500 through 516.		X		
517	NA	500.5(A)	Revised to indicate that pyrophoric materials are not covered by the requirements of Article 500.		X		
518	NA	500.8(C)(4)	Revised to specify that temperature class and operating parameters are based on the equipment being covered by a blanket of dust.		X		
519	NA	500.8(D)(1)	“Ignition temperature” changed to “autoignition temperature” in the requirement and in the informational note to correlate with terminology in other standards.		X		
520	NA	500.8(E)(1)	Revised to require listed conduit fittings and cable fittings.		X		
521	NA	501.10(A)(1)(e)	New requirement on installing optical fiber cables in Class I, Division 1 locations.		X		
522	NA	501.10(A)(2)	Revised to correlate with the provisions for terminating flexible cords specified in 501.140 and to add a new provision allowing the use of Type TC−ER−HL cable for flexible connections in Class I, Division 1 locations.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
523	NA	501.10(A)(3) Informational Note	New Informational Note providing reference to a standard covering testing and marking of cable and flexible cord connectors used in hazardous (classified) locations.		X		
524	NA	501.10(B)(1)(5)	Revised to include Type TC−ER cable.		X		
525	NA	501.10(B)(1)(7)	New requirement on installing optical fiber cables in Class I, Division 2 locations.		X		
526	NA	501.10(B)(2)(3)	New provision permitting the use of interlocked armor Type MC cable for flexible connections.		X		
527	NA	501.10(B)(2)(7)	New provision permitting certain types of elevator cables for use with elevators installed in Class I, Division 2 locations.		X		
528	NA	501.10(B)(3)(4) Info Note	New Informational Note providing reference to a standard covering testing and marking of cable and flexible cord connectors used in hazardous (classified) locations.		X		
529	NA	501.15(B)(2) Info Note	New Informational Note identifying the standard with performance parameters for seals that are not explosion-proof.		X		
530	NA	501.15(C)(6)	Revised to include optical fiber cables.		X		
531	NA	501.15(D)(2)	Revised to include optical fiber cables.		X		
532	NA	501.15(E)(1)	Revised to permit the use of explosion-proof cable seals and to include optical fiber cables.		X		
533	NA	501.17	New provision covering the use of “add−on secondary seals.” Revised the existing Informational Note to recognize the use of secondary seals.		X		
534	NA	501.3	Revised to state that the grounding and bonding requirements apply regardless of the system or circuit voltage. This correlates with provisions on bonding in hazardous (classified) locations covered in 250.100.		X		
535	NA	501.105(B)(6)(1)	Revised by adding an exception for nonincendive field wiring.		X		
536	NA	501.125(B) Info Note No. 4	New Informational Note identifying hazards associated with the operation of reciprocating engine−driven equipment in Class I, Division 2 locations.		X		
537	NA	501.130(B)(4) Exception	Revised to permit portable luminaires to be used in Class I, Division 2 locations provided they comply with 501.130(B)(1) and 501.130(B)(2).		X		
538	NA	501.140(A)(1)	Revised to reinforce that this requirement is applicable to cord− and plug− connected portable equipment.		X		
539	NA	501.140(B)(4)	Revised to permit a listed cord connector used in conjunction with a seal fitting listed for the location.		X		
540	NA	501.145	Revised to prevent attachment plugs (cord caps) from becoming energized unless plugged into a receptacle that is part of the premises wiring system.		X		
541	NA	502.10(A)(1)(4)	Added a new requirement on installing optical fiber cables in Class II, Division 1 locations.		X		
542	NA	502.10(A)(2)(5)	Revised to correlate with the provisions for terminating flexible cords specified in 502.140.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
543	NA	502.10(A)(2)(6)	New provision permitting certain type of elevator cables for use with elevators installed in Class II, Divisions 1 and 2 locations.		X		
544	NA	502.10(A)(3)	Relocated the requirement for the installation and performance of boxes and fittings installed in Class II, Division 1 locations. The Informational Note provides reference to a standard covering testing and marking of cable and flexible cord connectors used in hazardous (classified) locations.		X		
545	NA	502.10(B)(1)(8) Except.	New provision on installing optical fiber cables in Class II, Division 2 locations.		X		
546	NA	502.30(A) Except.	Revised to state that the grounding and bonding requirements apply regardless of the system or circuit voltage. This correlates with provisions on bonding in hazardous (classified) locations covered in 250.100.		X		
547	NA	502.130(A)(1)	Revised to specify that luminaire marking must provide the type of lamp in addition to its maximum wattage.		X		
548	NA	502.14	Revised to provide more detailed requirements on the permitted uses and installation practices where flexible cords used to connect equipment in Class II, Division 1 and 2 locations.		X		
549	NA	503.5	Revised to specify that temperature class and operating parameters are based on the equipment being covered by a blanket of fibers flyings.		X		
550	NA	503.10(A)(1)(4)	Revised to include Type TC−ER cable.		X		
551	NA	503.10(A)(3)(6)	New provision permitting certain type of elevator cables for use with elevators installed in Class III, Divisions 1 and 2 locations.		X		
552	NA	503.30(A)	Revised to state that the grounding and bonding requirements apply regardless of the system or circuit voltage. This correlates with provisions on bonding in hazardous (classified) locations covered in 250.100.		X		
553	NA	504.2 Associated Apparatus	Revised to correlate with product safety standards.		X		
554	NA	504.10(C)	Revised to permit both intrinsically safe apparatus and associated apparatus to be installed in general purpose enclosures.		X		
555	NA	504.30(A)(2)(3)	Revised to provide a specific distance between the insulating partition and the wall of an enclosure.		X		
556	NA	504.30(C)	New provision providing minimum clearance between uninsulated parts of field connections and grounded metal or other conducting parts.		X		
557	NA	505.5(A)	Revised to indicate that pyrophoric materials are not covered by the requirements of Article 505.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
558	NA	505.6 Info Note No. 3	Revised to provide guidance on marking provisions specified in current product safety standards, and guidance on how to safely assimilate markings on older products with current marking requirements.		X		
559	NA	505.7(F)	New requirement on the maximum short−circuit current for equipment in Zone 1 locations protected using type of protection “e.”		X		
560	NA	Table 505.9 (C)(2)(4)	Revised to add method of protection type “mc.”		X		
561	NA	505.9(C)(2)(5)	Revised to permit equipment to be marked for a specific gas or vapor.		X		
562	NA	505.9(C)(2) Except No. 3	New exemption from temperature marking for cable termination fittings.		X		
563	NA	505.9(D)	“Ignition temperature” changed to “autoignition temperature” in the requirement and in the informational note to correlate with terminology in other standards.		X		
564	NA	505.9(E)(1)	Revised to require listed conduit fittings and cable fittings.		X		
565	NA	505.15(B)(1)(g)	New requirement covering the use of Type TC−ER−HL cable in Class I, Zone 1 locations.		X		
566	NA	505.15(B)(1)(h)	New provision covering the permitted wiring methods in Class I, Zone 1 locations for intrinsic safety type of protection “ib”.		X		
567	NA	505.15(B)(1)(i)	New provision on installing optical fiber cables in Class I, Zone 1 locations.		X		
568	NA	505.15(C)(1)(b)	Revised to also permit the use of Type TC−ER cable in Class I, Zone 2 locations.		X		
569	NA	505.15(C)(1)(h)	New provision on installing optical fiber cables in Class I, Zone 2 locations.		X		
570	NA	505.15(C)(2) Exception	New exception permitting certain types of elevator cables for use with elevators installed in Class I, Zone 2 locations.		X		
571	NA	505.16(B)(5)	Revised to also cover sealing of optical fiber cables.		X		
572	NA	505.16(B)(6)	Revised to also cover sealing of optical fiber cables.		X		
573	NA	505.16(C)(2)(a)	Revised to also cover sealing of optical fiber cables.		X		
574	NA	505.16(D)(5)	Revised to also cover sealing of optical fiber cables.		X		
575	NA	505.17(A)	Revised to provide specific reference to wiring methods for Class I, Zone 2 locations.		X		
576	NA	505.17(B)	New provision covering cord− and plug−connected instrumentation equipment in Class I, Zone 2 locations.		X		
577	NA	505.20(C) Exception No.4, Informational Note No.3	New Informational Note providing guidance to application standard for motors installed in Class I, Division 2 and Zone 2 locations.		X		
578	NA	505.20(D)	New requirement covering the permitted applications of equipment based on its material group marking.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
579	NA	505.22 Info Note	New Informational Note identifying hazards associated with the operation of reciprocating engine−driven equipment in Class I, Zone 2 locations.		X		
580	NA	505.25	Revised to state that the grounding and bonding requirements apply regardless of the system or circuit voltage. This correlates with provisions on bonding in hazardous (classified) locations covered in 250.100.		X		
581	NA	505.26(4)	New requirement covering the use of “add−on secondary seals.” Revised the existing Informational Note to recognize the use of secondary seals.		X		
582	NA	506.1	Revised to not restrict Article 506 requirements from covering metal dusts.		X		
583	NA	506.2 Combustible Dust	Revised the dust particle size threshold to correlate with other national and international area classification standards.		X		
584	NA	506.2Protect by Encapsul. “m”	Revised to correlate with changes to product safety standards that expand application of this type of protection.		X		
585	NA	506.2 Protect by Enclose “t”	Revised to correlate with changes to product safety standards that expand application of this type of protection.		X		
586	NA	506.2 Protection by Intrinsic Safety “i”	Revised to correlate with changes to product safety standards that expand application of this type of protection.		X		
587	NA	506.3	New provision requiring compliance with applicable requirements in other articles of the *Code* except as modified by Articles 504 and 506.		X		
588	NA	506.6	New provisions covering material group designations to facilitate proper equipment selection for installations in Zones 20, 21, and 22 locations.		X		
589	NA	506.8(E)	Revised to correlate with changes to product safety standards that expand application of this type of protection.		X		
590	NA	506.8(H)	Revised to correlate with product safety standards.		X		
591	NA	506.9(C)(1)(2)	Revised to add a requirement for additional marking on “Division” equipment to indicate suitability for use with Zone material groups.		X		
592	NA	506.9(C)(1)(3), 506.9(C)(2)(5), & 506.9(D)	Revised to maintain consistent terminology for temperature marking on equipment.		X		
593	NA	506.9(C)(2)(4)	Revised to add a requirement for additional marking on “Division” equipment to indicate suitability for use with Zone material groups.		X		
594	NA	506.9(C)(2) Exception	New exception covering marking of associated apparatus not suitable for installation in a hazardous (classified) location.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
595	NA	Table 506.9(C)(2)(3)	Revised to reflect changes in product safety standards relating to new type and expanded protection techniques for Zone 20, 21, and 22 applications.		X		
596	NA	506.9(C)(6) Exception	New exception covers associated apparatus that is not suitable for hazardous (classified) location, and for such equipment the markings for zone, material group, and ambient temperature in accordance with 506.9(D) need not be applied.		X		
597	NA	506.9(D)	Revised to specify that temperature class and operating parameters are based on the equipment being covered by a blanket of dust or dust simulating fibers flyings of the maximum thickness that can accumulate for Zone 20 and Zone 21 locations.		X		
598	NA	506.9(E)(1)	Revised to require listed conduit fittings and cable fittings.		X		
599	NA	506.15(A)(2) Except No. 2	New exception covering the permitted wiring methods in Zone 20 locations for intrinsically safe equipment.		X		
600	NA	505.15(mult. locations)	New Informational Notes to reference product safety standard for cables, cable fittings, and cord connectors.		X		
601	NA	506.15(A)(6) Except. No. 2	New exception permitting certain types of elevator cables for use with elevators installed in Zone 20 hazardous (classified) locations.		X		
602	NA	506.15(A)(7)	New requirement on installing optical fiber cables in Zone 20 locations.		X		
603	NA	506.15(B)(2) Exception	New exception covering the permitted wiring methods in Zone 20 locations for intrinsically safe equipment.		X		
604	NA	506.15(C)(6)	Revised to also permit the use of Type TC−ER cable in Zone 22 locations.		X		
605	NA	506.15(C)(7)	Revised to reflect changes in product safety standards related to the use of intrinsic safety as a protection technique in Zone 22 hazardous (classified) locations.		X		
606	NA	506.15(C)(9)a	New provision on installing optical fiber cables in Zone 22 locations.		X		
607	NA	506.17	New Informational Notes to reference product safety standard for cables, cable fittings, and cord connectors.		X		
608	NA	506.20(D)	New provision covering the permitted applications of equipment based on its material group marking.		X		
609	NA	506.25	Revised to state that the grounding and bonding requirements apply regardless of the system or circuit voltage. This correlates with provisions on bonding in hazardous (classified) locations covered in 250.100.		X		
610	NA	Figures 514.3(a) & 514.3(b)	Revised the figure to show the classified area around dispensing devices; added a new figure to show the classified area around an aboveground tank with a dispensing device.		X		
611	NA	514.3(C)	New requirement covering the installation of motor fuel dispensing equipment and associated piping at boatyards and marinas. These requirements were formerly located in 555.21.		X		
612	NA	514.13	Revised for correlation with new general requirement for *lockable disconnecting means* in 110.25.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
613	NA	Article 516	Revised Article to update all requirements that are extracted from NFPA 33, *Standard for Spray Application Using Flammable and Combustible Materials*, and NFPA 34, *Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids* to the 2011 editions of those standards. More specific information included on the use of the "zone system" of electrical area classification method is included in these revisions.		X		
614	NA	516.10(A)	Revised to recognize the use of spray equipment that is not listed, but is otherwise approved. New Informational Note provides direction on the approval of electrostatic spray equipment where other hazard mitigation features as described in NFPA 33 are employed.		X		
615	NA	517.2 Critical Branch	Revised the definition of *critical branch* to correlate with the definition in NFPA 99 by removing a reference to emergency system and adding fixed equipment to the list of items connected to the critical branch.		X		
616	NA	517.2 Emergency System	Revised by deleting the definition of *emergency system* to correlate with NFPA 99.		X		
617	NA	517.2 Equipment Branch	Revised the definition of *equipment system* to *equipment branch,* changed "circuits" to "feeders and branch circuits," and included a reference to extracted material from NFPA 99, *Health Care Facilities Code.*		X		
618	NA	517.2 Life Safety Branch	Revised the definition of *life safety branch* to correlate with the definition in NFPA 99 by removing a reference to emergency system and by specifying that power supplies for lighting, receptacles, and equipment essential for life safety are what is connected to the life safety branch.		X		
619	NA	517.2 Patient Care Space	Revised the definition of *patient care area* to *patient care space* to correlate with the new definitions for patient care rooms in NFPA 99, *Health Care Facilities Code;* added new Informational Notes to provide guidance on proper application.		X		
620	NA	517.2 Patient Care Vicinity	Revised to provide clarification and to update to the extracted information from NFPA 99, *Health Care Facilities Code.*		X		
621	NA	517.2 Wet Procedure Area	Relocated the definition of *wet procedure location* to correlate with the revised definitions for Patient Care Space. New informational note that indicates that routine housekeeping procedures and incidental spillage of liquid do not define a wet procedure location.		X		
622	NA	517.1	Revised by replacing "areas" with "space" to correlate with the revised definition and with NFPA 99, *Health Care Facilities Code.*		X		
623	NA	517.14	Revised by replacing "emergency system" with "essential electrical system" to correlate with NFPA 99, *Health Care Facilities Code.*		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
624	NA	517.16	Revised to clarify that isolated ground receptacles are only prohibited in the patient care vicinity, to correlate with NFPA 99, *Health Care Facilities Code.*		X		
625	NA	517.17(A)	Revised by replacing the term “areas” to “space” to correlate with the revised definition and with NFPA 99, *Health Care Facilities Code.*		X		
626	NA	517.18(A)	Revised by replacing “emergency system” with “critical branch” and providing new requirements for receptacle plate marking to correlate NFPA 99, *Health Care Facilities Code.*		X		
627	NA	517.18(B)	Revised by increasing the number of required receptacles from four to eight to correlate with NFPA 99, *Health Care Facilities Code.*		X		
628	NA	517.18(C)	Revised by replacing “Pediatric Locations” to “Designated General Care Pediatric Locations” to correlate with NFPA 99, *Health Care Facilities Code.*		X		
629	NA	517.19(A)	Revised by replacing the term “areas” with “space,” replacing “emergency system” with “critical branch,” and increasing the number of required receptacles from six to fourteen to correlate with NFPA 99, *Health Care Facilities Code.*		X		
630	NA	517.19(C)	New requirement that provides minimum number, supply requirements, and configuration for operating room receptacles to correlate with NFPA 99, *Health Care Facilities Code.*		X		
631	NA	517.19(D)	Revised the term “metal−enclosed switchgear” to “switchgear” for correlation with the revision made to the defined term in Article 100.		X		
632	NA	517.19(E)	Revised by replacing the term “areas” with “space” to correlate with the revised definition and with NFPA 99, *Health Care Facilities Code.*		X		
633	NA	517.26	Revised to include the life safety branch of the essential electrical system to correlate with NFPA 99, *Health Care Facilities Code.* The new Informational Note refers to Section 517.30 and to NFPA 99, Chapter 6.		X		
634	NA	517.30 Figs. 1 & 2	Revised terms to correlate with NFPA 99, *Health Care Facilities Code.*		X		
635	NA	517.30(B)(1) through (4)	Revised by specifying that essential electrical systems for hospitals must be comprised of three separate branches: life safety, critical, and equipment; and revised these terms to correlate with NFPA 99, *Health Care Facilities Code.*		X		
636	NA	517.30(A)(1)	Revised by replacing “emergency system” with “essential electrical system” to correlate with NFPA 99, *Health Care Facilities Code.*		X		
637	NA	517.30(C)(3)(1)	Revised by adding Type RTRC marked with the suffix −XW to the list of permitted wiring methods.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
638	NA	517.30(C)(3)	Revised by replacing "emergency system" with "essential electrical system," replacing "emergency" with life safety and critical branches, and replacing the term "areas" with "space" to correlate with NFPA 99, *Health Care Facilities Code.*		X		
639	NA	517.30(D)	Revised to specify that the capacity and rating for the essential electrical system must be designed for the maximum actual demand likely to be produced by the connected load of the essential electrical system.		X		
640	NA	517.30(E)	Revised by replacing "emergency system" with "essential electrical system" to correlate with NFPA 99, *Health Care Facilities Code.*		X		
641	NA	517.30(G)	New requirement for overcurrent protective devices serving the essential electrical system to be selectively coordinated for the period of time that a fault's duration extends beyond 0.1 second. Two exceptions to the rule address the arrangement between transformer primary and secondary protective devices and overcurrent protective devices of the same ampere rating connected in series.			X	$3,000
642	NA	517.30 (F)	New provision permitting feeders supplied from an alternate power source to supply the essential electrical system to the point at which the life safety, critical, and equipment branches are separated. Installation of the transfer equipment is permitted at other than the location of the alternate power source.		X		
643	NA	517.31	Revised the title from "Emergency Systems" to "Branches Requiring Automatic Connection" and revised the requirement by replacing "emergency system" with "essential electrical system" and "life safety and critical branches" to correlate with NFPA 99, *Health Care Facilities Code.*		X		
644	NA	517.32	Revised by replacing "emergency system" with "essential electrical system" to correlate with NFPA 99, *Health Care Facilities Code.*		X		
645	NA	517.32(F)	Revised to include a list of generator accessories that are loads dedicated to a specific generator, to correlate with NFPA 99, *Health Care Facilities Code.*		X		
646	NA	517.33(A)	Revised by replacing "emergency system" with "essential electrical system" to correlate with NFPA 99, *Health Care Facilities Code.*		X		
647	NA	517.33(A)(7)	Revised by adding "data equipment rooms and closets" to critical branch task illumination and receptacle requirements.		X		
648	NA	517.34	Revised the title by replacing "System" with "Branch" and replaced "emergency system" with "essential system" to correlate with NFPA 99, *Health Care Facilities Code.*		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
649	NA	517.34(A)	Revised by adding a new provision to permit delayed automatic connection to the alternate power source for supply, return, exhaust ventilating, and for air−conditioning systems serving telephone equipment rooms and closets and data equipment rooms and closets.		X		
650	NA	517.35(C)	Revised to include a requirement for physical separation of the main feeders of the alternate source from the main feeders of the normal electrical source.		X		
651	NA	517.41, Figs. 1 & 2	Revised the terms to correlate with NFPA 99, *Health Care Facilities Code.*		X		
652	NA	517.41(E)	Revised by replacing “emergency system” with “essential electrical system” to correlate with NFPA 99, *Health Care Facilities Code.* Added a new requirement for non-locking−type, 125−volt, 15− and 20−ampere receptacles to have an illuminated face or an indicator light to indicate that there is power to the receptacle.			X	$5
653	NA	517.43 Exception	Revised by replacing “system” with “branch” to correlate with NFPA 99,		X		
	NA		*Health Care Facilities Code.*				
654	NA	517.71(C)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
655	NA	520.2 Stage Equipment	New definition for equipment that is integral to the stage production.		X		
656	NA	520.2 Stage Switchboard	New definition that includes a switchboard, panelboard, or rack containing dimmers or relays with associated overcurrent protective devices, or overcurrent protective devices alone, used primarily to feed stage equipment.		X		
657	NA	520.2 Stage Lighting Hoist	New definition for a motorized lifting device for luminaires with integral cable system to allow travel over the lifting range while energized.		X		
658	NA	520.26(D)	Revised to add new subsection covering *constant power* stage switchboards.		X		
659	NA	520.4	New requirement that includes provisions for stage lighting hoists and requirement for listing.		X		
660	NA	520.53(H)(1)	Revised by including the term “identified” and deleting “identified for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
661	NA	520.53(K)(3)c	Revised to require marking to meet the requirements in new 110.21(B).		X		
662	NA	520.68(A)(3)	New subsection that includes provisions for permitting luminaries to be supplied by hard usage supply cords provided conditions are met.		X		
663	NA	525.32	Revised to correlate with the term *equipment grounding conductor.*		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
664	NA	530.22(A)(3)c	Revised to require marking to meet the requirements in new 110.21(B).		X		
665	NA	530.61	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
666	NA	545.5	Revised for consistency with terms associated with underground service conductors that are within the scope of the *Code*.		X		
667	NA	547.2 Equipotential Plane	Revised by replacing “prevent” with “minimize” in the definition; this more closely represents the level of voltage reduction obtained with an equipotential plane.		X		
668	NA	547.5(F)	Revised to permit insulated aluminum equipment grounding conductors for underground installations.		X		
669	NA	547.9(A)(1)	Revised to apply to multiple buildings or structures of any use group that are supplied from the same distribution point.		X		
670	NA	547.9(B)(3)(2)	Revised by adding the word “enclosure” after the words “site−isolating device” to clarify the equipment grounding conductor connection is to the site−isolating device enclosure.		X		
671	NA	547.10(B) Info Note No. 2	Revised to update to the current edition of the referenced standard.		X		
672	NA	550.2, 550.10(B), 550.11,	Revised by removing the definition of “distribution panelboard” and removing the term “distribution” throughout several sections, to correlate with the defined term *panelboard* in Article 100.		X		
	NA	550.16, and 550.30					
673	NA	550.2 Feeder Assembly	Revised by including the term “identified” and deleting “designed for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
674	NA	550.10(C) Info Note	Revised to update to the current edition of the referenced standard.		X		
675	NA	550.15(H)	Revised to require that conductors be listed for use in wet locations and raceways be approved for wet locations where exposed to moisture and subject to physical damage.		X		
676	NA	550.32(C) Info Note	Revised to update to the current edition of the referenced standard.		X		
677	NA	551.1 Info Note	Revised to update to the current edition of the referenced standard.		X		
678	NA	551.2, 551.42, 551.45, 551.46, 551.47, 551.54,	Revised by removing the definition of “distribution panelboard” and the term “distribution” throughout several sections to correlate with the defined term *panelboard* in Article 100.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
	NA	551.55, and 551.73					
679	NA	551.2 Recreational Vehicle	Revised by removing explanatory material and relocating to a new Informational Note: “The basic entities are travel trailer, camping trailer, truck camper, and motor home.”		X		
680	NA	551.4(B) Info Note	Revised to update to the current edition of the referenced standard.		X		
681	NA	551.4(C)	New requirement for standardized labels for recreational vehicles. Informational note refers to ANSI Z535, *Product Safety Signs and Labels,* for additional guidance.		X		
682	NA	551.30(D) Info Note	Revised to update to the current edition of the referenced standard.		X		
683	NA	551.30(E)	Revised by combining the location requirements, and adding similar location requirements for enclosed transfer switches when used as the first termination of generator supply conductors.		X		
684	NA	551.41(B)	Revised by specifying that the minimum size for qualifying receptacle requirements includes both width and depth.		X		
685	NA	551.41(B)(4)	New requirement for at least one receptacle for rooftop decks that is accessible from inside the RV.			X	$100
686	NA	551.42(C)(2) Exception 2	New exception that permits a sixth circuit to serve only the power converter; if the combined load of all six (6) circuits does not exceed the allowable load that was designed for use by the original five (5) circuits.		X		
687	NA	551.45(B) Exception 1	Revised to provide an alternate installation when the door installation prohibits meeting the specified setback limit for working clearances.		X		
688	NA	551.46(D)	Revised to provide standardized label requirements for electrical entrance and for compliance with ANSI Z535, *Product Safety Signs and Labels.*		X		
689	NA	551.47(I)	Revised to correlate with Section 334.30 by requiring cables to be secured, as well as supported.		X		
690	NA	551.47(J)	Revised to correlate with Section 334.30 by requiring cables to be secured, as well as supported.		X		
691	NA	551.47(Q)(3)	Revised to provide standardized label requirements for air−conditioning equipment and for compliance with ANSI Z535, *Product Safety Signs and Labels.*		X		
692	NA	551.47(R)(4)	Revised to provide standardized label requirements for generator installations and for compliance with ANSI Z535, *Product Safety Signs and Labels.*		X		
693	NA	551.47(S)(3)	Revised to provide standardized label requirements for prewiring for other circuits and for compliance with ANSI Z535, *Product Safety Signs and Labels.*		X		
694	NA	551.53	Revised to also apply to ceiling−suspended (paddle) fans.		X		
695	NA	551.71	Revised to require that every recreational vehicle site equipped with a 50− ampere receptacle also be equipped with a			X	$50

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			30−ampere, 125−volt receptacle conforming to Figure 551.46(C).				
696	NA	551.75	New informational note directing user to 250.32(A) exception for RV sites supplied by a single branch circuit.		X		
697	NA	551.79	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
698	NA	552.43, 552.44, 552.45,552.46, 552.47, 552.55, & and 552.47	Revised by removing the term “distribution” throughout several sections to correlate with the defined term *panelboard* in Article 100.		X		
699	NA	552.10(B)(2) Info Note	Revised to update to the current edition of the referenced standard.		X		
700	NA	552.10(E)(2) Info Note	Revised to update to the current edition of the referenced standard.		X		
701	NA	552.44(C)(1) Info Note	Revised to update to the current edition of the referenced standard.		X		
702	NA	552.44(C)(2) Info Note	Revised to update to the current edition of the referenced standard.		X		
703	NA	555.1 Info Note	Revised to update to the current edition of the referenced standard.		X		
704	NA	555.21(A) Info Note	Revised to update to the current edition of the referenced standard.		X		
705	NA	555.2 Marine Power Outlet	Revised by removing the term “distribution” to correlate with the defined term *panelboard* in Article 100.		X		
706	NA	555.4	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
707	NA	555.15(B) and (C)	Revised to permit insulated aluminum equipment grounding conductors for installations at marinas and boatyards.		X		
708	NA	555.19(A)(4)(a) Info Note	Revised to update to the current edition of the referenced standard.		X		
709	NA	590.4(C)	Revised by adding “switchgear” to the list of equipment where branch circuits must originate.		X		
710	NA	590.4(I)	Revised by clarifying that fittings are required to be listed for connecting flexible cords and cables to boxes.		X		
711	NA	590.4(J)	Revised to specify that cable assemblies and flexible cords and cables installed as branch circuits or feeders are not permitted to be installed on the floor or on the ground. This does not include extension cords.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
712	NA	590.6(A)(1)	Revised to provide specific permission covering the use of listed cord sets or devices incorporating GFCI protection identified for portable use.		X		
713	NA	600.2 Neon tubing	Revised to include cold cathode luminous tubing in the definition.		X		
714	NA	600.3	Revised to require that retrofit kits be listed and to specify that electric signs, outline lighting, and retrofit kits must be provided with installation instructions.		X		
715	NA	600.4(E)	Revised to also include outline lighting, skeleton tubing systems, and retrofit kits in the marking requirement, with an exception for cord−and− plug−connected portable signs.		X		
716	NA	600.6(A)(1)	Revised to specify that the disconnecting means must be located nearest the point where the supply conductors enter the sign (or a pole supporting a sign), with an exception for supply conductors inside the sign that are installed in a listed raceway.		X		
717	NA	600.6(A)(2)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
718	NA	600.6(A)(3)(1)	Revised to make the “within sight” requirement mandatory rather than permissive.		X		
719	NA	600.6(A)(3)(3)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
720	NA	600.7(A)(1)	Revised to include skeleton tubing.		X		
721	NA	600.9(B)	Revised to specify that neon tubing installed only in “listed” dry location portable signs is exempted from this requirement.		X		
722	NA	600.10(C)(2)	Revised to require that the GFCI device protecting a portable or mobile sign be installed by the sign manufacturer.			X	$50
723	NA	600.12	Revised to include retrofit kits.		X		
724	NA	600.12(A)	Revised to apply to all neon and other secondary circuits rated 1000 volts or less.		X		
725	NA	600.12(B)	Revised to limit application to neon secondary circuits rated more than 1000 volts.		X		
726	NA	600.12(C)	Revised to indicate that the acceptable wiring method is determined by the installation conditions and the manufacturer’s instructions.		X		
727	NA	600.21	Revised to require that all power supplies be either self−contained or be enclosed in a listed sign body or listed enclosure.		X		
728	NA	600.21(A), (B), (C), (D), (E), & (F)	Revised to include Class 2 power sources.		X		
729	NA	600.33	Revised to specify that only the provisions in Chapter 3 and Part III of Article 725 covering wiring methods and materials suitable for LED lighting installations are applicable.		X		
730	NA	Entire article	Revised to replace the terms “relocatable wired partitions” and “partition” with “office furnishings,” to correlate with the		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			terminology used in the product safety standard for this equipment.				
731	NA	605.2	New definition of *office furnishings.*		X		
732	NA	605.3	Revised by changing “appliances” to “utilization equipment” to reflect broader scope of equipment used with powered office furnishings.		X		
733	NA	605.6(B)	Revised to accommodate flexible cord connections associated with lighting systems supplied from Class 2 power sources, including low voltage LED lighting systems.		X		
734	NA	610.31	Revised to correlate with the provisions covering the permitted types of disconnecting means specified in 430.109.		X		
735	NA	610.31(2)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
736	NA	610.31(4) Exception	New exception to the “with view” requirement for the runway conductor disconnecting means where the crane serves an electrolytic cell line.		X		
737	NA	610.32	Revised to correlate with the provisions for the permitted types of disconnecting means specified in 430.109 and to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
738	NA	620.3(A)	Revised to require marking to meet requirements in new 110.21(B) and to revise the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
739	NA	620.3(C)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
740	NA	620.5	Revised to clarify that reduced working space is permitted under any one of the conditions specified in (A) through (D).		X		
741	NA	620.13(B)	Revised by incorporating text of the Informational Note as a permissive requirement for determining the rating of a motor controller for the purpose of sizing the conductors supplying it.		X		
742	NA	Table 620.14	Revised by incorporating text of the Informational Note as a new application note to the demand factor table.		X		
743	NA	620.21 Exception	New exception permitting cords or cables of listed cord−and plug− connected equipment to be used without being installed in a raceway.		X		
744	NA	620.22(B)	Revised to require a separate branch circuit to supply the air−conditioning and heating equipment for each elevator car.		X		
745	NA	620.36	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
746	NA	620.41	Revised by incorporating text of the Informational Note as the condition under which the length of unsupported cord is determined.		X		
747	NA	620.51(A) & Except No. 1	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
748	NA	620.51(C)(1)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25 and to permit fused motor circuit switches as the disconnecting means for the elevator driving machine.		X		
749	NA	620.51(C)(2)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
750	NA	620.52(B)	Revised to require marking to meet requirements in new 110.21(B).		X		
751	NA	620.53	Revised to require marking to meet requirements in new 110.21(B).		X		
752	NA	620.53 Exception	Revised to clarify that one branch circuit is permitted to supply all of the equipment covered by the exception. Also revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
753	NA	620.54	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
754	NA	620.55	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
755	NA	620.62	Revised to specify the qualifications of those responsible for the design of the system used to establish selective coordination and those to whom the required documentation must be made available.		X		
756	NA	Article 625	Article revised to group installation requirements in a separate Part III.		X		
757	NA	625.2 Cable Management System	New definition describing the function of this system.		X		
758	NA	625.2 Electric Vehicle Connector	Revised to recognize that the electrical connection to the electric vehicle can be conductive or inductive.		X		
759	NA	625.2 Electric Vehicle Inlet	Revised to recognize that the electrical connection to the electric vehicle can be conductive or inductive.		X		
760	NA	625.2 Electric Vehicle Storage Battery	Revised to reflect that all battery technologies have a means to vent excessive gas pressure due to overheating, in order to prevent battery explosion.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
761	NA	625.2 Electric Vehicle Supply Equipment	New informational note explaining the relationship between the terms *electric vehicle supply equipment* and *electrical vehicle charging system equipment* in the context of Article 625.		X		
762	NA	625.2 Output Cable to the Electric Vehicle	New definition describing the cable with an electric vehicle connection that runs from the output of the EVSE to the EV inlet.		X		
763	NA	625.2 Power Supply Cord	New definition covering the cord connecting the EVSE to the premises wiring system through a cord−and−plug connection to a receptacle.		X		
764	NA	625.4	Revised to include dc systems rated up to 600 volts.		X		
765	NA	625.10(A)	Revised with a new exception covering the specific condition under which polarization of the EV coupler is not required.		X		
766	NA	625.10(E)	Revised to clearly describe the condition under which a grounding pole is not required.		X		
767	NA	625.17	Revised to distinguish the requirements for the power supply cord from those covering the output cable.		X		
768	NA	625.17(C)(1) and (2)	New provisions covering how the length of the power supply cord and the output cable is to be determined.		X		
769	NA	625.18	Revised to not require interlock for dc supplies rated less than 50 volts.		X		
770	NA	625.19	Revised to not require interlock for dc supplies rated less than 50 volts.		X		
771	NA	625.41(formerly 625.14)	Revised to cover the impact that a load management system has on service and feeder calculations.		X		
772	NA	625.42 (formerly 625.23)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
773	NA	625.44 (formerly 625.13)	Revised requirements covering cord−and−plug− and permanently connected EVSE equipment.		X		
774	NA	625.48 (formerly 625.26)	Revised to require that equipment used as part of an interactive electrical system be listed and marked as being suitable for this application.		X		
775	NA	625.50 [formerly 625.29(A) and 625.30]	Revised to recognize that the electrical connection to the electric vehicle can be conductive or inductive, and to consolidate indoor and outdoor location provisions.		X		
776	NA	625.52(B)(2) [formerly 625.29(D)(2)]	Revised to cover electric vehicle supply equipment supplied by dc branch circuits.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
777	NA	Tables 625.52(B)(1) and (B)(2) [formerly Tables 25.29(D)(1) and (D)(2)]	Revised to cover electric vehicle supply equipment supplied by dc branch circuits.		X		
778	NA	626.2 Cable Management System (Electrified Truck Parking Spaces)	Revised to distinguish cable management systems for electrified trucks from cable management systems for electric vehicles covered in Article 625.		X		
779	NA	626.22(D)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
780	NA	626.24(B) Exception	Revised for correlation with the number of receptacles specified in 626.24(B)(1).		X		
781	NA	626.24(C)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
782	NA	626.31(A)	Revised to correlate with new general requirement for lockable disconnecting means in 110.25.		X		
783	NA	630.13	Revised to reference 110.22(A) for marking of welder supply circuit disconnecting means.		X		
784	NA	640.1	Revised the scope to specify the types of systems not covered by Article 640.		X		
785	NA	640.2 Audio Amplifier or Preamplifier	Revised to provide correlation between this definition and its use in the requirements of Article 640.		X		
786	NA	640.10(A)	Revised for clarity by replacing “laterally” with “horizontally” in regard to the minimum clearance distance.		X		
787	NA	645.4	Revised to indicate that the provisions of Article 645 modify the general requirements in Articles 300 and 708 for power wiring, those in Article 725 for signaling circuit installations, and those in Article 770 optical fiber cable installations.		X		
788	NA	645.5(E)(4)	Revised by deleting the condition requiring automatic cessation of air circulation upon detection of smoke in underfloor air−handling ventilation areas serving an information technology equipment room(s).		X		
789	NA	645.14 and 645.15	New Section 645.14 added to cover grounding of separately derived systems that supply ITE equipment. Section 645.15 now provides only requirements covering grounding and bonding of information technology equipment. Revised to require auxiliary grounding electrodes be installed in accordance with 250.54.		X		
790	NA	645.27	New requirement covering selective coordination of overcurrent devices protecting circuits supplying critical operations data systems.			X	$5,000

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
791	NA	Article 646 Modular Data Systems (MDCs)	New article covering prefabricated units containing information technology equipment and associated support equipment used to provide power, cooling, and ventilation for the units' HVAC equipment. MDCs are required to either be listed or be constructed in accordance with the requirements of Article 626.		X		
792	NA	647.6(A)	Revised to clarify that equipment supplied by a grounded technical power system operates at the line−to−line voltage of 120 volts.		X		
793	NA	647.7(A)(2)	Revised to require marking to meet requirements in new 110.21(B).		X		
794	NA	647.8(A)	Revised for correlation with new general requirement for lockable disconnecting means in 110.25.		X		
795	NA	660.4(C)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
796	NA	665.2 Applicator	Revised to be consistent with use of this term within Article 665.		X		
797	NA	665.12	Revised for correlation with new general requirement for lockable disconnecting means in 110.25.		X		
798	NA	665.23	Revised to require marking to meet requirements in new 110.21(B).		X		
799	NA	668.21(A)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
800	NA	669.7	Revised to require marking to meet requirements in new 110.21(B).		X		
801	NA	670.4 Informational Note	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
802	NA	675.8(B)	Revised for correlation with new general requirement for lockable disconnecting means in 110.25. The phrase "visible and not more than 15 m (50 ft.)" is revised to "in sight from" because that distance is part of the Article 100 definition of "in sight from."		X		
803	NA	675.1	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
804	E4201.2	680.2 Storable Swimming, Wading, or Immersion Pools or Storable Portable Spas and Hot Tubs	Revised to also include storable and portable spas and hot tubs.		X		
805	E4203.6	680.8(A)	Revised to also apply to overhead service conductors.		X		
806		680.12	Revised to also apply to fountains.		X		
807	E4203.1.3	680.21(C)	Revised to require GFCI protection for all 120− and 240−volt, single−phase swimming pool pump motors regardless of the supply circuit ampere rating.			X	$50
808	E4203.1.1	680.22(A)(1)	Revised to permit non−locking receptacles to supply swimming pool circulating pump motors.		X		
809	E4205.5	680.22(A)(3)	Revised to expand application of the receptacle outlet requirement to all occupancy types.		X		
810	NA	680.22(B)(6)	New provision permitting certain types of listed low−voltage luminaires to be installed less than 5 feet from the inside walls of a swimming pool.		X		
811	E4206.4	680.23	Revised to use the maximum water level as the benchmark for establishing which underwater luminaires are covered by these requirements.		X		
812	E4204.3	680.26(C)	Revised to include physical protection and corrosion resistance provisions for the bonded metal element used to create direct contact between the swimming pool water and bonded metal surface.		X		
813	E4206.11	680.27(B)(2)	Revised to require that the branch circuit supplying the pool cover motor and associated equipment be protected by a ground−fault circuit interrupter. This revision results in feeder level GFCI protection not being permitted.		X		
814	NA	Article 680 Part III Title, 680.30, 680.32, 680.33, & 680.34	Revised to make the requirements of Part III applicable to portable spas and portable hot tubs.		X		
815	E4204.4	680.42(A)(1)	Revised to remove the 6−foot length restriction for liquidtight flexible metal conduit and liquidtight flexible nonmetallic conduit.		X		
816	E4204.4	680.42(B)	Revised to provide conditions under which perimeter bonding is not required for certain listed self−contained spas and hot tubs installed on or above grade outdoors.		X		
817	NA	680.42(C)	Revised to permit application of this requirement to outdoor spas and hot tubs installed at one−family dwellings or at a		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			dwelling unit that is part of a two−family or multifamily dwelling.				
818	E4203.1.4	680.43 Exception No. 3	New exception permitting application of the provisions of 680.42(C) for spas and hot tubs installed indoors at one−family dwellings or at a dwelling unit that is part of a two−family or multifamily dwelling.		X		
819	NA	680.57(B)	Revised to require that the ground−fault circuit−interrupter protection be provided in either the branch circuit or feeder that supplies a sign either installed in a fountain or installed within 10 feet of a fountain.			X	$50
820	E4209.4	680.74	Revised to clarify that only the metal piping system associated with the circulating water of the hydromassage bathtub and grounded metal parts in contact with the bathtub water are subject to the bonding requirement of this section.		X		
821	NA	Figure 690.1(A)	Revised by removing the blocking diodes from the figure to reflect current circuit protection requirements contained in the *NEC* and in the product safety standards.		X		
822	NA	690.2 Direct Current (dc) Combiner	New definition to provide standardization of the nomenclature used to describe this type of equipment.		X		
823	NA	690.2 DC−to−DC Converter	New definition for correlation with existing requirements in Article 690 covering the use of this device.		X		
824	NA	690.2 Multimode Inverter	New definition for a component that can be used in an interactive or stand−alone PV system.		X		
825	NA	690.4	Renamed this section “General Requirements.” Conductor segregation and identification requirements have been relocated to 690.31.		X		
826	NA	690.4(D)	Revised to permit PV system installations to be comprised of more than one utility−interactive or stand−alone inverter.		X		
827	NA	690.5(A)	Revised to specify the required performance of the ground−fault detection system, and to require listing of the equipment used to provide the ground−fault protection and circuit interruption. Also revised to permit ground fault devices to automatically interrupt the grounded conductor for the purpose of ascertaining circuit isolation.		X		
828	NA	690.5(C)	Revised to require marking to meet requirements in new 110.21(B).		X		
829	NA	690.7(C)	Revised the threshold voltage for other than one and two family dwellings from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
830	NA	690.7(E)(3)	Revised to require marking to meet requirements in new 110.21(B).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
831	NA	690.8(A)(5)	New requirement on determining the maximum current for dc to dc converters.		X		
832	NA	690.8(B)(1) [formerly 690.8(B)(2)]	Revised by changing the term “conditions of use” to “adjustment and correction factors.”		X		
833	NA	690.8(D)	Revised “single fuse” to “single overcurrent device” to allow determining the ampacity of conductors that interconnect modules to be based on the rating of the specific type of overcurrent protective device used in the PV system.		X		
834	NA	690.9(A)	Revised to require that overcurrent protection devices be located to protect conductors against overcurrents originating in any connected source. Also revised to require that battery system conductors comply with Article 480.		X		
835	NA	690.9(B) [formerly 690.8(B)(1)]	Relocated requirements for determining overcurrent device ratings.		X		
836	NA	690.9(D)	Revised to require that overcurrent protective devices used in PV source and output circuits be listed as a PV overcurrent device.		X		
837	NA	690.9(E)	Revised to provide separate requirements for the number of overcurrent protection devices in grounded and ungrounded PV systems.		X		
838	NA	690.10(C)	Revised to require marking to meet requirements in new 110.21(B).		X		
839	NA	690.10(E)	Revised to cover securing of back−fed plug−in type circuit breakers connected to multimode inverters.		X		
840	NA	690.11	Revised to expand the series arc fault protection requirement to conductors installed indoors and outdoors.		$250	X	
841	NA	690.12	New requirement to provide emergency personnel with a means to reduce the voltage and power of PV system circuit conductors within a specified amount of time.		X		
842	NA	690.13	Revised by consolidating requirements for disconnecting means formerly located in 690.13 and 690.14 into one section (690.13).		X		
843	NA	690.13(C) [formerly 690.14 (C)(3)]	Revised to not require that PV system disconnecting means be identified as suitable for use as service equipment.		X		
844	NA	690.13(D) [formerly 690.14(C)(4)]	Revised by deleting “switchboard” as a type of equipment that can be used as the PV system disconnecting means.		X		
845	NA	690.15	Revised by consolidating requirements for disconnecting means formerly located in 690.14 and 690.15 into one section (690.15).		X		
846	NA	690.15(B) [formerly 690.14(B)]	Revised to include dc−to−dc converters.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
847	NA	690.15(C)	New provision for installation of a disconnecting means within 6 feet of dc combiners mounted on rooftops.			X	$500, Price varies greatly with scope of project
848	NA	690.15(D) [formerly 690.14(C)(4)]	Revised by deleting “switchboard” as a type of equipment that can be used as the PV system disconnecting means.		X		
849	NA	690.17	Revised by consolidating requirements for type and operational characteristics of PV disconnecting means formerly located in 690.13 and		X		
	NA		690.17 into one section (690.17).				
850	NA	690.17(A)	Revised to provide list of equipment permitted to be used as a PV system disconnecting means. Also revised to permit the disconnecting means to be power operable.		X		
851	NA	690.17(B)	New provision requiring PV disconnecting means to simultaneously open all ungrounded supply conductors.		X		
852	NA	690.17(E)	Revised to require marking to meet requirements in new 110.21(B).		X		
853	NA	690.18 Info Note	Revised to use the more commonly understood term “energized.”		X		
854	NA	690.31(A)	Revised to permit PV conductors to be guarded (as an alternative to their being installed in a raceway) where the conductors are in a readily accessible location.		X		
855	NA	690.31(B)	Relocated the requirements covering PV system conductor identification and grouping from 690.4(B). Revised to prohibit inverter output circuit conductors from being installed in the same raceway, cable tray, cable, outlet box, junction box, or similar type of equipment with PV source and PV output conductors.		X		
856	NA	690.31(C)(2)	New provision permitting single conductor cable listed as PV wire to be installed in outdoor cable trays without having a cable tray (CT) marking or a minimum size requirement.		X		
857	NA	690.31(D)	New provision permitting the outdoor use of multiconductor TC−ER and USE−2 cables for the output circuits of utility−interactive inverters that are not readily accessible.		X		
858	NA	690.31(G)(1)	Revised to only provide a marking requirement for rooftop PV conductors that are concealed within built−up, laminate, or membrane roofing materials. New provision added covering the suitability of the marking method for exposure to sunlight and the weather.		X		
859	NA	690.31(G)(4)	Revised to include specific requirements for the warning label and the letters on the label.		X		
860	NA	690.31(I)	Relocated from 690.4(G). Revised to require an overvoltage warning marking for bipolar PV systems.		X		
861	NA	690.31(J)	Relocated the requirement from 690.4(C).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
862	NA	690.35(C)(1)	Revised to prescribe the performance characteristics of the ground−fault protective device without specifying a specific methodology to meet the requirement. Also revised to require that the device be listed for ground− fault protection.		X		
863	NA	690.35(D)(1)	Revised to permit cables with metal jackets in addition to those with nonmetallic jackets.		X		
864	NA	690.35(D)(4)	New provision permitting underground installations using cables identified for direct burial.		X		
865	NA	690.35(F)	Revised to require marking to meet requirements in new 110.21(B).		X		
866	NA	690.41	Revised to permit PV systems of any voltage to operate as grounded or as ungrounded systems. Specific requirements have been included for grounded and ungrounded PV systems.		X		
867	NA	690.45	Revised by deleting 690.45(B) and its Informational Note to correlate with the deletion of 690.5(A) Exception No. 2 that permitted installations without ground−fault protection provided the equipment grounding conductor was doubled in size.		X		
868	NA	690.46	Revised to permit raceway installation of solid conductors not larger than 6 AWG used as grounding electrode conductors and equipment grounding conductors.		X		
869	NA	690.47(B)	Revised to permit equipment associated with an ungrounded dc system and the ground−fault detection reference point to be grounded through connection to the ac equipment grounding system.		X		
870	NA	690.47(C)(2)	Revised to permit additional means to connect the dc grounding electrode conductor to the ac grounding electrode conductor.		X		
871	NA	690.47(C)(3)	Revised to provide grounding conductor sizing requirement for ungrounded dc systems. This revision correlates with the revision to 690.47(B) covering the grounding of equipment in ungrounded dc systems.		X		
872	NA	690.47(D)	Revised to restore a requirement from the 2008 *NEC* covering the installation of a local auxiliary grounding electrode for grounding the non− current−carrying metal parts of PV array frame(s) or structure(s) mounted on roofs, on poles, or on the ground.		X		
873	NA	690.53(4)	Revised to use the correct term *maximum circuit current* and to provide a marking labeling requirement to accommodate PV power sources with multiple dc outputs.		X		
874	NA	690.56(A)	Revised to require that the plaque or directory comply with the elements for warning labels specified in 690.31(G)(4).		X		
875	NA	690.56(B)	Revised to require that the plaque or directory comply with the requirements of new 110.21(B).		X		
876	NA	690.56(C)	New requirement for providing a plaque or directory indicating that the PV system is equipped with rapid shutdown equipment.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
877	NA	690.71(B)(1)	Revised to recognize that lead acid is not the only type of battery available.		X		
878	NA	690.71(H)	New requirements covering disconnecting means and overcurrent protection for battery systems.		X		
879	NA	Article 690 Part IX	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
880	NA	690.8	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
881	NA	690.81	New requirement covering the use of listed products rated over 1000 volts, with a reference to Column 1 in Table 300.50 for direct burial of PV wire rated greater than 600 volts but not exceeding 2000 volts.		X		
882	NA	Article 690 Part X	New requirements covering the use of PV systems to supply electric vehicle charging equipment.		X		
883	NA	692.10(C)	Revised to require marking to meet requirements in new 110.21(B).		X		
884	NA	692.17	Revised to require marking to meet requirements in new 110.21(B).		X		
885	NA	692.56	Revised to require marking to meet requirements in new 110.21(B).		X		
886	NA	Article 692 Part VIII	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
887	NA	692.8	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
888	NA	Article 694 and 694.1	Revised to not limit application of this article to only wind turbines individually rated 100 kW or less. Correlating changes have been made throughout Article 694.		X		
889	NA	694.2 Rated Power	Revised by removing specific wind speed performance criteria from the definition.		X		
890	NA	694.7(A)	Revised to recognize that other sources of electric supply may be other than utility services.		X		
891	NA	694.7(B)	Revised to require the wind system to be listed and labeled.		X		
892	NA	694.7(E)	Revised by adding a provision for GFCI protection of 125−volt, single− phase, 15− and 20−ampere receptacles that are installed to support maintenance of equipment associated with the wind electric system.			X	$50
893	NA	694.7(F)	New provision covering the use of metal or nonmetallic towers or poles as raceways for electrical conductors.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
894	NA	694.1	Revised the threshold voltage for other than one and two family dwellings from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
895	NA	694.18(C)	Revised to require marking to meet requirements in new 110.21(B).		X		
896	NA	694.22(A)	Revised to require marking to meet requirements in new 110.21(B).		X		
897	NA	694.22(C)(4)	Revised to include switchgear as equipment that can contain turbine disconnecting means.		X		
898	NA	694.23	New provision requiring a manual means to shut down the wind turbine, and requiring the shutdown procedure to be documented and posted.		X		
899	NA	694.30(B)	Revised to include a new requirement covering the requirements for terminating flexible, fine−stranded cables.		X		
900	NA	694.30(C)	Revised to permit the use of Type MC cable.		X		
901	NA	694.40(A)	Revised to reference the applicable parts of Article 250.		X		
902	NA	694.40(B)(1)	Revised to require that wind turbine towers be connected to a grounding electrode system, and to specify where it is required to use galvanized grounding electrodes.		X		
903	NA	694.40(B)(2)	Revised to require the installation of a conductor(s) to establish a bonding connection between turbines and towers and the premises grounding system.		X		
904	NA	694.40(B)(4)	Revised to specify that guy wires are not required to be grounded or bonded. The Informational Note provides guidance on guy wires being incorporated into the tower lightning protection system.		X		
905	NA	Article 694 Part IX	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
906	NA	694.8	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
907	NA	695.1(B)(2)	Revised to indicate that the installation of pressure maintenance (jockey) pumps is not covered within the scope of Article 695.		X		
908	NA	695.1(B)(3)	New provision indicating that transfer equipment installed upstream from any fire pump transfer switch(es) is not covered within the scope of Article 695.		X		
909	NA	695.3(A)(1)	Revised to include vertical switchgear section(s) containing service equipment in the list of locations where a tap to supply a fire pump is not permitted to be connected.		X		
910	NA	695.3(B)(3)(a)(2)	Revised to provide a requirement for the acceptable type of locking mechanism.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
911	NA	695.3(B)(3)(a)(3)	Revised to provide more detailed description of the equipment types that are prohibited as locations for a fire pump disconnecting means.		X		
912	NA	695.3(B)(3)(b)	Revised to provide requirement for the acceptable type of locking mechanism.		X		
913	NA	695.3(F)	New requirement covering the location and type of equipment used to transfer the circuit supplying a fire pump controller to an alternate source of power.		X		
914	NA	695.4(A)	Revised to include a “listed fire pump power transfer switch” as a permitted location to directly connect the fire pump supply conductors.		X		
915	NA	695.4(B)(2)(a)(1)	Revised to specify that the overcurrent device in a fire pump supply circuit is required to carry indefinitely the locked−rotor current of the largest fire pump motor where multiple fire pump motors are supplied.		X		
916	NA	695.4(B)(2)(a)(2)	New provision permitting the overcurrent protection of a fire pump feeder circuit to be provided by an assembly listed for fire pump service.		X		
917	NA	695.6(D)	Revised to include a provision covering the acceptable and unacceptable type of connection devices for use with fire pump circuit conductors.		X		
918	NA	695.7(B)	Revised to specify that the point of voltage measurement under running conditions is at the load terminals of the fire pump controller.		X		
919	NA	700.2 Relay, Automatic Load Control	Revised to clarify that the function of this device is control of lighting circuits for emergency purposes, rather than transfer of power from the normal source to the emergency source.		X		
920	NA	700.7(B)	Revised to require warning signs to meet requirements in new 110.21(B).		X		
921	NA	700.8	New requirement covering installation of surge protection devices (SPDs) at panelboards and switchboards supplied by emergency systems.			X	$500
922	NA	700.10(B)(5)(a) and (b)	Revised to clearly state the requirements covering the permitted methods of separating emergency system wiring from the wiring of other systems.		X		
923	NA	700.10(B)(5)	Revised to include vertical sections of switchgear as acceptable locations for separating the emergency system wiring from the wiring of other systems.		X		
924	NA	700.10(D)	Revised to apply emergency system feeder wiring protection requirement to all occupancy types in high−rise buildings (greater than 75 feet in height).		X		
925	NA	700.12(B)(6)	Revised to permit generator shutdown per 445.18 as a means to disconnect the emergency source power. Also revised to require compliance with 225.36 only where the feeder conductors from the generator terminate at a disconnecting means in or on a building or structure.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
926	NA	700.12(D)(1) and (2)	Revised for correlation with the Article 100 terms covering overhead and underground service conductors, and to clarify that the electrical and physical separation requirement applies only to the conductors of the separate service installed as the alternate source of emergency power.		X		
927	NA	700.12(F)(2)(3) Exception	Revised to make application of this Exception conditional on the normal lighting **not** being supplied by a multiwire branch circuit(s).		X		
928	NA	700.16	New requirement for emergency illumination at indoor service and feeder supply disconnecting means if emergency illumination is provided for the interior of the building or structure.		X		
929	NA	700.19	New requirement prohibiting use of multiwire branch circuits to supply emergency lighting and other equipment that is classed as an emergency load.		X		
930	NA	700.23	Revised to recognize use of relay systems for control of emergency lighting circuits.		X		
931	NA	700.24	New requirement covering the use of luminaires with externally controlled onboard dimming systems to provide emergency illumination.		X		
932	NA	700.27	Revised to clarify that indication of a ground−fault condition in the emergency standby source circuit is **not** required where GFPE equipment automatically disconnects the circuit.		X		
933	NA	700.28	Revised to add a requirement on the qualifications of those responsible for selecting the system used to provide selective coordination, and to require that documentation be available on the selection of the specific system employed.		X		
934	NA	701.5(C)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
935	NA	701.7(B)	Revised to require warning signs to meet requirements in new 110.21(B).		X		
936	NA	701.12 Info Note	Revised to reference the IEEE document on designing reliable industrial and commercial power systems.		X		
937	NA	701.12(B)(5)	Revised to permit generator shutdown per 445.18 as a means to disconnect the standby source power. Also revised to require compliance with 225.36 only where the feeder conductors from the generator terminate at a disconnecting means in or on a building or structure.		X		
938	NA	701.12(D)	Revised for correlation with the Article 100 terms covering overhead and underground service conductors, and to clarify that the electrical and physical separation requirement applies only to the conductors of the separate service installed as the alternate source of standby power.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
939	NA	701.12(E)	Revised to permit taps for a separate service to supply legally required standby loads to be made in a separate vertical switchgear section that does not contain the main service disconnecting means.		X		
940	NA	701.26	Revised to clarify that indication of a ground−fault condition in the legally required standby source circuit is **not** required where GFPE equipment automatically disconnects the circuit.		X		
941	NA	701.27	Revised to add a requirement on the qualifications of those responsible for selecting the system used to provide selective coordination, and to require that documentation be available on the selection of the specific system employed.		X		
942	NA	702.7(B)	Revised to require warning signs to meet requirements in new 110.21(B).		X		
943	NA	702.7(C)	New requirement for a warning sign describing the system grounding arrangement where the optional standby power source connection is made through a power inlet.		X		
944	NA	702.12(A)	Revised to permit generator shutdown per 445.18 as a means to disconnect the standby source power. Also revised to require compliance with 225.36 only where the feeder conductors from the generator terminate at a disconnecting means in or on a building or structure.		X		
945	NA	702.12(B)	New requirement covering the use of a flanged inlet or other cord−and− plug−type connection as the disconnecting means for a building supply circuit derived from a portable generator rated 15 kW or less.		X		
946	NA	705.2 Multimode Inverter	New definition of equipment that can function as either a utility− interactive or stand−alone inverter.		X		
947	NA	Table 705.3	Revised to include reference to Article 694, Wind Electric Systems.		X		
948	NA	705.12(D)	Revised to include switchgear as a type of equipment where a primary power source and utility−interactive inverter(s) can be interconnected to supply multiple feeders and for branch circuits.		X		
949	NA	705.12(D)(1)	Revised to recognize that there may be more than one utility interactive output circuit being interconnected to form a single interconnected electric power production system.		X		
950	NA	705.12(D)(2)	New requirement to use 125% of the inverter output circuit current in calculations to determine the minimum ampacity for conductors and busbars.		X		
951	NA	705.12(D)(2)(1)	New requirement covering overload protection of feeder conductors that are supplied by both the utility source and by the output circuit of an interactive inverter(s).		X		
952	NA	705.12(D)(2)(2)	New requirement covering overload protection of tap conductors that are supplied by both the utility source and by the output circuit of an interactive inverter(s).		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
953	NA	705.12(D)(2)(3)(a) and (b)	Revised the requirement for overload protection of busbars that are supplied by both the utility source and by the output circuit of an interactive inverter(s).		X		
954	NA	705.12(D)(2)(3)(b)	Revised to specify current limitations on busbar connections when inverter is connected at the opposite end of the busbar from where the normal power supply is connected. Requires warning signs meeting new provisions in 110.21(B) that prohibit relocation of the inverter connection.		X		
955	NA	705.12(D)(2)(3)(c)	New requirement that the maximum rating of all overcurrent protective devices (other than the main OCPD) installed in a panelboard must not exceed the rating of the busbar. This requirement also specifies that a warning label be provided to indicate that the combined ratings of OCPDs cannot exceed the rating of the panelboard busbar. This label is required to comply with new 110.21(B).		X		
956	NA	705.12(D)(2)(3)(d)	New requirement covering multiple busbar construction or mid−bus connection arrangements designed under engineering supervision that includes evaluation of available fault current and busbar loading conditions.		X		
957	NA	705.12(D)(4)	New Informational Note describing suitability of fused switches for backfed connections.		X		
958	NA	705.12(D)(6)	New requirement for AFCI protection of exposed inverter output circuit wiring operating at 240 volts with a circuit current rating of 30 amperes or less.			x	$100
959	NA	705.31	New requirement, Informational Note, and Exception covering the installation of overcurrent protection within 10 feet of the point where electric power production source conductors connect to service conductors on the line side of the service disconnecting means.		X		
960	NA	705.60(A)(1)	Revised to use correct nomenclature to describe the inverter circuit subject to the requirement.		X		
961	NA	705.100(A)	Revised to provide a specific maximum allowable voltage unbalance (3%) where single−phase inverters are connected to a 3−phase hybrid system or ac where modules are connected to a 3−phase interactive hybrid system.		X		
962	NA	708.10(A)	Revised to require identification of boxes and enclosures containing wiring and equipment associated with a critical operations power system only where other power systems are present in the same building or structure.		X		
963	NA	708.14(1)	Revised to permit a wiring method specified by the system manufacturer that is necessary to achieve intended system performance.		X		
964	NA	708.14(2)	Revised to permit cable shielding to be arranged as specified in the system manufacturer's installation instructions.		X		
965	NA	708.14(7)	Revised to require that all cables used for emergency communications have a 2−hour fire−resistive rating or be rated		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			for use in risers and part of a listed 2−hour electrical circuit protective system.				
966	NA	708.20(F)(5)(a)	Revised to permit generator shutdown per 445.18 as a means to disconnect the COPS source of power for permanently installed generators and for portable generators rated more than 15 kW. Also revised to require compliance with 225.36 only where the feeder conductors from the generator terminate at a disconnecting means in or on a building or structure.		X		
967	NA	708.20(F)(5)(a)	New requirement covering the use of a flanged inlet or other cord− and plug−type connection as the disconnecting means for a building supply circuit derived from a portable generator rated 15 kW or less.		X		
968	NA	708.52(B)	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
969	NA	708.52(D)	Revised to require use of the manufacturer's recommendations in order to achieve full selectivity between service and feeder OCPDs underground fault conditions.		X		
970	NA	708.54	Revised to add a requirement on the qualifications of those responsible for selecting the system used to provide selective coordination, and to require documentation be available on the selection of the specific system employed.		X		
971	NA	708.54 Exception	New Exception permitting two overcurrent devices connected in series to not be selectively coordinated where a load is **not** connected in parallel with the downstream device.		X		
972	NA	725.2, Power−Limited Tray Cable	New definition for a factory assembly of two or more insulated conductors rated at 300 volts, with or without associated bare or insulated equipment grounding conductors, under a nonmetallic jacket.		X		
973	NA	725.3(K) and (L)	Revised by adding new subsections to address installation of conductors with other systems and where installed in corrosive, damp, or wet conditions.		X		
974	NA	725.48(B)(4)(2)	Revised by adding "or greater" after "600 volts" as part of a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
975	NA	725.49(B)	Revised by replacing "Insulation on conductors shall be rated for 600 volts" to "Insulation on conductors shall be rated for the system voltage and not less than 600 volts."		X		
976	NA	725.121	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
977	NA	725.133 and 725.135	Revised to include “Cable Routing Assembly” and new Section 725.135 that includes installation requirements for Class 2, Class 3 and PLTC cables. Relocates and revises requirement from 725.154(B)(1) to new subsection 725.135(D), which specifies cables that penetrate from one or more floors to be riser rated.		X		
978	E4304.4	725.139	Revised to include “Cable Routing Assembly” to recognize cable routing assemblies for routing class 2 and class 3 conductors.		X		
979	E4304.4	725.154	Revised by separating the application rules from the installation rules, relocating installation rules to new Section 725.135.		X		
980	E4303.2.4	725.179	Revised by changing “nonmetallic signaling raceways” to “nonmetallic communication raceways” to correlate with other sections of the *Code*.		X		
981	E4303.2.4	725.179(A) Info Note	Revised to update to the current edition of the referenced standard.		X		
982	E4303.2.4	725.179(F)	Revised by separating the two methods of establishing cable survivability to clarify the two cable options and marking requirements. Revised Informational Notes to update to the current edition of the referenced standard and to provide reference to the UL guide information for electrical circuit protective systems.		X		
983	NA	727.6	Revised to update to the current edition of the referenced standard.		X		
984	NA	Article 728	New article that includes installation requirements for fire resistive cable systems.		X		
985	NA	Article 750	New article covers the installation and operation of energy management systems.		X		
986	NA	760.3(D)	Revised by updating referenced *NEC* sections to assure that fire alarm cables installed in corrosive, damp, and wet locations are acceptable for these conditions.		X		
987	NA	760.24	Revised by including installation requirements for circuit integrity cable.		X		
988	NA	760.32	Revised by clarifying that all non−power−limited and power−limited signaling system circuits entering a building must be provided with transient protection. The new Informational Note provides an example of a suitable protective device, tested to the requirements of ANSI UL 497B, *Protectors for Data Communications.*		X		
989	NA	760.49(B)	Revised by replacing “Insulation on conductors shall be rated for 600 volts” to “Insulation on conductors shall be rated for the system voltage and not less than 600 volts.”		X		
990	NA	760.51(B)	Revised to clarify that this section is only applicable to non−power−limited fire alarm circuit conductors.		X		
991	NA	760.53(B)(3)	Revised by specifying risers penetrating one or more floors shall be Type NPLFR.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
992	NA	760.133 and 760.135	Revised by separating the application rules from the installation rules by relocating installation rules to new Section 760.135.		X		
993	NA	760.139	Revised to recognize cable routing assemblies as a recognized method for routing fire alarm cables.		X		
994	NA	760.154	Revised by separating the application rules from the installation rules, and relocating installation rules to new Section 760.135.		X		
995	NA	760.176(B)	Revised by replacing “Insulation on conductors shall be rated for 600 volts” to “Insulation on conductors shall be rated for the system voltage and not less than 600 volts.”		X		
996	NA	760.176(C) Info Note	Revised to update to the current edition of the referenced standard.		X		
997	NA	760.176(D) Info Note	Revised to update to the current edition of the referenced standard.		X		
998	NA	760.176(E) Info Note	Revised to update to the current edition of the referenced standard.		X		
999	NA	760.176(F)	Revised by separating the two methods of establishing cable survivability to clarify the two cable options and marking requirements. Revised the Informational Notes to update to the current edition of the referenced standard and to provide reference to the UL guide information for electrical circuit protective systems.		X		
1000	NA	760.176(F) Info Note	Revised by updating the referenced section of NFPA 72.		X		
1001	NA	760.179(G)	Revised by separating the two methods of establishing cable survivability to clarify the two cable options and marking requirements. Revised the Informational Notes to include electrical circuit protective system, to update to the current edition of the referenced standard, and to provide reference to the UL guide information for electrical circuit protective systems.		X		
1002	NA	760.179(G) Info Notes	Revised by updating the referenced section of NFPA 72 and to include electrical circuit protective systems.		X		
1003	NA	770 Info Note	Revised by adding a reference to see Informational Note Figures 800(a) and 800(b) for illustrative application of a bonding conductor or grounding electrode conductor.		X		
1004	NA	770.2 Definitions	Revised to specify reference to “Part I” of Article 100.		X		
1005	NA	770.2 Abandoned Optical Fiber Cable, Info Note	Revised to specify reference to “Part I” of Article 100 for the definition of equipment.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1006	NA	770.2 Electrical Circuit Protective System	New definition has been added to describe components and materials intended for installation as protection for specific electrical wiring systems.		X		
1007	NA	770.2 Exposed (To Accidental Contact), Info Note	Revised to refer to “Part I” of Article 100 for additional definitions of *exposed*.		X		
1008	NA	770.2 Innerduct	A new definition has been added to describe the term “*innerduct*.”		X		
1009	NA	770.2 Optical Fiber Cable	Revised by removing explanatory information: “that transmits light for control, signaling, and communications” to more clearly.” New Informational Note added to describe installation methods.		X		
1010	NA	770.2 Point of Entrance	Revised by adding the term “optical fiber” to clarify the definition.		X		
1011	NA	770.3(B)	New provision that specifies optical fiber cables are subject to the requirements of 300.22(A)		X		
1012	NA	770.12	Revised by replacing “optical fiber raceways” with “communications raceways” to correlate with new Section 800.12.		X		
1013	NA	770.24	Revised by adding language requiring that cable ties used in “other spaces for environmental air” be listed as having adequate fire−resistant and low smoke−producing characteristics.		X		
1014	NA	770.24 Info Note No. 1	Revised to update the edition of the referenced standard.		X		
1015	NA	770.24 Info Note No. 2	Revised by updating the edition of the referenced standard and applicable referenced sections for this standard.		X		
1016	NA	770.26	Revised by including “communication raceways” to correlate with new Section 800.12.		X		
1017	NA	770.47	New section that includes provisions for optical fiber cables installed underground entering buildings. Two new Exceptions relax separation requirements where those adjacent systems are installed in prescriptive wiring methods.		X		
1018	NA	770.48(B)	Revised by changing to a list format to enhance usability.		X		
1019	NA	770.49	New section that includes grounding provisions metallic entrance conduit.		X		
1020	NA	770.93(B) Info Note	New Informational Note referring to 770.2 for the definition of *Point of Entrance.*		X		
1021	NA	770.100(A)(4)	New section that includes provisions for limiting the length of the bonding or grounding conductor and maximum length of 20 feet for one− and two− family dwellings. Added a new Exception that permits exceeding 20 feet when it is impractical,		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
			provided a separate ground rod is driven. This correlates with Sections 800.100(A), 820.100(A), and 830.100(A).				
1022	NA	770.100(A)(6)	Revised to clarify bonding conductor and grounding electrode conductor physical protection requirements and to correlate with Sections 800.100(A)(6), 820.100(A)(6), and 830.100(A)(6).		X		
	NA	770.100(B)(1) Info Note	Revised to specify a reference to “Part I” of Article 100 for the definition of *intersystem bonding termination.*		X		
1024	NA	770.100(B)(1)	Revised by removing the term “grounding electrode conductor” to clarify the conductor specified by this requirement is a bonding conductor.		X		
1025	NA	770.100(B)(2)(7)	Revised by changing the term "grounding conductor" to "grounding electrode conductor" to correlate with the term defined in Article 100.		X		
1026	NA	770.100(B)(3)	Revised by adding the term “grounding” before “electrode” to correlate with the term *grounding electrode* defined in Article 100		X		
1027	NA	770.100(B)(7)	Revised by changing the term “grounding conductor” to “grounding electrode conductor” to correlate with the term defined in Article 100.		X		
1028	NA	770.11	Revised the title to include “Cable Routing Assemblies” as a wiring method permitted for optical fiber cables. Revised Section 770.110(A)(2) by replacing “other permitted raceways” with “communications raceways” to correlate with new Section 800.12.		X		
1029	NA	770.110(C)	New subsection has been added that includes installation and support requirements for cable routing assemblies.		X		
1030	NA	770.113	Revised to clarify the types of raceways specified in Articles 770, 800, and 820 permitted for optical fiber cable, and to provide specific cable types and installation requirements in other spaces used for environmental air.		X		
1031	NA	770.133	Revised the threshold voltage from 600 to 1000 volts in conjunction with a coordinated effort throughout the *NEC* to recognize that commonly used alternative energy systems operate at over 600 volts.		X		
1032	NA	770.133(B) and (C)	Revised to include “box” and “cable routing assembly” that enclose optical fiber cables, in the list of items permitted to occupy the space with other conductors as specified in this section. Changed the reference to Part “IV” to Part “V” of Article 800, because Part V addresses requirements for wiring within a building.		X		
1033	NA	770.133(C)	Revised to include a reference to Article 645 for Class 2 and Class 3 remote−control, signaling, and power−limited circuits and correlation with the new definition of cable *routing assemblies.*		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1034	NA	770.154 and Table 770.154(a)	Revised the title by removing “Raceways, and Cable Routing Assemblies.” Revised to limit the table purpose to permitted and non−permitted applications of listed optical fiber cables, and to correlate with the new definition of *cable routing assemblies.*		X		
1035	NA	770.179	Revised to require specific marking requirements for field−assembled cable components.		X		
1036	NA	770.179(E)	Revised to specify that cables used for survivability of critical circuits are required to be listed and to be either circuit integrity cable (CI) or fire resistive cable that is part of an electrical circuit protective system.		X		
1037	NA	770.179(F)	Revised to require specific marking and listing requirements for field assembled optical fiber cable.		X		
1038	NA	770.179(A), (B), (D) & (E)	Revised to update the edition of the referenced standard.		X		
1039	NA	770.18	New section that includes requirements for listing of grounding devices.		X		
1040	NA	800.2	Revised to specify reference to “Part I” of Article 100.		X		
1041	NA	800.2 Abandoned Communications Cable, Info Note	Revised to specify reference to “Part I” of Article 100 for the definition of equipment.		X		
1042	NA	800.2 Electrical Circuit Protective System	New definition has been added to describe components and materials intended for installation as protection for specific electrical wiring systems.		X		
1043	NA	800.2 Exposed (to Accidental Contact) Info Note	Revised to specify reference to “Part I” of Article 100.		X		
1044	NA	800.2 Innerduct	New definition of *innerduct*, which is described as a nonmetallic raceway placed within a larger raceway.		X		
1045	NA	800.2 Point of Entrance	Revised by removing the grounding requirements from the definition and relocating them to new Section 800.49.		X		
1046	NA	800.3(D)	New subsection specifying that the requirements of Section 110.3(B) are applicable to installations under the purview of Article 800.		X		
1047	NA	800.4(A)(4)	Revised by adding “and sets of overhead service conductors” to correlate with revised service terminology and by replacing “nongrounded” with “ungrounded” to correlate with the term in Article 250.		X		
1048	NA	800.12	New section that permits communications raceways to be installed as innerduct in any type of listed raceway permitted by Chapter 3.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1049	NA	800.24	Revised by adding language requiring that cable ties used in “other spaces for environmental air” be listed as having adequate fire−resistant and low smoke−producing characteristics.		X		
1050	NA	800.24 Informational Note 2	Revised by updating the edition of the referenced standard and including specific requirements for discrete combustible components in ceiling cavity plenums and raised floor plenums.		X		
1051	NA	800.26	Revised to include “cable routing assemblies” under the provisions of this section for limiting the spread of fire or products of combustion.		X		
1052	NA	800.49	New section that relocates the grounding requirements from the definition of *point of entrance*.		X		
1053	NA	800.90(B) Info Note	Revised to include the term “bonding conductor” to correlate with the term used in other sections throughout the *Code.*		X		
1054	NA	800.100(B)(1) Info Note	Revised to specify reference to “Part I” of Article 100.		X		
1055	NA	800.100(B)(2)(3)	Revised to specify the intersystem bonding termination is accomplished by those methods described in Section 250.94.		X		
1056	NA	800.100(B)(2)	Revised by replacing “grounding electrode conductor” with “bonding conductor” to clarify the conductor that connects to a bonding device (intersystem bonding) is a bonding conductor.		X		
1057	NA	800.100(B)(3)(1)	Revised by adding the term “grounding” before electrode to clarify that it is a grounding electrode that is being connected to;, and to correlate with the term “grounding electrode” as it is used throughout the *Code*.		X		
1058	NA	800.106(A)(1)	Revised by adding “grounding terminal” after primary protector to specify which terminal on the protector is connected to the grounding electrode.		X		
1059	NA	800.106(A)(2)	Revised by adding “grounding terminal” after primary protector to specify which terminal on the protector is connected to the grounding electrode.		X		
1060	NA	800.11	Revised to include “cable routing assemblies” to recognize cable routing assemblies as a recognized method for communication wires and cables. This revision includes specific securing and supporting requirements for both vertical and horizontal installations.		X		
1061	NA	800.113	Revised to include plenum cable routing assemblies into the installation rules for communications cables and raceways, and other (riser and general−purpose) cable routing assemblies. Updated the edition of the referenced standard in the Informational Notes.		X		
1062	NA	800.133(A)(1),			X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
	NA	800.133(A)(1)(a) & 800.133(A)(1)(b)	Revised to include “cable routing assemblies” and reference the appropriate part of each article that deals with wiring within a building.				
1063	NA	800.133(A)(1)(b)	Revised to include a reference to Article 645 for Class 2 and Class 3 remote−control, signaling, and power−limited circuits.		X		
1064	NA	800.154	Revised to include “cable routing assemblies” and to create three application tables: one for communications wires and cables, a second for communications raceways, and third for cable routing assemblies.		X		
1065	NA	800.170(C)	New subsection for plenum grade cable ties required to be listed as having low smoke and heat release properties. Also added a new Informational Note directing users to NFPA 90A−2012 and ANSIƒUL 2043 for additional information for listing discrete products as having low smoke and heat release properties.		X		
1066	NA	800.179(G)	Revised to specify that cables used for survivability of critical circuits shall be listed and be either circuit integrity cable (CI) or fire resistive cable that is part of an electrical circuit protective system.		X		
1067	NA	800.179(I)	Revised to specify that where listed hybrid and communications cables are a listed Type NM or NM−B, they must comply with Part III of Article 334.		X		
1068	NA	800.18	New section that includes listing requirements for grounding devices.		X		
1069	NA	800.182	Revised to include plenum, riser, and general purpose cable routing assemblies and by updating the edition of the referenced standard.		X		
1070	NA	810.1	Revised to include flat antennas within the scope of Article 810 and by changing “dish” to “parabolic” antennas.		X		
1071	NA	810.2	Revised to specify reference to “Part I” of Article 100.		X		
1072	NA	810.6	New section that includes listing requirements of “antenna lead−in protectors.” An Informational Note has also been added to refer to UL Subject 497E, *Outline of Investigations for Protectors for Antenna Lead−In Conductors* for additional information.		X		
1073	NA	810.7	New section that includes listing requirements for grounding devices.		X		
1074	NA	810.16(B)	Revised to include “flat” antennas and the term “dish” to “parabolic” which more accurately describes antennas.		X		
1075	NA	810.21(F)(3)	Revised by adding the term “grounding” before electrode to clarify that it is a grounding electrode that is being connected to, and to correlate with the term “grounding electrode” as it is used throughout the *Code*.		X		
1076	NA	820 Info Note	Revised to refer to Figures 800(a) and 800(b) to clarify the difference in application between a bonding conductor and a grounding electrode conductor.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1077	NA	820.2	Revised to specify reference to “Part I” of Article 100.		X		
1078	NA	820.2 Abandoned Coaxial Cable, Info Note	Revised to specify reference to “Part I” of Article 100 for the definition of equipment.		X		
1079	NA	820.2 Exposed (to Accidental Contact), Info Note	Revised to refer to “Part I” of Article 100 for additional definitions of *exposed*.		X		
1080	NA	820.2 Point of Entrance	Revised by removing the grounding requirements from the definition and relocating them to new Section 820.49.		X		
1081	NA	820.3(B) and (C)	New subsections added to include reference to 300.22(A) for “wiring in ducts for dust, loose stock or vapor removal” and 300.22(C)(3) for “equipment in other spaces used for environmental air.”		X		
1082	NA	820.3(H)	Revised to include references in Article 800 for the application and installation rules for community antenna and radio distribution systems.		X		
1083	NA	820.24	Revised by adding language requiring that cable ties used in “other spaces for environmental air” be listed as having adequate fire−resistant and low smoke−producing characteristics.		X		
1084	NA	820.24, Informational Note	Revised by updating the edition of the referenced standard and including specific sections for requirements for discrete combustible components in ceiling cavity plenums and raised floor plenums.		X		
	NA	No. 2					
1085	NA	820.26	Revised by replacing “CATV raceways” with “communication raceways” to correlate with current terminology.		X		
1086	NA	820.44(D)	Revised by deleting “for the purpose” to provide consistency with the definition of *identified* in Article 100.		X		
1087	NA	820.47(A)	Revised to include Class I and non−power−limited fire alarm circuit conductors.		X		
1088	NA	820.49	New section that relocates the grounding requirements from the definition of *point of entrance* to a new section.		X		
1089	NA	820.93 Info Note	Revised by adding the term “block” after grounding to clarify that the intent is to locate the grounding block near the grounding location.		X		
1090	NA	820.93(B) Info Note	New Informational Note that refers to 820.2 for the definition of *point of entrance.*		X		
1091	NA	820.100 Exception	Revised by adding the term “bonding jumper” to correlate with the term defined in Article 100.		X		
1092	NA	820.100(A)(4)	Revised by adding “bonding conductor” to provide consistency with the application and other text within this section.		X		
1093	NA	820.100(B) Info Note	Revised to specify reference to “Part I” of Article 100.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1094	NA	820.100(B)(2)(3)	Revised to specify that intersystem bonding termination is one of the methods described in Section 250.94.		X		
1095	NA	820.100(B)(2)	Revised by replacing “grounding electrode conductor” with “bonding conductor” to clarify that the conductor that connects to a bonding device (intersystem bonding) is a bonding conductor.		X		
1096	NA	820.100(B)(3)(1)	Revised by adding the term “grounding” before electrode to clarify that it is a grounding electrode that is being connected to, and to correlate with the term “grounding electrode” as it is used throughout the *Code*.		X		
1097	NA	820.100(B)(3)(2)	Revised to prohibit steam or hot water pipes or air terminal conductors (lightning−rod conductors) as grounding electrodes for bonding conductors or grounding electrode conductors.		X		
1098	NA	820.106(A)(1)	Revised by replacing “ground” with “grounding terminal” to clarify that it is the grounding terminal of the surge arrester that is required to be connected to the grounding electrode.		X		
1099	NA	820.106(A)(2)	Revised by replacing “ground” with “grounding terminal” to clarify that it is the grounding terminal of the surge arrester that is required to be connected to the grounding electrode.		X		
1100	NA	820.11	Revised to include cable routing assemblies to recognize cable routing assemblies as a recognized method for coaxial cables. This revision includes specific securing and supporting requirements for both vertical and horizontal installations.		X		
1101	NA	820.113	Revised to include plenum cable routing assemblies into the installation rules for communications cables and raceways, and other (riser and general−purpose) cable routing assemblies. Updated the edition of the referenced standard in the Informational Notes.		X		
1102	NA	820.133(A)(1),	Revised to include “cable routing assemblies” and reference the appropriate part of each article that deals with wiring within a building.		X		
	NA	820.133(A)(1)(a), &					
	NA	820.133(A)(1)(b)					
1103	NA	820.133(A)(1)(b)	Revised to include a reference to Article 645 for Class 2 and Class 3 remote−control, signaling, and power−limited circuits.		X		
1104	NA	820.154	Revised to include plenum cable routing assemblies.		X		
1105	NA	820.18	New section that includes listing requirements for grounding devices.		X		
1106	NA	830 Info Note	Revised to refer to Figures 800(a) and 800(b) to clarify the difference in application between a bonding conductor and a grounding electrode conductor.		X		
1107	NA	830.2	Revised to specify reference to “Part I” of Article 100.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1108	NA	830.2 Abandoned Network−Powered Broadband Communications Cable, Info Note	Revised to specify reference to “Part I” of Article 100 for the definition of equipment.		X		
1109	NA	830.2 Exposed (to Accidental Contact), Info Note	Revised to refer to “Part I” of Article 100 for additional definitions of *exposed*.		X		
	NA						
1110	NA	830.2 Point of Entrance	Revised by removing the grounding requirements from the definition and relocating them in new Section 800.49. Added “network−powered broadband communications” to clarify the definition.		X		
1111	NA	830.3(B)	New subsection that includes a reference to 300.22(A) for “wiring in ducts for dust, loose stock or vapor removal.”		X		
1112	NA	830.3(C)	Revised to reference the specific section in 300.22 and to correlate with Articles 800 and 840.		X		
1113	NA	830.3(D)	Revised by updating the references to specify the applicable part of an article.		X		
1114	NA	830.3(F)	Revised to include references in Article 800 for the application and installation rules for network−powered broadband communications systems.		X		
1115	NA	830.24	Revised by adding language requiring that cable ties used in “other spaces for environmental air” be listed as having adequate fire−resistant and low smoke−producing characteristics.		X		
1116	NA	830.24 Informational Note 2	Revised by updating the edition of the referenced standard and including specific sections for requirements for discrete combustible components in ceiling cavity plenums and raised floor plenums.		X		
1117	NA	830.49	New section that relocates the grounding requirements from the definition of *point of entrance* to a new section.		X		
1118	NA	830.90(A)(1)	Revised by adding the term “bonding conductor” and “grounding electrode conductor” to correlate with defined terms in Article 100.		X		
1119	NA	830.100(B)(1	Revised to specify reference to “Part I” of Article 100.		X		
1120	NA	830.100(B)(2)(3)	Revised to specify that the intersystem bonding termination is one of those methods described in Section 250.94.		X		
1121	NA	830.100(B)(2)	Revised by replacing “grounding electrode conductor” with “bonding conductor” to clarify that the conductor that connects to a bonding device (intersystem bonding) is a bonding conductor.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1122	NA	830.100(B)(3)(1)	Revised by inserting the term “grounding” before electrode to correlate with the defined term in Article 100.		X		
1123	NA	830.100(B)(3)(2)	Revised by inserting the term “grounding” before electrode, to correlate with the defined term in Article 100 and with similar text in 800.100(B)(3)(2) and 820.100(B)(3)(2).		X		
1124	NA	830.106(A)(1)	Revised to add cable shield and network−powered broadband communication ns cable metallic members not used for communications or powering to the list of components required to be grounded. This revision replaces “ground” with “grounding terminal” to clarify that it is the grounding terminal of the surge arrester that is required to be connected to the grounding electrode.		X		
1125	NA	830.106(A)(2)	Revised to add cable shield and network−powered broadband communications cable metallic members not used for communications or powering to the list of components required to be grounded. This revision replaces “ground” with “grounding terminal” to clarify that it is the grounding terminal of the surge arrester that is required to be connected to the grounding electrode.		X		
1126	NA	830.11	Revised to include “cable routing assemblies” and “communication raceways” as recognized methods for network−powered broadband communications cables. This revision includes specific securing and supporting requirements for both vertical and horizontal installations.		X		
1127	NA	830.113	Revised to include plenum cable routing assemblies into the installation rules for communications cables and raceways and other (riser and general−purpose) cable routing assemblies. This revision also updates the edition of the referenced standard in the informational notes.		X		
1128	NA	830.133(A)(1)	Revised to include “cable routing assemblies” under the provisions of this section requiring separation of conductors.		X		
1129	NA	830.154	Revised to include plenum cable routing assemblies.		X		
1130	NA	830.18	New section that includes listing requirements for grounding devices.		X		
1131	NA	840.1 Info Note	Revised by adding “optical fiber” to provide clarity.		X		
1132	NA	840.2	Revised to specify reference to “Part I” of Article 100.		X		
1133	NA	840.2 Fiber−to−the Premises (FTTP)	Revised to include “fiber” after optical to correlate with the defined term in 770.2. Revised by removing installation requirements from the definition.		X		
1134	NA	840.3(B)	New subsection added to include reference to 300.22(A) for “wiring in ducts for dust, loose stock or vapor removal.”		X		
1135	NA	840.3(C)	New subsection added to include reference to 300.22(A) for 300.22(C)(3) for “equipment in other spaces used for environmental air.”		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1136	NA	840.3(D)	New subsection referencing Section 110.3(B) for installation and use.		X		
1137	NA	840.3(E)	Revised by updating the references to specify the applicable part of an article.		X		
1138	NA	840.44(A)(4)	Revised by adding “and sets of overhead service conductors” to correlate with revised service terminology.		X		
1139	NA	840.48 Info Note No. 2	Revised by adding “point of” before entrance and deleting “point” after entrance to correlate with the defined term *point of entrance*.		X		
1140	NA	840.49	New section that refers to 770.49, and that includes grounding provisions for metallic entrance conduit.		X		
1141	NA	840.93	Revised by adding a new introductory paragraph specifying that non− current−carrying metallic members of optical fiber cables, communications cables, or coaxial cables entering buildings or attaching to buildings must comply with 840.93(A), (B) or (C).		X		
1142	NA	840.106(A)(1)	Revised by specifying noncurrent−carrying metallic members of optical fiber cables shall be connected to a grounding electrode and includes provisions where for those instances where the ONT provides grounding for the coaxial cable shield.		X		
1143	NA	840.106(A)(2)	Revised by specifying that non−current−carrying metallic members of optical fiber cables must be connected to a grounding electrode; includes provisions for those instances where the ONT provides grounding for the coaxial cable shield.		X		
1144	NA	840.18	New section that includes listing requirements for grounding devices.		X		
1145	NA	Chapter 9 Notes to Tables-Note6	Revised by adding “actual dimensions” to permit the actual conductor size data to be used for fill calculations.		X		
1146	NA	Chapter 9 Notes to Tables Note7	Revised to clarify calculating the size for conduit or tubing permitted for a single conductor. One conductor is permitted when the calculation results in a decimal greater than or equal to 0.8.		X		
1147	NA	Chapter 9 Notes to Tables Note 10	New note added to clarify the methodical approach to values for approximate diameter of conductors.		X		
1148	NA	Chapter 9 Not to Tables Note	Revised by adding “optical fiber cable” which clarifies it must be treated as a single conductor for calculating percentage conduit fill area.		X		
1149	NA	Chapter 9 Table 1	Revised title to “Number of Conductors and for Cables” and “Cross Sectional Area (%)” to include cables under the purview of the table.		X		
1150	NA	Chapter 9 Table 4	Revised by placing the most commonly used conduit fill columns closer to the metric designator and trade size column sizes, to enhance usability of the table.		X		

Table 7. NEC Change Cost Impact							
Code Change #		**NEC CHANGE SUMMARY**		**NEC Cost Impact**			**Estimated Amount***
	FRC Section	NEC Section	Description	Decrease	None	Increase	
1151	NA	Chapter 9, Table 5	Revised by placing the approximate area columns to the left of approximate diameter columns, to enhance usability of the table.		X		
1152	NA	Chapter 9 Table 8, Info Note	Revised by updating the title and current version of the standard referenced in the informational note.		X		
1153	NA	Chapter 9 Table 10 Note	New Note: “Conductors with a lesser number of strands are shall be allowed permitted based on an evaluation for connectability and bending.”		X		
1154	NA	Annex A	Revised by updating references to numerous UL and other product standards.		X		
1155	NA	Annex A	Revised by deleting reference to paragraph numbers, because no paragraph numbering exists.		X		
1156	NA	Tables C.1 thru C.12(A)	Revised tables by adding and removing insulation types and adding additional trade sizes based on requirements if applicable.		X		
1157	NA	Example D.1(d)	New example showing application of revised service and feeder conductor ampacity calculation per 310.15(B)(7).		X		
1158	NA	Example D3(a)	Revised air compressor horsepower rating from 7.5 to 5 in order to preserve the comparison between the 90°C ampacity of a 1 AWG copper conductor and the 75°C ampacity of a 1ƒ0 AWG copper conductor. This change was necessitated by the revision of the 90°C ampacity for a 1 AWG copper conductor from 150 amperes to 145 amperes in Table 310.15(B)(16).		X		
1159	NA	Example D4(b)	Revised to indicate that the individual dwelling unit calculations are performed using Parts I through III of Article 220 (i.e. “Standard Calculation”).		X		
1160	NA	Example D5a	Revised neutral calculation for individual dwelling feeder to indicate that applying a reduction factor (70%) is not permitted.		X		
1161	NA	Example D7	New example added to describe the application of 310.15(B)(7).		X		
1162	NA	Annex H	Revised editorially to enhance usability and understanding.		X		
1163	NA	Annex I Table I.1, I.2, & I.3	Revised by deleting Column A from the Tables. Column A values are not intended for installed equipment.		X		
1164	NA	Annex J	New Annex J added to address usability and information for ADA electrical requirements.		X		

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APPENDIX H

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
Chapter 3: Use and Occupancy Classification					
Section 304: Business Group B					
G27-12, G28-12, G30-12	304.1 **Modified:** Food Processing establishments and commercial kitchens not associated with restaurants, cafeteria and similar dining facilities less than 2500 square feet (232 m squared in area) are added to list of occupancies considered under Business Group B.		X		N/A
G27-12, G28-12, G30-12	304.1 **Modified:** Clarification that business occupancies shall extend to training and skill development area within a school or academic program that shall include, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as Group A occupancy.	X			$100,000
Section 306: Factory Group F					
G27-12, G28-12	306.2 Modified: Reclassifies food processing establishments and commercial kitchens not associated with restaurants, cafeterias, and similar dining facilities that are greater than 2,500 square feet in area to be Moderate- hazard factory industrial, Group F-1. Where the floor area of such a use does not exceed the 2,500-square-foot limitation, a Group B classification is applied.		X		N/A
Section 310: Residential Group R					
G40-12	310.2 **Added:** Guest Room and Lodging House are now under Definitions of Residential Group R occupancies.		X		N/A
G40-12	310.5 **Added:** A lodging House with five or fewer guest rooms is classified as Residential Group R-3 occupancy.		X		N/A
Section 311: Storage Group S					
G42.12	311.1.1 **Added and Modified:** A room or space used for storage that is less than 100 square feet in area and accessory to another occupancy shall be classified as part of that occupancy. The aggregate area of such		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	rooms or spaces shall not exceed the allowable area limits of §508.2				
Chapter 4: Special Detailed Requirements Based on Use and Occupancy					
Section 403: High-rise building					
G48-12	403.1 **Modified:** Clarifies that exception for A-5 occupancies to be exempt from high rise provisions only applies to portion of the building that is classified as A-5 use not the entire building.			X	N/A
G51-12	403.2.1.1 **Modified:** Changes use of exit enclosure to interior exit stairways or ramps to be consistent with removing the term exit enclosure from the code. No technical changes.		X		N/A
F139-13	403.3 **Added and Deleted:** Removes reference to §903.3.5.2 and replaces it with reference to §403.3.3, Water supply to required fire pumps.		X		N/A
	403.3.1.1 **Moved:** Requirement reference for high-rise building riser location was changed from §1015.2 to §1007.1.		X		N/A
G4-13	403.3.2 **Modified:** Requirement for water supply to required fire pumps is changed so that only buildings that are more than 420 feet in building height shall be supplied by no fewer than two water mains for their required fire pumps. Previously required in all high-rise buildings.	X			$75,000 for water main deletion
F139-13	403.3.3 **Added:** Requirement for a complete secondary water supply, with a minimum duration of 30 minutes, for high-rise buildings in Seismic Design Category C, D, E, or F. An additional fire pump is not required for this supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump.			X	$250,000 for pump and tank
F59-13	403.4.8 **Moved:** The standby power system shall comply with §2702 (instead of Chapter 27) and be provided for the standby power loads specified in §403.4.8.2. All requirements for location of elevators		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	in high rise buildings for accessible means of egress, fire service access and occupant self-evacuation is moved to §403.4.8.3 & 4.				
F59-13	403.4.8.2 **Added:** Fuel lines supplying a generator set inside a high-rise building shall be separated from the rest of the building by a fire resistance rating of not less than 2 hours. Where the building is protected throughout with an automatic sprinkler system the required fire resistance rating shall be reduced to 1 hour.			X	$25/linear foot
G53-12	403.6.1 **Modified:** In buildings with an occupied floor more than 120 feet above the lowest level of fire department vehicle access, no fewer than two fire service access elevators must comply with §3002.4, Elevator car to accommodate ambulance stretcher.			X	$50,000/ elevator
Section 404: Atriums					
G57-12, G58-12	404.9 **Modified:** Exit access travel distance for areas open to an atrium has been broken down into three sections to clarify requirements based on floor and egress path. No technical changes.		X		N/A
G58-12	404.10 **Added:** Requirement allowing a maximum of 50 percent of interior exit stairways are permitted to egress through an atrium on the level of exit discharge in accordance with §1028.	X			$100,000
Section 405: Underground Buildings					
F59-13	405.8.2 **Deleted:** Allowance for pick up time after failure of normal power supply removed.			X	$10,000
Section 406: Motor-vehicle-related Occupancies					
	406.2 **Added:** Private Garage added to Definitions of Motor -vehicle-related occupancies.		X		N/A
G59-12	406.3.1 **Added and Modified:** Classification changed to address private garages and carports specifically as opposed to "parts of buildings". Addition of language permitting multiple private garages where each private garage is separated from other private garages			X	$5,000/fire barrier

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	by a 1 hour fire barrier or 1 hour horizontal assemblies.				
G59-12, G61-12	406.3.2 **Deleted and Modified:** Area increase section deleted and clear height section moved to §406.3.2. The allowance for a 7 ft ceiling was previously permitted for public garages, but is now extended to private garages and carports. Vehicle and pedestrian areas accommodating van-accessible parking shall comply with §1106.5		X		N/A
G59-12, G62-12	406.3.4.2 **Modified:** Openings from private garages directly into a room used for sleeping purposed shall not be permitted. Previously this section contained code compliant separation and opening provisions.		X		N/A
G63-12	406.4.3 **Modified:** Vehicle barriers not less than 2 ft 9 in. in height shall be placed where the vertical distance from the floor of a drive line or parking space to the ground or surface below is greater than 1 ft. Previously barriers were required to be placed at the ends of a drive lane and at the end of parking spaces when the vertical distance was greater than 1 ft.			X	$100/linear foot
Section 420: Groups I-1, R-1, R-2, R-3, and R-4			X		N/A
G31-12 Part 1	420.5 **Moved:** The automatic sprinkler system requirements for Group R occupancies were moved from §420.4 to §420.5.				
Section 421: Hydrogen Fuel Gas Rooms			X		N/A
G14-13	421.4 **Modified and Deleted:** Hydrogen fuel gas rooms, not classified as group H, are only allowed if separated from other areas of the building. The change removes the requirement for 1 hour fire barriers and opening protectives. The ventilation alternative section is made the rule rather than the alternative requiring a ventilation system in charge of maintaining negative pressure.				
G14-13	421.6.2 **Modified:** Gas detection system control units are required to be listed and labeled in accordance with UL 864, not just “listed”.		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
G14-13	421.7 **Modified:** Requirement for explosion control to be installed where required by §414.5.1 rather than by Chapter 9 of the International Fire Code. IFC is still referenced.		X		N/A
Section 423: Storm Shelters				X	$100,000/ building
G94-12, G95-12	423.3 **Added:** In areas where the shelter design wind speed for tornadoes in accordance with Figure 304.2(1), of ICC 00 is 250 MPH, 911 call stations, emergency operation centers and fire, rescue, ambulance and police stations shall have a storm shelter constructed in accordance with ICC 500. Exception: Buildings meeting the requirements for shelter design in ICC 500.				
G94-12	423.4 **Added:** In areas where the shelter design wind speed for tornados is 250 MPH all Group E occupancies with an aggregate occupant load of 50 or more shall have a storm shelter constructed in accordance with ICCC 500. The shelter shall be capable of housing the total occupant load of the Group E occupancy. Exceptions include Group E day care facilities, Group E occupancies accessory to places of religious workshop and buildings meeting.			X	$100,000/ building
Chapter 5: General Building Heights and Areas					
Section 501: General					
F43-13 Part II, G16-13	501.2 **Added:** New and existing buildings shall be provided with approved address identification. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out.		X		N/A
Section 504: Building Height and Number of Stories					
G31-12, G101-12	Table 504.3, 504.4 & 506.2 **Deleted and Modified:** Table 503 was removed in favor of reformatted tables that are more user friendly. The removed 503 Table was replaced with Tables 504.3, 504.4, and 506.2. No technical changes.		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
Section 505: Mezzanines and Equipment Platforms					
E7-12	505.2.3 **Deleted:** Direct access to at least one exit at the mezzanine level is no longer required for any enclosed mezzanines regulated by Exception 2 of §505.2.3.	X			$25,000 for exterior exit deletion
Section 507: Unlimited Area Buildings					
G115-12, G116-12	507.1 **Added:** Basements not more than one story below grade plane shall now be permitted in buildings with unlimited area restrictions.		X		N/A
G119-12	507.9 **Added:** Unlimited mixed occupancy buildings with Group H-5 are now permitted to be unlimited in area for buildings classified as B, F, H-5, M or S under the special provisions of §507.9. This section states that the building must be no more than two stories above grade plane and shall not be limited where equipped throughout with an automatic sprinkler system in accordance with §903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet in width, provided all of the following criteria are met: they are Type I or II construction, they are separated from other occupancies as required in §415.11 and §508.4, and each area shall not exceed the maximum allowable area permitted for such occupancies in Section 503.1 including modifications of §506. The exception to this last criteria is that where it does exceed the maximum allowable area, the Group H-5 shall be subdivided into areas that are separated by 2 hour fire barriers.	X			$100,000 to eliminate fire wall
Section 510: Special Provisions					
G101-12, G133-12, G134-12	510.2 **Deleted:** The limitation for horizontally stacked building, which permits only one story above grade for the portion of the structure that occurs below the 3 hours horizontal separation was removed.		X		N/A
Chapter 6: Types of Construction					
Section 601: General					

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
G140-12	Table 601 **Deleted:** Note d which addressed that ability to substitute 1 hour fire rating was removed based on the extremely limited applicability of the footnote and the significant potential for misuse.		X		N/A
Section 602: Construction Classification					
G141-12	Table 602.4 **Added:** Equivalent size dimensions for structural composite lumber (SCL) to Table 602.4 due to increased use of engineered wood products as structural members.		X		N/A
G142-12 Part I	602.4.2 **Added:** Allowance for cross-laminated timber to be used within the exterior of walls of Type IV buildings where protected by one of three specified materials: fire retardant- treated wood sheathing complying with Section 2303.2 and not less than 15/32 inch thick, gypsum board not less than 1/2 inch thick or a noncombustible material. It is treated like a fire retardant- treated wood.		X		N/A
Section 603: Combustible Material in Types I and II Construction					
G145-12	603.1 #26 **Added:** Allowance for combustible materials in wall construction of freezers and coolers of less than 1000 square feet in size, lined on both sides with noncombustible materials and located in a building that is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.	X			$5,000
Chapter 7: Fire and Smoke Protection Features					
Section 703: Fire-Resistance Ratings and Fire Tests					
FS1-12	703.2 **Modified:** Section now directs to Sections 714 and 715 for information on the fire-resistance rating of penetrations and joint systems. No technical changes.		X		N/A
FS11-12	703.7 **Modified:** Clarifies that the marking of fire walls, barriers, partitions and smoke barriers and partitions is only required for accessible concealed spaces, not all concealed spaces. No technical changes.		X		N/A
Section 704: Fire-Resistance Rating of Structural Members					

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
CCC 12-F58, FS12-12	704.4 **Modified:** For structural fire protection purposes, the secondary member protection requirements have been reformatted to clarify that in a horizontal assembly the secondary member can be protected by a ceiling membrane.		X		N/A
Section 705: Exterior Walls					
FS14-12	705.2 **Modified:** The minimum required separation between the leading edge of a projection and the line used to determine the fire separation distance (FSD) has been changed so for all FSD greater than 3 ft but less than 30, there is a gradual increase in the size of projection permitted as the separation increases. This modification helps to eliminate the inconsistencies that occurred previously with projection requirements.	X			$200/linear foot
FS19-12	705.2.3 **Modified:** Allowances changed to provide a more simple and consistent approach in addressing combustible projections adjacent to interior lot line that is used to determine fire separation distance. This change is less restrictive requiring only the 5 ft separation to determine the need for 1-hour protection.		X		N/A
FS20-12	705.3 **Added:** Exception 2 allows for openings through adjacent exterior walls of a Group S-2 parking garage and a Group R-2 building on the same lot and a fire separation distance of zero. The S-2 parking garage must be construction Type I or IIA construction and the openings shall only be required to be protected with 1 ½ hour fire protection rating in the exterior wall of the S-2 parking garage, not in the exterior wall openings in the R-2 building.	X			$5,000/ S-2/R-2 CONNECT
FS22-12	705.6 **Modified:** Specification that only the exterior is required to extend to the full height required by §705.11 and interior structural elements, like floor or roof elements, that brace exterior walls are not required to be regulated for fire resistance due to the		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	exterior wall's rating regardless of the building proximity to a lot line.				
FS24-12	705.8.5 **Added:** Specification that where a fire resistance wall is provided to address the concern of a fire spreading vertically, the exterior wall must be at least 1-hour rated for exposure to fire from both sides.		X		N/A
Section 706: Fire Walls					
FS22-12	706.2 **Modified:** The reference to NFPA 221 for fire wall design and construction has been expanded to permit use of the tied and cantilevered options that are listed in the standard.		X		N/A
Section 707: Fire Barriers					
FS29-12	707.6 **Modified:** Code references are changed for openings in exit access and exit enclosures to Sections 1009.3.1.4 and 1022.4 to correct a technical error caused by Proposal E5-09/10-AS. No technical changes.		X		N/A
FS29-12	707.7.1 **Modified:** Wording is changed so compliant with removal of term exit access from code and to clarify intent of code references. No technical changes.		X		N/A
FS30-12	707.9 **Added:** Language is added to clarify that voids between fire barriers and non-fire-resistance-rated exterior wall assemblies are to be treated the same as voids between fire barriers and non-fire-resistance rated roof assemblies.			X	
Section 708: Fire Partitions					
FS34-12	708.1 **Modified:** Clarified that separation walls in Group I-1, R-1, R-2, and R-3 as required by Section 420.2 are required to be fire partitions. No technical changes.		X		N/A
Section 709: Smoke Barriers					
FS36-12, FS37-12	709.4 **Modified:** The section on horizontal continuity of smoke barriers has been rewritten to clarify its use for smoke barriers used to create smoke		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	compartments vs. those creating enclosures for elevator lobby or areas of refuge. Two of the exceptions were deleted and their topics are now addressed in §709.4.1 and §709.4.2 to clarify which smoke barriers need to extend to exterior walls. No technical changes.				
Section 710: Smoke Partitions					
FS43-12	710.5.2.2.1 **Added:** Smoke and draft control doors that only comply with UL 1784 are permitted to show the letter S on the manufacturers labeling.		X		N/A
Section 711: Horizontal Assemblies					
FS50-12	711 & 712 **Modified:** The requirements for horizontal assemblies and vertical openings were reorganized so that floor and roof assembly requirements are located in §711 and protection of vertical openings is contained in §712. Many of the requirements from these sections were moved to other chapters or split into multiple sections for clarity and consistency. No technical changes.		X		N/A
FS34-12	711.3 **Modified:** Clarifies that only dwelling and sleeping unit separations as required by Section 420.3 are required to be 1-hour fire-resistance rated construction. No technical changes.		X		N/A
FS46-12	711.8 **Modified:** Word “floor” was changed throughout passage to “horizontal” to reflect changes to NFPA 288.		X		N/A
Section 712: Vertical Openings					
E7-12, FS50-12, G54-12	712.1.8 **Deleted:** Item that restricted two- story openings between adjacent levels containing a stairway or ramp required for egress was removed. Now all requirements for exit access stairways must be taken from one location, §1019.			X	G54-12 $75,000/ SC SYSTEM
Section 713: Shaft Enclosures					
FS67-12, FS71-12	713.14.1 **Moved and Modified:** The section on Elevator lobbies was moved to §709.4, and Chapter 10. Sections 713.14.1.1-.5 were added to list where all		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	elevator lobby requirements are located throughout the code.				
Section 714: Penetrations					
FS74-12	714.3.2 **Added:** Exception that allows for membrane penetrations of maximum 2-hour fire resistance-rated walls and partitions by steel electrical boxes that exceed 16 square inches in area or steel electrical boxes of any size having an aggregate area through the membrane exceeding 100 square inches in any 100 square feet of wall area provided such penetrating items are protected by listed putty pads or other listed materials and methods, and installed in accordance with the listing.	X			$500/ ELEC BOX
FS50-12, FS75-12	714.4.1.2 **Added:** Exception 3 allows floor penetrations of maximum 4 inch nominal diameter penetrating directly into metal-enclosed electrical power switchgear to not require a T rating.	X			$100/ PENE
FS50-12, FS76-12	714.4.2 **Modified:** Exception 7 allows a wall that interrupts the ceiling membrane to only be sheathed with Type X Gypsum wallboard and be tight to the top plates; fire resistance rating requirement was removed.		X		N/A
Section 715: Fire-resistance Joint System					
FS77-12	715.4.2 **Added:** Requirement to protect intersections between exterior curtain walls and vertical barrier with an approved material that is securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.			X	$500/ INTERSECT
Section 716: Opening Protective					
G51-12, FS85-12	Table 716.5 **Modified:** Table is modified to accurately reflect all the code changes regarding opening fire protection assemblies, ratings and markings. No technical changes.		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
FS87-12	716.5.2 **Added:** Horizontal sliding fire door assemblies were added to the list of other types of fire door assemblies to ensure the list was inclusive of all permitted fire door assemblies.		X		N/A
FS91-12	716.5.5.1 **Modified:** Changes language to clarify how glazing should be tested for transmitted temperature rise (per NFPA 252, UL 10B or UL 10C) to ensure uniformity in testing of fire doors.		X		N/A
FS92-12	716.5.7.1.1 **Modified:** Language in section is modified to remove "where tested" in favor of "listed and labeled". Listing and labeling is proof of a component being tested. No technical change.		X		N/A
FS93-12	716.5.7.5 **Added:** Requirement for fire door operators for horizontal sliding doors to be labeled and listed for use with the assembly.		X		N/A
FS96-12	716.5.9 **Modified:** Chute intake door's requirement to fail safe to the closed position is removed and the intent is clarified to require a self-closing and latching fire door.		X		N/A
Section 717: Ducts and Air Transfer Openings					
FS100-12	717.1.1 **Modified:** Requirement now allows ducts to exit a shaft, transition horizontally, and then enter another shaft using dampers at each exit point, instead of contiguous shaft construction. Note that this does not allow for the violation of any other code.	X			$1,000/ DUCT TRANSITION
FS106-12, FS108-12	717.3 **Modified:** Clarification for damper testing, ratings and actuation requirements that specify where a duct penetration occurs at a lid of the corridor, which is constructed using a corridor wall placed horizontally, a corridor damper is now specifically mandated.		X		N/A
FS106-12	717.5.4.1 **Added and Modified:** Code changed to reflect §717.3 modification and change from requiring smoke dampers in corridor penetrations, to requiring either smoke dampers, corridor dampers, or ceiling		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	radiation dampers based on the location of the penetration.				
FS29-12	717.5.2 **Modified:** Wording is changed so compliant with removal of term exit access from code and to clarify code references so consistent with other changes made to the 2015 IBC. No technical changes.		X		N/A
FS116-12	717.6.3 **Modified:** This section is modified to clarify that the allowance for a duct to span three floors without being enclosed within a shaft only applies to noncombustible floor assemblies.		X		N/A
Section 720: Thermal and Sound Insulating Materials					
FS120-12	720.2-.6 **Modified:** Language was clarified by substituting the industry terms for the two different types of cellulose insulation commonly used.		X		N/A
Section 721: Prescriptive Fire Resistance					
FS123-12	Table 721.1(3) **Modified:** Item 28-1.1 is modified to reflect that either fiberglass or mineral wool insulation may be used as they are interchangeable in this application.		X		N/A
FS124-12	Table 721.1(3) **Added:** Item 30-1.1 is added to represent a typical type of ceiling construction which has been tested in accordance with ASTM E119.		X		N/A
Chapter 8: Interior Finishes					
Section 803: Wall and Ceiling Finishes					
FS132-12	803.3 **Modified:** Language was changed from “structural members” to “building elements” to remain consistent with terminology from Table 601. No technical changes.		X		N/A
	803.12 **Deleted:** Section on High density Polyethylene (HDPE) and Polypropylene (PP) removed.		X		N/A
	803.13 **Deleted:** Section on site fabricated stretch systems removed.		X		N/A
Chapter 9: Fire Protection Systems					
Section 903: Automatic Sprinkler Systems				X	$4/SF SPRK

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
F124-13	903.2.1.6 **Added:** Requirement for a roof that is occupied by an assembly occupancy with an occupant load exceeding 100 for Group A-2 and 300 for other Group A occupancies, all floors between the occupied roof and the level of exit discharge must be sprinkler protected in accordance with Section 903.3.1.1 or 903.3.1.2, except for open parking garages of Type I or Type II construction.				SYSTEM
	903.2.1.7 **Added:** Requirement to provide a sprinkler system where multiple fire areas of Group A-1, A-2, A-3, or A-4 occupancies share exit or exit access components and the combined occupant load is 300 or more.			X	$4/SF SPRK SYSTEM
G31-12 Part II	903.2.8 **Added and Modified:** Sprinkler requirements are now dependent on the capabilities of the occupants in Group R-4 occupancies. In buildings where occupants require limited assistance with evacuation, additional sprinkler protection is required for attic spaces.			X	$4/ST SPRK SYSTEM
F133-13	903.3.1.1.2 **Added:** Allowance for bathrooms in Group R occupancies, other than Group R-4 occupancies, to be exempt from sprinkler requirements when bathrooms are less than 55 sq ft and located within individual dwelling or sleeping units and the walls and ceilings behind a shower enclosure or tub are of noncombustible or limited-combustible materials with a 15-minute thermal rating.		X		N/A
F137-13	903.3.1.2.2 **Added:** Requirement for sprinkler protection, from NFPA 13R systems, to be provided in open ended corridors and associated exterior stairways and ramps as specified in §1027.6 Exception 3. This is an additional requirement to the NFPA 13R standard.		X		N/A
F138-13	903.3.8 **Added and Modified:** More restrictions have been placed on limited area sprinkler systems, including a reduction in the system size to a maximum			X	$5,000/ SPRK SYSTEM

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	of six sprinklers within a single fire area. Additional sections were added to clarify requirements for piping arrangement, supervision, and calculations.				
Section 904: Alternative Automatic Fire-extinguishing System					
ADM43-13 Part I	904.5-904.10 **Added:** Requirement to maintain records of inspections and testing for wet chemical systems, dry chemical systems, foam systems, carbon dioxide systems, halon systems, and clean agent systems			X	$500/ SYSTEM
	904.11 **Added:** Requirements for automatic water mist systems were added, including design and installation requirements, supervision and alarms, monitoring, floor control valves, and testing and maintenance.		X		N/A
Section 907: Fire Alarm and Detection Systems					
F157-13, F158-13	907.2.3 **Added and Modified:** Exception 1 was changed to allow Group E occupancies with an occupant load of 50 or less to be exempt from the manual fire alarm system requirement. Exception 2 was added to require only a manual fire alarm system for Group E occupancies with an occupant load ranging from 51-100.	X			$5,000/ ALARM SYSTEM
F359-13	907.2.11.3 & 907.2.11.4 **Added:** Guidance on the placement of smoke alarms and requirements of the type of alarm to be used near cooking appliances and bathrooms to avoid false alarms. This addition reflects the new requirements of NFPA 72.		X		N/A
F174-13	907.6.3 **Added:** Initiating device identification requires that the fire alarm system identifies the specific initialing device address, location, device type, floor level status as well as indication of normal alarm, trouble, and supervisor status, as appropriate. Exceptions include single story building less than 22,500 sq ft, manual systems with no more than water flow and 10 extra initiating devices, replacing existing systems, and special initiating devices.			X	$5,000
Section 909: Smoke Control Systems				X	$3,000

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
F185-13	909.4.7 **Added:** Requirement to consider the effects of interaction with the operation of multiple smoke control systems for all smoke control system designs scenarios.				
FS138-12	909.20.6.1 **Added:** Allowance for smoke proof enclosure ventilation systems wiring to share other ventilation systems control wiring and power wiring when protected by a listed electrical circuit protective system with a fire-resistance rating of not less than 2 hours.		X		N/A
FS140-12, FS141-12	909.21.1 **Modified:** The requirements for hoist way pressurization are changed to remove the minimum pressure differential requirement at the floor of recall with the doors open and identifies the appropriate areas to measure the differential from (the most notable change being that in Group R occupancies the pressure differential can be measured between the dwelling unit and the hoist way).		X		N/A
FS141-12	909.21.1.1 **Added:** Permission for ventilation systems, other than hoist way supply air systems, to be permitted to exhaust air from adjacent spaces on the fire floor, two floors, immediately below and one floor immediately above the fire floor to the building's exterior where necessary to maintain positive pressure relationships during operation of the elevator shaft pressurization system.			X	$1,000
Section 910: Smoke and Heat Removal					
	910 **Added and Modified:** The format and technical requirements for smoke and heat removal systems has been modified. A new allowance permitting the use of a mechanical smoke removal system as an alternative to smoke and heat vents was added.	X			$1,000
Section 911: Fire Command Center					
E2-12 Part III	911.1.5 **Added:** Requirement prohibiting storage unrelated to operation of fire command center to be within fire command center.		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
Section 912: Fire Department Connections					
	912.3 **Added:** Requirement for fire hose threads used in connection with standpipe systems to be approved and compatible with fire department hose threads.			X	$500
Section 913: Fire Pumps					
	913.2.2 **Added:** Requirement for circuits supplying fire pumps to be listed in accordance with UL 2196. Electrical circuit protective systems shall be installed in accordance with their listing requirements.			X	$500
Section 915: Carbon Monoxide Detection					
F180-13	915 **Modified:** The carbon monoxide alarm provisions have been relocated, reformatted and revised. The scope has been modified to exclude Group I-3 occupancies while adding Group E occupancies with an occupant load greater than 30.		X		N/A
Chapter 10: Means of Egress					
Section 1003: General Means of Egress					
E10-12	1003.3 **Modified:** Language is revised to include the defined term circulation path rather than walking path to clarify intent of code and correspond to ICC A117.1 and the 2012 ADA Standard for Accessible Design.		X		N/A
Section 1004: Occupant Load					
E15-12	1004.1.1.1 **Modified:** Clarified that design occupant loads shall be the combined occupant load of all interconnected accessory or intervening spaces. This modified code language emphasizes that aggregate occupant load is what shall be used to design egress systems.		X		N/A
E15-12	1004.1.1.3 **Added:** Requirement clarifies that other than the egress components designed for convergence in accordance with §1005.6, the occupant load from separate stories shall not be added.		X		N/A
E18-12	Tables 1004.1.2 **Modified:** All floors of mercantile occupancies are now given an occupant load factor of		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	60 sq ft/ occ gross. The exception for basements and grade level floors at 30 sq ft/occ gross was removed.				
Section 1005: means of Egress Sizing					
E20-12	1005.3.2 **Added:** Two exceptions to the 0.2 inch means of egress capacity factor for "other egress components" which allow for smoke protected assembly seating to use aisle requirements from §1029.6 as directed by the exceptions.		X		N/A
Section 1006: Number of Exits and Exit Access Doorways					
	1006 **Moved and Modified:** Common path requirements are moved to §1006 and provisions for paths that merge are removed; paths that merge do not provide two distinct paths.		X		N/A
E1-12	1006 **Moved:** Number of Exits and Exit Access Doorways has been moved from §1015 to §1006. All applicable requirements for rooms, spaces and those for stories have been consolidated in this chapter.		X		N/A
E1-12, E127-12	Table 1006.3.2(1) & 1006.3.2(2) **Modified:** Tables 1021.2(1) and 1021.2(2) were relabeled as Tables 1006.3.2(1) and 1006.3.2(2). The last column in the tables was changed from limiting exit access travel distance to limiting the common path of egress travel to clarify how the distance should be measured.		X		N/A
Section 1007: Exit and Exit Access Doorway Configuration					
E1-12	1007 **Moved and Modified:** Exit and Exit Access Doorway Configuration has been moved from §1021 to §1007. All applicable requirements for rooms, spaces and those for stories have been consolidated in this chapter. Section now provides specific guidance regarding how the distance between means of egress doors, exit access stairways, or exit access ramps is to be measured.		X		N/A
E1-12, E7-12	1007.1.1.1 **Modified:** Provides specific guidance for how exit separation is to be measured, including three ways to measure distance and diagrams.		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
E1-12, E7-12	1007.1.3.1 **Modified:** Requirements for measuring the separation distance when two or more means of egress are required, this separation extends through all portions of the exit access stairways and ramps.		X		N/A
E41-12	1007.5 **Modified:** Language is clarified to address that platform lifts are not permitted to serve as part of a means of egress.		X		N/A
Section 1008: Means of Egress Illumination					
E56-12	1008.1.4.1 **Modified:** Revolving door requirements are updated to reflect the requirements for the 2011 BHMA A156.27 American National Standard for Power and Manual Operating Revolving Pedestrian Doors.		X		N/A
E57-12	1008.1.4.2 **Modified:** Three types of power operated doors are defined in Chapter 2 and are added within this section to reflect these additions.		X		N/A
E84-12	1008.1.10 **Added:** Exception for Group A and E occupancies allowing electromagnetically locks systems to be installed provided they comply with §1010.1.9.9		X		N/A
Section 1009: Accessible Means of Egress					
E36-12, E86-12, E87-12, E7-12, E46-12 AS, E38-12, E39-12, E41-12, E202-12, E212-12, E43-12, E45-12	1009 **Moved:** Accessible Means of Egress moved from §1007 to §1009.		X		N/A
E48-12	1009.8 **Moved and Modified:** The requirement for two-way communication systems in elevators was moved from §1007.8 to §1009.8. Two-way communication systems may serve multiple elevators		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	and are not required at service elevators, freight elevators, or private residence elevators. This is reflected in the addition of Exceptions 3, 4, and 5.				
Section 1010: Doors, Gates and Turnstiles					
E60-12, E62-12, E63-12	1010.1.9 **Moved and Modified:** The requirement for locking provisions was moved from §1008.1.9 to §1010.1.9. The code was modified to provide clear and consistent requirements and terminology.		X		N/A
Section 1011: Stairways					
E102-12	1011.16 **Added:** Requirements and allowances for permanent ladders to serve as access to certain areas but may not be used as part of the means of egress.		X		N/A
Section 1012: Ramps					
E86-12, E87-12	1012.2 **Deleted and modified:** Exception in §1010.3 for aisle ramps in assembly purpose spaces was removed. Slope requirement in §1012.2 changed to require all slopes to be not steeper than 1 in 12 or 1 in 8 depending on the type of aisle ramp.		X		N/A
Section 1014: Handrails					
E87-12, E104-12	1014.8**Added:** Allowance for the entire stair width to be used as the provided egress width when the intermediate railings are less than 6 in apart. When the railings are more than 6 in apart then the egress width of the stair is reduced by that excess amount.		X		N/A
Section 1016: Exit Access					
E110-12	1016.2 **Moved and Modified:** The requirements for egress through intervening spaces were moved from §1014.2 to §1016.2. A provision is added to permit exit access through an enclosed elevator lobby with no added protection required through the space unless direct exit access is required.		X		N/A
Section 1018: Aisles					
E118-12	1018.3 **Moved and Modified:** The requirements for egress through intervening spaces were moved from §1017.3 to §1018.3. Requirement for the width of		X		N/A

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	aisles in Group B and M occupancies is consistent with the widths required for corridors and is no longer limited only to the capacity of the occupant load served.				
E9-12, E118-12	1018.5 **Added:** Exception allowing nonpublic aisles serving less than 50 people and not required to be accessible by Chapter 11 to have a minimum width of 28 inches.		X		N/A
Section 1023: Interior Exit Stairways and Ramps					
E141-12	1023.3.1 **Moved and Added:** The requirements for egress through intervening spaces were moved from §1022.3.1 to §1023.3.1. Exception to allow interior exit stairways or ramps connect directly to the exit passageway extension with no separation requirements when there are no openings into the exit passageway extension.		X		N/A
Section 1028: Exit Discharge					
E7-12, E9-12, E155-12, G175-12	1028.1 **Moved and Added:** The requirements for egress through intervening spaces were moved from §1027.1 to §1028.1. Requirement clarifying the required separation distance between interior stairs and exit access stairs/ramps when the interior stairs discharge onto level of discharge. This distance must be a minimum of 30 feet or one fourth the maximum diagonal dimensions of the building with the distance measured in a straight line between the interior stair and exit access doors.		X		N/A
Section 1029: Assembly					
	1029 **Moved:** Requirements for assembly means of egress were moved from §1028 to §1029.		X		N/A
E86-12, E159-12 CCC	1029.10.3 **Added:** Requirement that a distinctive marking strip shall be provided at each nosing or leading edge adjacent to the transition between stairways and stepped aisled. Such stripe shall not be less than 1 inch and not more than 2 inches wide. The edge-marking stripe shall be distinctively different			X	$500

Table 8. 2015 IBC-Non-Structural Fire Protection and Life Safety Changes Cost Impact					
Code Change #	2015 IBC-NON-STRUCTURAL FIRE PROTECTION & LIFE SAFETY CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	from the stepped aisle contrasting marking stripe. This requirement used to be only for assembly aisle walking surfaces per §1028.11.3.				
E86-12, E159-12 CCC	1029.11 **Added:** Construction requirements for aisles, stepped aisles and ramped aisles, with an exception added that allows wood handrails for all types of construction.		X		N/A
E86-12, E159-12 CCC	1029.11.2 **Added:** Requirements for outdoor conditions of stepped aisles and ramps to be designed so that the water will not accumulate on the walking surface.			X	$500
	1029.13.2.2 **Moved:** Requirements for aisle risers are moved from §1028.11.2 to §1029.13.2.2.		X		N/A
E86-12	1029.13.2.2.1 **Added**: Requirements which limit the tolerance between adjacent risers on a stepped aisle that were designed to be equal height shall not exceed 3/16 of an inch. Where the stepped aisle is designed in accordance with Exception 1 of §1029.13.2.2 the stepped aisle shall be constructed so that each riser of unequal height, determined in the direction of descent, is not more than 3/8 inch in height difference from adjacent riser where stepped aisle treads are less than 22 inches in depth and 3/4 inch in height difference from adjacent risers where stepped aisle treads are 22 inches or greater in depth.		X		N/A

*For prescriptive Code changes only.

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APPENDIX I

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
S2-12	Clarifications of the terminology for photovoltaic shingles in Sections 202, 1505.8, 1507.17, 1507.17.1, 1507.17.2 and 1507.17.3.		X		
S3-12	Clarifications of the terminology for photovoltaic devices in Sections 202 (NEW), 1505.8, 1509.7, 1509.7.1, 1509.7.2, 1509.7.3, 1511, 1511.1, 3111 and 3111.1		X		
S4-12	Changed terminology to vegetative roof from what is referred to as roof garden or landscaped roof in Sections 202 (NEW), 1507.16, 1507.16.1, 1607.12.3 and 1607.12.3.1.		X		
S5-12	Changed to provide basic definitions for photovoltaic systems that are embedded in building construction elements (BIPV's) and for systems that are installed extraneous to new or existing building elements (Panel Systems) in Section 202 (NEW).		X		
S7-12	Clarification of ventilation terminology in Section S7-12.		X		
S8-12	Changed to relocate wind resistance requirements for asphalt shingles to Chapter 15 where similar wind resistance requirements are provided for other roof system types in Sections 1504.1.1, 1507.2.7.1 and 1609.5.2 and Table 1504.1.1(1), Table 1504.1.1(2), Table 1507.2.7.1(1), Table 1507.2.7.1(2).		X		
S11-12	Changed to delete redundant wording and to make sure that metal panel roof systems installed over solid decking are covered in Section 1504.3.1.		X		
S12-12	Changed to permit the use of the Aluminum Association's Aluminum Design Manual (ADM1) for the design of wind resistance for aluminum structural panel roof systems in lieu of the test methods prescribed in Section 1504.3.2.		X		
S13-12	Clarification of the application of Section 1504.3.2 to different types of structural metal panel roof systems.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S19-12	Modification to Section 1505.1 to put requirements for rooftop mounted photovoltaic panels and modules in Section 1509.7.2.		X		
S20-12	Addition of slate roofing as a Class A roof covering in Section 1505.2.		X		
S21-12	Modification in Section 1505.8 added a definition for BUILDING INTEGRATED PHOTOVOATAIC (BIPV) PRODUCT that clarifies the types of photovoltaic (BIPV) that must meet the requirements of Section 1505.1.		X		
S24-12	Added standard for external fire design for vegetative roofs in 1505.9 (NEW) and Chapter 35 (NEW).			X	N/A
S26-12	Deleted of Section 1506.2.		X		
S27-12	Clarified in Section 1506.3 that roof-covering materials shall conform to the applicable standards in Chapter 15.		X		
S32-12	Combined the classification of asphalt shingles into a single table and addressed the conversion to ultimate design wind speed in Section 1507.2.7.1 and Table 1507.2.7.1(1) and Table 1507.2.7.1(2).		X		
S36-12	Changed to provide direction on drip edge installation in Section 1507.2.9.3.		X		
S38-12	Added aluminum fasteners as acceptable for aluminum roofs in Section 1507.4.4.		X		
S40-12	Updated minimum requirement for underlayment used with slate roof systems in Section1507.7.3.		X		
S43-12	Added ASTM D 7665-12 for the size classification of aggregate used as ballast for membrane roof systems in Sections 1507.12.3 and1507.13.3 and Chapter 35 (NEW).		X		
S47-12	Added specific requirements for roof decks, roof deck slope, underlayment, underlayment application, underlayment attachment in high wind regions, ice barrier and fasteners to photovoltaic shingles in Sections 1507.17.1 (NEW), 1507.17.2 (NEW), 1507.17.3 (NEW),		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
	1507.17.4 (NEW), 1507.17.4.1 (NEW), 1507.17.4.2 (NEW) and 1507.17.5 (NEW)				
S50-12	Added ASTM C12788 and ASTM C 1177 recognized product standards to Table 1508.2 for fiber-reinforced gypsum board and glass-faced gypsum board commonly used in roof insulation assemblies.		X		
S51-12	Clarification of above deck radiant barriers use in Sections 202 (New), 1509 (New), 1509.1 (New), 1509.2 (New) and 1509.3 (New) and Chapter 35 (New).		X		
S59-12	Clarification of the applicability of the exception to material and methods of reroofing in Section 1510.1.		X		
S60-12	Added an exception in Section 1510.1 that waives the secondary drainage provision when reroofing existing buildings when the roof drains properly, while preventing required, existing secondary drainage system, from being removed unless replaced by a code-compliant system.		X		
S62-12	Added clarifications between roof replacement and roof recovering in Sections 1510.3 (New) and 1510.4.		X		
S65-12	Clarification with respect to photovoltaics in Section 1511.1.1.		X		
S66-12	Editorial changes deleting unused definitions in Section 202.		X		
S67-12	Made Section 1602 consistent with ASCE 7.		X		
S69-12	Addition on plans of loading information and design assumptions for snow drifts design in Section 1603.1.3.		X		
S71-12	Added flood design classes from ASCE 24-12 to Section 1603.1.7.		X		
S72-12	Added new requirements for Solar PV panels in Sections 1603.1.8.1 (New), 1607.12.5 (New), 1607.12.5.1 (New), 1607.12.5.2 (New), 1607.12.5.3 (New) and 1607.12.5.4 (New).		X		
S73-12	Deleted Section 1603.1.9.		X		
S74-12	Editorial improvement in Table 1604.3.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S75-12	Separated the deflection limits for interior partitions from those for exterior walls and bases the interior partition limits on live load in Table 1604.3 and Sections 1607.14 and 1607.14.1.		X		
S76-12	Made the deflection limit determination consistent with the AF&PA NDS and clarified the meaning of dry conditions in Table 1604.3.		X		
S78-12	Clarification to nominal wind loads and deflection criteria for glazing under wind loading in Table 1604.3.		X		
S79-12	Clarification of use of diaphragms in Sections 202, 1602.1, 1604.4, 1610.1 and 1613.5.6.1.		X		
S82-12	Changed Section 1604.5 so as to require Table 1604.5 use instead of ASCE 7 to determine risk category.		X		
S83-12	Clarification of Risk Category III in Table 1604.5 by correlating the table entries with Chapter 3 occupancy groups.		X		
S87-12	Clarified the definition, use and load requirements for marquees in Section 202 and Table 1607.1.		X		
S88-12	Added uniformly distributed live loads for ice rinks and roller rinks back in Table 1607.1.		X		
S89-12	Clarification in Section 1607.5 of the partition loading requirement that brings consistency with the live load value of 80 psf for corridors that is commonly applied to an entire floor.		X		
S90-12 PART I	Clarification of owner's responsibilities and recognition that the owner's authorized agent in Sections 901.5, 1004.3, 1607.7.2, 1703.4.1, 1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1 and K102.3.		X		
S90-12 PART II	Updated the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted in Sections 901.5, 1004.3, 1607.7.2, 1703.4.1,		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
	1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1 and K102.3.				
S90-12 PART III	Updated the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted in Sections 901.5, 1004.3, 1607.7.2, 1703.4.1, 1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1 and K102.3.		X		
S90-12 PART IV	Updated the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted in Sections 901.5, 1004.3, 1607.7.2, 1703.4.1, 1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1 and K102.3.		X		
S92-12	Added requirements for supporting facade access equipment and for designing structural elements that support equipment loads in Section 1607.9.3 (New).		X		
S93-12	Added requirements for supporting lifeline anchorages in Section 1607.9.3 (New)		X		
S94-12	Clarified the alternative live load reduction method in Section 1607.10.2.		X		
S95-12	Clarified the roof live load applicable to vegetative roofs and added a uniform approach (ASTM E 2397-11) for determining the weight of the landscaping materials in Section 1607.12.3.1 and Chapter 35 (NEW)		X		
S96-12	Eliminated redundant requirements for interior partition loads in Sections 1607.14 and 1607.14.1.		X		
S98-12	Clarifications of nominal design wind speeds for Sections 1609.1.1 and 1609.3.1.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S99-12	Restored the applicability of the exception allowing wood structural panel opening protection based on building height in feet as opposed to the number of stories in Section 1609.1.2.		X		
S100-12	Added ASCE49-07 standard that provides more comprehensive requirements for wind tunnel testing in Section 1609.1.1 and Chapters 35 (NEW).		X		
S102-12	Defined the Coastal A Zone not just by the presence of specific wave conditions, but whether the Limit of Moderate Wave Action has been delineated, or the coastal A zone is otherwise designated by the AHJ in Sections 202 (New), 1403.7, 1603.1.7, 1612.4, 1612.5, G103.7, G301.2, G401.2, IPC 309.3 and IMC301.16.1	X	X		N/A
S103-12 PART I	Changed to create consistency with the definition of "coastal high hazard area" in ASCE 24 in Sections 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3 and IMC M301.16.1.		X		
S103-12 PART II	Changed to create consistency with the definition of "coastal high hazard area" in ASCE 24 in Sections 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3 and IMC M301.16.1.		X		
S103-12 PART III	Changed to create consistency with the definition of "coastal high hazard area" in ASCE 24 in Sections 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3 and IMC M301.16.1.		X		
S104-12	Changed definition of "dry floodproofing" to provide consistency with ASCE 24 in in Section 202.		X		
S106-12	Changed to provide coordination with Section 110 which requires that surveyed building elevations be submitted to the building official prior to the final inspection in Section 1612.5.		X		
S109-12	Added ground motion maps for Guam and American Samoa in Section 1613.3.1.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S111-12	Corrected a mistake by amending the ASCE 7 provision for diaphragm anchorage forces and clarified that the subdiaphragm aspect ratio limit applies only to specific types of diaphragms in Sections 1613.5 (NEW) and 1613.5.1 (NEW).		X		
S112-12	Deleted Section 1701.3 on used materials.		X		
S113-12 PART I	DOES NOT APPLY TO FLORIDA				
S113-12 PART II	DOES NOT APPLY TO FLORIDA				
S114-12	DOES NOT APPLY TO FLORIDA				
S116-12	Changed to correlate the references to "product," "material" and "assembly" for internal consistency in Sections 1703.4, 1703.4.1, 1703.4.2, 1703.5, 1703.5.1, 1703.5.2, 1703.5.3 and 1703.5.4.		X		
S117-12, PART I	Updated the references to approved agencies for consistency in Sections 202, 1703.4, 1704.2.5.2, 1705.16.1, 1705.16.2, [F]909.18.8.2, [F]909.18.8.3 and [F]1705.17.2.		X		
S117-12, PART II	Updated the references to approved agencies for consistency in Sections 202, 1703.4, 1704.2.5.2, 1705.16.1, 1705.16.2, [F]909.18.8.2, [F]909.18.8.3 and [F]1705.17.2.		X		
S117-12, PART III	Updated the references to approved agencies for consistency in Sections 202, 1703.4, 1704.2.5.2, 1705.16.1, 1705.16.2, [F]909.18.8.2, [F]909.18.8.3 and [F]1705.17.2.		X		
S118-12	Changed to comprehensively specify the requirements for the submittal of reports and certificates related to construction that is subject to special inspections and tests in Sections 1704.1, 1704.2.5.2, 1704.5 (New), 1705.12.3, 1910.5 and 2207.5.		X		
S119-12	Changed editorially the language of Section 1704.1 to make it mandatory.		X		
S120-12	DOES NOT APPLY TO FLORIDA				
S121-12	DOES NOT APPLY TO FLORIDA				
S122-12	DOES NOT APPLY TO FLORIDA				

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S123-12	DOES NOT APPLY TO FLORIDA				
S124-12	DOES NOT APPLY TO FLORIDA				
S128-12	DOES NOT APPLY TO FLORIDA				
S129-12	DOES NOT APPLY TO FLORIDA				
S130-12	DOES NOT APPLY TO FLORIDA				
S131-12	DOES NOT APPLY TO FLORIDA				
S136-12	DOES NOT APPLY TO FLORIDA				
S137-12	Clarified the meaning of “base” and “storage rack” in Sections 1704.5.1, 1705.11, 1705.11.7, 1905.1.8 and 2209.1		X		
S138-12	DOES NOT APPLY TO FLORIDA				
S139-12	DOES NOT APPLY TO FLORIDA				
S140-12	DOES NOT APPLY TO FLORIDA				
S141-12	DOES NOT APPLY TO FLORIDA				
S142-12	DOES NOT APPLY TO FLORIDA				
S144-12	DOES NOT APPLY TO FLORIDA				
S146-12	DOES NOT APPLY TO FLORIDA				
S147-12	DOES NOT APPLY TO FLORIDA				
S148-12	Updated references to “construction documents” in the building code in Section 202, 1705.3, 1705.11.6, 1705.12.3, 2105.1, 2105.2.2.2.1, 2204.2.1 and 2207.4.		X		
S149-12	DOES NOT APPLY TO FLORIDA				
S151-12	DOES NOT APPLY TO FLORIDA				
S152-12	DOES NOT APPLY TO FLORIDA				
S153-12	DOES NOT APPLY TO FLORIDA				
S157-12	DOES NOT APPLY TO FLORIDA				
S158-12	DOES NOT APPLY TO FLORIDA				
S159-12	DOES NOT APPLY TO FLORIDA				
S160-12	DOES NOT APPLY TO FLORIDA				
S161-12	DOES NOT APPLY TO FLORIDA				
S162-12	DOES NOT APPLY TO FLORIDA				
S165-12	DOES NOT APPLY TO FLORIDA				
S166-12	DOES NOT APPLY TO FLORIDA				

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S169-12	DOES NOT APPLY TO FLORIDA				
S170-12	Merged content of Sections 1708.1 and 1710.1 into Section 1710.1 and deleted Section 1708.1.		X		
S171-12	Changes the required static test to a minimum of the specified factored design loads, and specifies how to test components that carry dynamic loads in Section 1709.3.2.		X		
S173-12	Clarified that ASD loads are to be used in the application of Section 1710.5.		X		
S176-12	Clarified the requirements for tubular daylighting devices, within the context of skylights and sloped glazing in Sections 202, 1710.6, 2404.2, 2405.5, 2405.5.1 and 2405.5.2.		X		
S177-12	Deleted Section 1711.1 and added ASTM D 7147-05 for testing joists in Sections 2303.5 and 2304.9.3 and Chapter 35 (NEW)		X		
S180-12	Required evaluation of rock materials in Section 1803.5.6.		X		
S181-12	Specific guidelines are provided to identify responsibilities and basic requirements for providing safe and successful underpinning and excavations near adjacent structures in Sections 1803.5.7, 1804.1, 1804.2 (New) and 1804.2.1 (New).		X		
S184-12	Changed to address permanent loads surcharging a neighboring structure in Section 1808.3.2 (New).		X		
S185-12	Clarification that the evaluation of group effects on uplift needs to be performed where spacing is less than three times the least horizontal dimension in Section 1810.2.5.		X		
S187-12	Corrected and clarified the requirements for steel foundation elements and added material referenced standard in Sections 1810.3.2.3, 1810.3.5.3.1, 1810.3.5.3.2 (NEW) and 1810.3.5.3.3 (NEW), Table 1810.3.2.6 and Chapter 35 (NEW).		X		
S190-12	Clarification of requirements in Section 1810.3.3.1.6.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S196-12	Updated concrete construction requirements by adding up-to-date ASTM requirements for hydraulic cement in Section 1903.1 and 1903.2 (NEW) and Chapter 35 (NEW).		X		
S199-12	Replaced the weathering probability map with ACI 318's performance requirements; removed the exception for structural concrete; and clarified the durability requirements for nonstructural concrete in Section 1904.1 and 1904.2, Figure 1904.2 and Table 1904.2.			X (Cold Regions)	Not in FL
S203-12	Removed redundant requirements for wall piers in Sections 1905.1, 1905.1.1, 1905.1.3 and 1905.1.4.		X		
S213-12	Removed allowable stress design for anchoring to concrete in Sections 1908, 1908.1, 1908.2, 1908.3, 1908.4 and 1908.5, Table 1705.3 and Table 1908.2.		X		
S215-12	Updated the special inspection requirements for concrete anchors to be based on the latest edition of ACI 318 in Sections 1901.3 (NEW) and 1909 and Table 1705.3.		X		
S217-12	Moved reinforced gypsum concrete in Section 1911 to Sections 2501.1.1 and 2514 (NEW).		X		
S218-12	Replaced obsolete requirements in Chapter 19 of the IBC with a reference to Section 2206 and modified provisions allowing unprotected concrete-filled pipe columns by adding them to Section 704.2 in Section 1901.3 (NEW) and 1912.		X		
S219-12	Removed unnecessary portions of Sections 202, 2101.2, 2101.2.1, 2101.2.2, 2101.2.3, 2101.2.4, 2101.2.5, 2101.2.7, 2101.3, 2101.3.1, 2102.1 and 2111.2		X		
S220-12	Adjusted the definitions in Section 202 to (1) clarify their purpose and (2) to correct errors from approved changes in previous ICC code development cycles that were not made in the building code.		X		
S222-12	Replaced 2103 material references with appropriate reference to the TMS 402		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
	Standard in Sections 202, 2102.1, 2103.1, 2103.2, 2103.3, 2103.4, 2103.5, 2103.6, 2103.7, 2103.8, 2103.9, 2103.12, 2103.13 and 2103.14.				
S225-12	Removed duplicate language from Section 2104 to better coordinate masonry construction requirements with the TMS 402 standard in Sections 2104.1, 2104.1.1, 2104.1.2, 3104.1.3, 2104.1.4, 2104.1.5, 2104.1.6, 2104.2, 2104.2.1, 2104.3 and 2104.4.		X		
S226-12	Modified to consolidate the masonry quality assurance requirements of Section 2105 by referencing the requirements of TMS 602 in Sections 202, 2102.1 and 2105.1 thru 2105.3.3.		X		
S228-12	Removed unnecessary wording referring to a masonry wall frames in Section 2108.3.		X		
S229-12	Clarified the requirements for fireplaces and chimneys in Sections 2111.1, 2111.3, 2111.4, 2113.1, 2113.3 and 2113.4.		X		
S234-12	Added reference standard EN 15250 for masonry heaters in Sections 2112.2 and 2112.5 and Chapter 35 (NEW).		X		
S236-12	Made editorial corrections to Section 2112.5.		X		
S238-12	Modifications in Sections 202, 722.5.1, 722.5.1.1, 722.6.1.4, 722.5.1.4.1, 722.5.1.4.5, 722.5.2, 722.5.2.1, 722.5.2.2.1, 1615.3.2, 1809.11, 2205.1, 2205.2 (NEW), 2205.2.1 (NEW), 2205.2.1.1 (NEW), 2205.2.1.2 (NEW), 2205.2.2 (NEW), 2203.1, 2203.2, 2206.1, 2206.2 and 2206.2.1 (NEW) to make consistent with AISC terms and requirements.		X		
S239-12	Implemented editorial changes in Sections 2204.1, 2204.2 and 2204.2.1.		X		
S240-12	Clarified the intent of steel joist requirements in Sections 1604.3.3, 2203.2, 2207.1, 2207.1.1 (New), 2207.2, 2207.3, 2207.4, and 2207.5.		X		
S243-12	Made editorial changes in Section 2209.1.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S244-12	Added reference standard SDI-C-2011 for composite slab construction in Section 2210.1.1.3 (NEW) and Chapter 35 (NEW).		X		
S245-12	Adds a new performance standard AISI S220—11 for cold-formed steel in Sections 2201.1, 2203.1, 2203.2, 2211.1 and 2211.4, Table 2506.2 and Table 2507.2 and Chapter 35.		X		
S246-12	Changed to allow wider use of the AWC Wood Frame Construction Manual in Sections 2301.2, 2308.1 and 2309 (NEW).		X		
S248-12	Added definition of commonly used wood engineered products (engineered wood rim board) as well as consensus standards necessary for determining appropriate applications in Sections 202 (NEW) and 2303.1.12 (NEW) and Chapter 35 (NEW).		X		
S250-12	Added definition of commonly used wood engineered products (cross-laminated timber) as well as consensus standards necessary for determining appropriate applications in Sections 202 (NEW) and 2303.1.4 (NEW) and Chapter 35 (NEW).		X		
S260-12	Changed required thickness of steel in Section 2304.9.6.		X		
S261-12	Changed to provide latitude in fastening a rim joist to whatever framing is below in Table 2304.9.1.		X		
S263-12	Changed to require connections at blocking to a foundation sill in the case where a framed floor is built over a crawlspace without cripple-walls (the foundation walls extend to the underside of the floor framing) in Table 2304.9.1.		X		
S265-12	Reformatted and reorganized of the fastener schedule in Table 2304.9.1.		X		
S266-12	Removed fasteners for fiberboard sheathing in Table 2304.9.1 that are no longer recommended.		X		
S267-12	Made requirements consistent for toe-nail connection of stud to top and bottom (sole) plates in Table 2304.9.1.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S268-12	Made improvements editorial regarding preservative treated and naturally durable wood in Sections 2304.11, 2304.11.1, 2304.11.2, 2304.11.2.1, 2304.11.2.2, 2304.11.2.3, 2304.2.4, 2304.11.2.5, 2304.11.2.6, 2304.11.2.7, 2304.11.3, 2304.11.4, 2304.11.4.1, 2304.11.4.2, 2304.11.5, 2304.11.6 and 2304.11.7.		X		
S273-12	Made editorial changes and reorganized construction requirements in Section 2308 (New).		X		
S274-12	Improved the alignment of the wind threshold with the referenced standards in Section 2308.2.1				
S277-12	Updated the wind speed thresholds in Section 2308.2 to be consistent with the wind maps in Section 1609.		X		
S278-12	Clarified permitted roof framing spans and use of permitted joist spans in Section 2308.2.		X		
S279-12	Corrected error in top plate connection requirements and makes clarified that blocking extends to the diaphragm in Section 2308.3.2.2.		X		
S280-12	Clarified connections and blocking requirements in Section 2308.2.2.		X		
S281-12	Coordinated between spans in girder tables in IRC and IBC in Sections 2308.7, 2308.9.1, 2308.9.5.1, 2308.9.5.2 and 2308.9.6 and Table 2308.9.5 and Table 2308.9.6.		X		
S283-12	Coordinated between spans in joists and rafters tables in IRC and IBC in Section 2308.8 and Table 2308.8(1), Table 2308.8(2), 2308.10.2, Table 2308.10.2(1), Table 2308.10.2(2), 2308.10.3, Table 2308.10.3(1), Table 2308.10.3(2), Table 2308.10.3(3), Table 2308.10.3(4), Table 2308.10.3(5) and Table 2308.10.3(6).		X		
S284-12	Corrected the exception allowing a single top plate and clarified the header positioning that allows the top plate to be discontinued in Section 2308.9.2.1.		X		
S285-12	Implemented minor modifications to nonbearing walls and partitions in Table 2308.9.1 and Section, 2308.9.2.3.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S287-12	Clarified the details of exterior wall sheathing and allowed alternative sheeting that meets performance requirements in Sections 202 (New), 2302, 2308.9.3 (New), 2304.6, 2304.6.1 and 2304.6.2 and Table 2304.6		X		
S288-12	Changed to clean up references to removed tables and coordinated the bracing requirements with other code sections on gypsum board in Table 2308.9.3.		X		
S289-12	Changed to recognize screws for fastening gypsum board braced wall panels in Table 2308.9.3.		X		
S291-12	Implemented technical and editorial changes for portal frame bracing alternative in Section 2308.9.3.2 and Figure 2308.9.3.2.		X		
S292-12	Clarified the requirements and limitations of openings in diaphragms in structures assigned to Seismic Design Category B, C, D and E in Section 2308.11.3.3.		X		
S293-12	Editorial clarification in Figure 2308.11.3.3.		X		
S294-12	Changed to move testing requirements to IBC Chapter 15 in Sections 1504.2.1.1 (NEW), 1504.2.1.2 (NEW), 1711.1, 1711.1.1, 1711.1.2, 1711.1.2.1, 1711.1.3, 1711.2, 1711.2.1, 1711.2.2 and 2309 (NEW).		X		
S295-12	Update to ultimate design wind speed in Sections 2404.1, 2404.2, 2404.3.1, 2404.3.2, 2404.3.3, 2404.3.4, 2404.3.5 and 2405.5.2.		X		
S297-12	Changed requirements for safety glazing that is less than 60 inches above stairs landing in Section 2604.7.		X		
S298-12	Clarified safety glazing requirement in Section 2604.7.		X		
S300-12	Clarification of glazing used in handrails and design factor for loads in Sections 2407.1 and 2407.1.1.			X	N/A
S301-12	Added criteria for glass walkways in Sections 2409 and 2409.1 (NEW) and Chapter 35 (NEW).		X		
S304-12 PART I	Added gypsum panel products in Sections [A]110.3.5, 202, 2501.1.1, 2502.1, 2503.1, 2504, 2505, 2506 and 2508.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
S304-12 PART II	Added gypsum panel products in Sections [A]110.3.5, 202, 2501.1.1, 2502.1, 2503.1, 2504, 2505, 2506 and 2508.		X		
S305-12	Implemented editorial change (fiber-cement products) in Sections 202, 2102.1 (New) and 2502.1 (New).		X		
S306-12	Changed to add new referenced standards on hydraulic cement that can be used in plastering applications. Table 2507.2 and Chapter 35 (New).		X		
S307-12	Changed to reference permitted backer board materials defined in TABLE 2509.2 in Sections G103.4, G103.5, G103.6.1 and G401.1.		X		
S308-12	Removed requirement for supplemental framing in Section 2509.3.	X			N/A
S310-12	Updated installation and performance required for a weather-resistive barrier. Section 2510.6 and Chapter 35 (NEW)		X		
FS147-12	Revised Section 1403.5 to exempt walls in which the only combustible material is a water-resistive barrier with low flame spread and low mass so that it will have an insignificant contribution to the total fuel load of the wall system.		X		
FS150-12	Revised Section 1403.6 to delete the specific requirement for preservative treated wood in exterior walls extending below the base flood elevation is deleted because wood products such as plywood sheathing, plywood panel siding and wall studs have been shown to be resistant to effects of flood exposure without aid of preservatives required elsewhere in the code for protection of wood from decay and termites.		X		
FS154-12	Revised Section 1404.4 to allow continuous insulation to be placed in wall systems between masonry veneer and the backing.		X		
FS155-12	Corrected the terminology in Section 1401.5 related to cold-formed steel and aluminum to match that utilized in Chapter 22, Section 2210 and Chapter 20.		X		
FS156-12	Revised Section 1404.10 to add ISO 8336 Fiber-Cement which has been harmonized with the performance requirements of ASTM C1186 as a referenced standard.		X		
FS157-12	Added Section 1404.13 for foam plastic insulation, a common component in exterior wall covering assemblies, to require compliance with Chapter 26.		X		
FS160-12	Added to Sections 1405.3, 1405.3.1, 1405.3.2 and Table 1405.3.1 vapor retarder requirements to clarify where types of vapor retarders should and should not be installed to perform effectively.		X		
FS162-12	Revised Sections 1405.7 and 1405.8 provide to consistency for types of anchored veneer.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
FS163-12	Substituted in Section 1405.8 “light-frame” for “stud” construction.		X		
FS164-12	Substituted in Section 1405.11 “light-frame” for “wood” construction.		X		
FS165-12	Eliminated in Section 1405.11.1 the specific minimum design pressure for attachment of metal veneers and relies on reference to Section 1609 while clarifying that it is the component and cladding wind load that must be resisted.		X		
FS166-12	Clarified backup requirements Section 1405.11.13.		X		
FS167-12	Provided in Section 1405.14.1 guidance on fastener requirements for cold-formed steel light-frame construction similar to those specified in IBC Section 1405.16.		X		
FS169-12	Provided in Section 1405.16 guidance on fastener requirements for cold-formed steel light-frame construction.		X		
FS170-12	Revised Section 1405.16.1 to add ISO 8336 Fiber-Cement which has been harmonized with the performance requirements of ASTM C1186 as a referenced standard and to eliminate approval of caulking materials.		X		
FS171-12	Revised Section 1405.16.2 to add ISO 8336 Fiber-Cement which has been harmonized with the performance requirements of ASTM C1186 as a referenced standard and to eliminate approval of caulking materials.		X		
FS172-12	Modified Sections 1406.2.1.1 and 2603.5.7 to clarify that materials meeting exception #2 for exterior weather coverings in Section 1406.2.1.1 must also meet the minimum thickness requirements of Table 1405.2.		X		
FS173-12	Eliminated Section 1407.1.1 on Plastic Core.		X		
FS175-12	Modified Section 1409.10.2 to remove the improper reference to NFPA 286 as other standards could be used in accordance with NFPA 275 to determine the integrity fire testing of HPL.		X		
FS177-12	Clarified in Sections 809, 1410 and 2103.15 requirements for exterior and interior adhered masonry veneer (AMV).		X		
FS178-12	Amended Section 2603.1 to substitute NFPA 276 for FM 4450.		X		
FS182-12	Amended Section 2603.4.1.5 for the use of a thermal barrier to separate foam plastic insulation from the interior of the building to clarify the two exceptions for the use of a thermal barrier.		X		
FS183-12	Amended Section 2603.4.1.6 to make cellulose insulation an acceptable material for use as an ignition barrier for foam plastics used in attics and crawl spaces.		X		
FS184-12	Amended Section 2603.4.1.8 to allow use of aluminum, steel, fiberglass for door faces.		X		
FS185-12	Amended Section 2603.4.13 to include rim and/or band joists with sill plates and headers in foam plastic spray prescriptive requirements.		X		
FS186-12	Amended Section 2603.5 to exempt exterior walls containing foam plastic insulation covered by a minimum of 1-inch thickness of masonry or concrete from required NFPA 285 testing.		X		
FS189-12	Amended Section 2603.7 requirements for foam plastic used in plenums to be simply extracted from the IMC M602.2.1.5.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
FS190-12	Amended Sections 2603.10 and 2603.10.1 so that foam plastic that passes one of the large-scale tests does not need to meet the requirements of Section 2603.4 or those of Section 2603.6.		X		
FS192-12	Added 2603.11 to address the use of foam plastic insulating sheathing in exterior wall covering assemblies where resistance to wind pressure is required.		X		
FS193-12	Added 2603.12 to give needed direction for the attachment of cladding over foam sheathing to masonry or concrete walls.		X		
FS194-12	Added to Sections 2603.11 , 2603.11.1 , and 2603.11.2 and Tables 2603.11.1 2603.11.2 prescriptive fastening requirements for cladding materials installed over foam sheathing to ensure adequate performance.		X		
FS196-12	Added to Section 2604.1 both the flame spread and smoke development requirements of Chapter 8 are required for foam plastics that are qualified for use as interior finish in accordance with Section 2603.10.		X		
FS198-12	Amended Sections 202, 1410, 2601, 2602 and 2612 to allow the use of plastic composites for exterior applications as deck boards, stair treads, handrails and guardrail systems in buildings of Class VB construction.		X		
G17-12					
G146-12	Modified Section 1203.2 to provide consistency with the ventilation requirements between the IBC and IRC and provide clarity regarding the placement of attic ventilators.		X		
G147-12	Modified Section 1203.2 to align the IBC with IRC as to how climate zones are determined.		X		
G149-12	Added to Sections 202, 1203.2, 1203.3 and Table 1203.2 to make the IBC consistent with the IRC for unvented attic and unvented rafter assemblies.		X		
G153-12	Modified Section 1204.1 to exempt Groups F, H, S or U occupancies from the heating requirement in the IBC.		X		
G157-12	Added to Sections 1207.1, 1207.2 and 1207.3 regulations for sound transmission between for sleeping units for hotel/motel rooms and dormitories.			X	Offset by Fire Resist. assemblies
G158-12	Added to Section 1208.2 allowance for 7’ ceiling height inside dwelling units to make IBC consistent with IRC R305.1.		X		
G160-12	Modified Section 1210.2.3 to provide consistency with the IRC in providing the same height for tiling or other similar finish materials in shower compartments and surrounding bath tubs.			X	N/A
G163-12	Added to Section 3001.2 the ASME A17.7/CSA B44.7 Performance-Based Safety Code for Elevators and Escalators.		X		
G164-12	Added to Section 3001.2 the ANSI MH29.1-2008 The Safety Requirements for Industrial Scissor Lifts		X		
G166-12	Amended Section 3004 to delete the requirement for providing vents in elevator hoistways.		X		
G167-12	Amended Section 3004 requirement for providing vents in elevator hoistways as alternative to G166-12.		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
G168-12 Part I	Amended Sections 3004.2, 3006.1 through 3006.5, 3007.2, 3007.3.1, 3007.7.3, 3008.3.1, 3008.7.3, 3008.8, 3008.9.1 and Table 1607.1 to provide voting options for providing vents for hoistways.		X		
G168-12 Part II	Changed to harmonize the current IBC text with the nomenclature now used in ASME A17.1/CSA B44 to ensure that the same level of protection is provided to MRLs as is provided for traditional elevators with machine rooms.		X		
G171-12	Modified Section 3006.4 to eliminate the reduction in the construction rating of fire service access elevator machine rooms.			X	
G173-12	Amended Section 3007.2to eliminate portions already addressed in ASME A17.1/CSA B44 or the Occupant Evacuation Elevator requirements of Section 3008.		X		
G175-12	Amended Sections 202, 1027.1, 3007.7.1 and 3008.7.1 to provide viable alternatives to direct access from the elevator lobby to the exit stairway enclosure to provide necessary design flexibility.		X		
G176-12	Amended Section 3007.7.3 to addresses concerns with machine room less (MRL) elevator systems.		X		
G177-12	Amended Section 3007.7.4 to clarify the intended size of elevator lobbies for Fire Service Access Elevators		X		
G178-12	Amended Section 3007.7.5 to clarify the appearance of the fire service access elevator symbol.		X		
G179-12	Modified Section 3007.9 to require standby power for elevator car lighting and for ventilation and cooling equipment for elevator machine/control rooms and machinery/control spaces.		X		
G180-12	Modified Section 3008.2 in accordance with the occupant evacuation operation requirements in ASME A17.1/CSA B44 and deleted Section 3008.2.1.		X		
G181-12	Deleted Section 3008.2.2 since it has been replaced by ASME A17.1/CSA B44.		X		
G182-12	Amended Section 3008.7.3 based on Section 3007.7.3 MRL elevator systems provisions.		X		
G183-12	Deleted Section 3008.7.6 since it has been replaced by ASME A17.1/CSA B44.		X		
G183-12	Modified Section 3008.7.7 to clarify that only specific sections within Section 1007.8 need to be addressed in the design and installation of 2-way communication systems.		X		
G185-12	Modified Section 3008.9 to require standby power for elevator car lighting and for ventilation and cooling equipment for elevator machine/control rooms and machinery/control spaces.		X		
G186-12	Added to Sections 202 and 3102.1 the ASCE/SEI 55-10 Tensile Membrane Structures standard.		X		
G187-12	Added Section 3102.7.1 that for membrane-covered frame structures, the membrane shall not be considered to provide lateral restraint in the calculation of the capacities of the frame members.			X	N/A
G190-12	Moved from section 108.2 to section 3103.1.1 the technical language on conformance of temporary structures and their uses.		X		
G191-12	Modified Sections 3104.1.1, 3104.2 and 3104.5 for pedestrian walkways to clarify the various compliance options available and to		X		

Table 9. 2015 IBC Structural Changes Cost Impact					
CODE CHANGE #	2015 IBC STRUCTURAL CHANGE SUMMARY	IBC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
	affirm that the walls at the intersection of the building and walkway need not be fire resistance rated.				
G192-12	Added to Section 3105.4 regulations on the fire propagation performance and flame spread requirements (NFPA 701) for materials covering awnings on commercial buildings.		X		
G195-12	Amended Section 3109.4 to clarify the location where barriers are required at a residential swimming pool.		X		
G197-12					

*For prescriptive Code changes only.

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APPENDIX J

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
RB4-13	Modified Sections R104.10.1, R105.3.1.1, R112.2.1, R112.2.2, R301.2.4 and R322.1 of the IRC and brought the IRC in alignment with the IBC and IEBC so that the flood provisions apply to substantial improvement and substantial damage of existing dwellings.		X		
RB39-13	Modified Sections R202, R301.2.1, R301.2.1.1, R301.2.1.2, R301.2.1.2.1, R301.2.1.3, R301.2.1.4 and Tables R301.2(2), R301.2(4)A, R301.2(4)B, R301.2(4)C, R301.2.1.2, R301.2.1.3, R301.2.1.5.1, R301.2(2), 301.7 and Figures R301.2(4)A, R301.2(4)B, R301.2(4)C and R301.2(7) of the IRC and brought the IRC in alignment with the 2012 IBC and ASCE 7-10.		X		
RB40-13	Amended R301.2.1.1.1 to clarify the requirements for sunrooms under the IRC by adding reference to the provisions of AAMA/NPEA/NSA 2100 – 12 Specifications for Sunrooms to the available options for approval of sunroom construction in the IRC.		X		
RB41-13	Clarified Section R301.2.1.2 to limit wood shutters to buildings of mean roof height of 33 feet or less.		X		
RB43-13	Amended Tables R301.2.1.2, R602.3(2), R602.3.1, R602.3(3), R602.10.1.3, R602.10.3(1), R602.10.4, R602.10.5, R602.10.6.1, R603.3.1, R603.3.2(2), R603.3.2.1(1) through (4), R603.8, R611.6(1) through (4) and R613.5(1); and Sections R505.1.1, R602.10.6.5.1, R602.10.8.2, R603.1.1, R603.9.4.1, R611.2, R613.2, R802.10.2.1, R804.1.1, R804.3.2.1, R804.3.3 and R905.3.7 to coordinate terminology in the code including that related to ultimate design wind speed.		X		
RB44-13	Amended Sections R301.2.1.4, R603.3.2, R613.2, R802.10.2.1and Tables R613.5(1) and R613.5(2) to make the IRC consistent with the IBC and ASCE 7.		X		
RB45-13	Modified Section R301.2.1.4 to bring IRC in line with the IBC and ASCE 7 standards.		X		
RB47-13	Section R301.2.2.2.1 and Table R301.2.2.2.1to permit roof and ceiling dead loads not exceeding 25 pounds per square foot (1190 Pa) provided that the wall bracing amounts in Chapter 6 Section R602.10.3 are increased in accordance with Table R602.10.3(4).		X		
RB49-13	Modified Sections R301.2.2.2.5, R301.3 and R803.2.3 to correct the terminology to reflect what is adopted throughout the IRC and the IBC.		X		
RB51-13	Modified Sections R301.2.4 and R322.1 to require that buildings that are in more than one flood zone have to meet the requirements of the more restrictive zone.		X		
RB52-13	Modified Sections R301.2.4.1 and R322.1.1 to provide an alternative for buildings and structures in any flood hazard areas to be designed and constructed according to the standard ASCE 24 *Flood Resistant Design and Construction*.		X		
RB53-13	Modified Section R301.3 to relocate the story height limit to each of the individual material limits and coordinate it with the material-specific provisions.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB54-13	Modified Section R301.3 to prevent the wall bracing adjustment factors from being applied twice.		X		
RB58-13	Modified Sections R311.7.8.1, R317.4, R317.4.1, R507.3 and Table R301.5 to correct the content from “guardrail” to “guard”.		X		
RB60-13	Modified Table R301.7 to clarify allowable deflection for floors and all ceilings with plaster or stucco finish and to clarify that gypsum board is considered a flexible finish.		X		
RB62-13	Revised Table R301.7 to editorially reflect wind load.		X		
RB67-13	Modified Tables R302.1(1) and R302.1(2) to address construction problems associated with having to simultaneously provide fire-resistive eave projections and adequate roof ventilation vents. In addition, current code language is silent on a potential problem of fire-spread to unprotected attics from exterior sources through roof vents where residential structures are built tight to fire separation requirements.		X		
RB68-13	Modified Tables R302.1(1) to reduce the penetration protection requirements for non sprinklered buildings to the same level as sprinklered buildings.		X		
RB71-13	Modified Tables R302.1(1) and R302.1(2) to provide that projections are not permitted within 2 ft. of the line used to determine the fire separation distance.		X		
RB79-13	Modified Sections R302.2 and R302.2.4 to require townhouse separation fire ratings of 2-hours if sprinklers are not provided.		X		
RB93-13	Modified Section R302.11.1 to add ASTM E 119 or UL 263 for cellulose insulation testing.		X		
RB98-13	Modified Section R303.1 to include openable skylights as a source of natural ventilation.		X		
RB100-13	Modified Section R303.4 to create consistency between the IECC and IRC air tightness levels by imposing the same whole-house mechanical ventilation requirements on all buildings.		X		
RB101-13	Modified Section R303.5.1 to clarify separation requirements for intake openings and that clothes dryer exhaust ducts shall be terminated in accordance with M1502.3.		X		
RB102-13	Modified Sections R303.7, R303.7, R303.7.1 and R303.8 to create separate sections for interior stairways and exterior doorways illumination.		X		
RB106-13	Modified Sections to require that habitable rooms have a floor area of not less than 70 sqft. instead of requiring at least one 120 sqft. room in a dwelling unit.	X			N/A
RB108-13	Modified Sections R305.1 and R305.1.1 to set the required ceiling height for bathrooms, toilet rooms, and laundry rooms at 6 feet 8 inches and allow beams, girders, ducts or other obstructions in basements containing habitable space to project to within 6 feet 4 inches (1931mm) of the finished floor.		X		
RB111-13	To limit the use of safety glazing to the “hinge-side” of a swinging door an in-swinging door where someone could knock out a window if someone opens the door from the other side.	X			N/A

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB113-13	Modified Section R308.4.5 to add "shower, sauna, steam room" to the list in the exception to requiring safety glazing in locations within and adjacent to areas with wet surfaces.		X		
RB115-13	Modified Section R308.4.7 to coordinate IRC and IBC glazing requirements adjacent to the bottom stair landing.	X			N/A
RB116-13	Modified Section R308.6.9.1 to allow for comparative analysis to also be used on units larger than the tested unit		X		
RB117-13	Modified Section R310 to acknowledge that doors are viable EEROs and defines the minimum requirements for EERO doors. It allows side hinged doors or sliders to be used as EEROs.		X		
RB122-13	Added Section R310.1.5 to cover the installation of replacement windows.		X		
RB123-13	Modified Section R310.1.5 to allow use of window opening control devices complying with ASTM F 2090 on windows serving as a required emergency escape and rescue opening.		X		
RB123-13	Added Sections R310.1.6 and R310.1.7 to clarify that emergency escape and rescue openings are only required in additions if there are sleeping rooms and/or a basement and then only if the new basement does not have a sleeping room or access to an emergency escape and rescue opening in the existing basement.		X		
RB125-13	Amended Section R311.1 to clarify the means of egress from dwellings under the IRC.		X		
RB126-13	Amended Section R311.3.2 to clarify situations where a top landing is not required.		X		
RB131-13	Amended Sections R311.7.2, R311.7.5.1 and R311.7.5.2.1 to clarify and coordinate the IRC with the International Building Code for open riser issues.		X		
RB132-13	Modified Section 311.7.3 to increase the maximum stair flight height to 147".	X			N/A
RB133-13	Modified Section 311.7.5.1 to change the current exception in the code which allows unrestricted openings in risers if the stair has a 30" total rise.		X		
RB135-13	Modified Section 311.7.5.1 to add clarity to the intent of the stair nosing projection provisions.		X		
RB137-13	Modified Section 311.7.9 to clarify illumination of stairways in accordance with Section 303.7.		X		
RB138-13	Modified Section 311.7.10.1 to provide qualifications and limits for spiral stairs that were missing from the code previously.		X		
RB139-13	Modified Section 311.7.10.1 to simply adjust the spiral stair tread depth in conformance with the 2009 change in the method of measuring for winder tread depth at the intersections of the walkline with the nosings instead of the prior method which was square to the leading edge.		X		
RB140-13	Added to Sections R202 and R311.7.11 to include alternating tread devices and ship ladders used in residential applications and adopts IBC regulations.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB141-13	Amended Section R311.8.1 to require a 1:12 ramp slope when serving an egress door and allowing flexibility fort ramps serving other areas.		X		
RB142-13	Amended Sections R311.8.1 and R311.8.2 to provide clarity with regard to the Dimensions of ramp landings.		X		
RB145-13	Amended Section R312.1.2 to delete the term “adjacent fixed seating” from the rules on guards.		X		
RB146-13	Amended Section R312.2.1 to coordinate the IRC with the changes approved to the IBC for window fall protection and window sills.		X		
RB149-13	Amended Section R313.1.1 to clarify that either a NFPA 13D fire sprinkler system or a system that complies with Section P2904 of the IRC may be installed in townhouses.		X		
RB154-13	Amended Section R314 to reformat the smoke alarm requirements into a more logical order		X		
RB155-13	Amended Sections R314.2 and R315.2 to delete the monitoring requirement due to its cost and its redundancy where an alarm system is already in place.		X		
RB156-13	Added Sections R314.3.1 and R314.3.2 to reduce nuisance alarms attributed to locating smoke alarms in close proximity to cooking appliances and bathrooms in which steam is produced.		X		
RB160-13	Amended Section 315 to clarify requirements for the installation of CO alarm and CO detection systems		X		
RB161-13	Modified Section R315.3 to exempt some minor work from triggering carbon monoxide detectors.		X		
RB165-13	Modified Section R316.3 to add density to testing requirements to the application of ASTM E84 test results to foam plastics.		X		
RB167-13	Modified Section R316.4 to prescriptively allow a thicker WSP to be used as a thermal barrier.		X		
RB167-13	Modified Section R316.5.3 to add exemption to thermal barrier for fiber-cement panel when tested in accordance with both ASTM E84 and NFPA 268 and to align the IRC and IBC.		X		
RB170-13	Modified Section R316.5.3 to clarify requirements of the IRC in Section R316.5.3. Section R316.6 specifically allows foam plastic insulation meeting one of the tests specified in R316.6 to not be required to meet the prescriptive requirements of Sections R316.3 through R316.5.		X		
RB171-13	Modified Section R316.5.4 to clarify requirements of the IRC in Section R316.5.3. Section R316.6 specifically allows foam plastic insulation meeting one of the tests specified in R316.6 to not be required to meet the prescriptive requirements of Sections R316.3 through R316.5.		X		
RB172-13	Modified Section R316.5.11 to apply same provisions to rigid foam that are currently enjoyed by spray foam products provided they meet the same criteria.		X		
RB174-13	Modified Section R316.6 to require that foam plastic insulations and foam plastic cores evaluated under Section R316.6 also meet the flame spread and smoke-developed requirements of Section R316.3. This requirement will bring the IRC into conformity with the requirements of the IBC.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB175-13	Modified Sections R316.5.12 and R316.8 to add the ANSI FS 100-12 Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in exterior wall Assemblies.			X	N/A
RB176-13	Amended Section R317.3 to require that stainless steel driven fasteners used are in accordance with the material requirements of ASTM F 1667.		X		
RB177-13	Added to Sections R320.1 and R320.1.1 to clarify the use of dwelling and lodging houses.		X		
RB180-13	Sections R322.1, R322.1.6, R322.1.8, R322.1.9, R322.2, R322.2.1, R322.3, R322.3.2, R322.3.3, R322.3.4, and R106.1.3 to require that dwellings in areas designated as “Coastal A Zones” meet the requirements of Section 322.3 for dwellings in coastal high hazard areas (Zone V), including open foundations (pilings or columns) with an exception that permits filled stem walls.			X	N/A
RB182-13	Section R322.1.5 to make it makes it match the definition in the NFIP regulations at 44 CFR 59.1		X		
RB183-13	Revised Section R322.1.8 to make the IBC and IRC consistent for Flood damage-resistant materials and specified the affected building components.		X		
RB185-13	Amended Section R322.1.9 to replace the requirement for anchor and tie-downs with a general reference to state or federal requirements		X		
RB186-13	Amended Section R322.1.9 to requiring that the bottom of the frame is the reference point resulting in the homes being approximately one foot above the base flood elevation.			X	Marginal higher
RB188-13	Amended Sections R322.2.1 and R322.3.2 to reduce flood risks on homes by adding a factor of safety of one-foot of additional height (called freeboard) to the elevation requirements.			X	Cost offset by insurance
RB189-13	Amended Sections R322.2.2 and R322.2.2.1 to reorganize all of the installation requirements in a separate section separating installation from the requirements that apply to the openings themselves.		X		
RB193-13	Added Sections R322.2.4, R322.3.7 to separate installation requirements for underground tanks from above-ground tanks and modified flood-resistant installation in M2201.6.		X		
RB195-13	Amended Section R322.3.2 format.		X		
RB196-13	Amended Section R322.3.4 to require that break away walls have flood openings that meet the criteria in Section R322.2.2(2).		X		
RB196-13	Amended Section R322.3.4 to clarify that the method used to determine breakaway wall resistance is the “allowable stress design,” to make it consistent with IBC Sec. 1612.5(2.3).		X		
RB198-13	Added Section R322.3.5.1 to require that an exterior door that meets the requirements of Section R612 be installed at the top of stairs that are enclosed with walls designed to break away in accordance with Section R322.3.4.		X		
RB203-13	Added to R202, R301.2.2.3.1, R324 to copy relevant portions of IBC Section 505.2 into IRC to make them consistent.		X		
RB208-13	R402.2.1 Materials for concrete. Materials for concrete shall comply with the requirements of Section R611.5.1.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB209-13	R402.4 Masonry. Masonry systems shall be designed and installed in accordance with this chapter and shall have a minimum specified compressive strength of 1,500 psi (10.3 MPa).		X		
RB211-13	R403.1.1 Minimum size. The minimum sizes width, W, and thickness, T, for concrete and masonry footings shall be as set forth in accordance with Table R403.1(1) through R403.1(3) and Figure R403.1(1). The footing width, W, shall be based on the load-bearing value of the soil in accordance with Table R401.4.1. Spread footings shall be at least 6 inches (152 mm) in thickness, T. Footing projections, P, shall be at least 2 inches (51 mm) and shall not exceed the thickness of the footing. Footing thickness and projection for fireplaces shall be in accordance with Section R1001.2. The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table R401.4.1. Footings for wood foundations shall be in accordance with the details set forth in Section R403.2, and Figures R403.1(2) and R403.1(3).		X		
RB212-13	Changes to revise and update existing Footing Foundation Detail Figures R403.1(1), R403.1(2), R403.1(3), R403.1.3.2, and R403.1.3.2.		X		
RB213-13	Changes to help clarify and bring conformity to Wood Foundation Detail in Figures R403.1(2) and R403.1(3).		X		
RB214-13	**R602.10.9.1 Braced wall panel support for Seismic Design Category Categories D0, D1 and D2** clarification for the foundation requirements under braced wall panels in high seismic areas.		X		
RB215-13	Correct inconsistencies in language referring to Seismic Design Categories between R403.1.2 and R403.1.4.2.		X		
RB216-13	Correct inconsistencies in language referring to reinforcement in Seismic Design Categories in R403.1.3.		X		
RB217-13	Clarification of the foundation anchorage requirements for cold-formed steel framing systems in R403.1.6.		X		
RB218-13	Clarify the foundation anchorage requirements by moving the existing exception for alternate foundation anchor systems providing equivalent capacity to ½" anchor bolts spaced at 6'-0" (or as otherwise required by the code or design) into the main text of R403.1.6. The revised language is similar to 2012 IBC Section 2308.6. This places the use of wedge anchors, expansion anchors, adhesive anchors, mudsill anchors and other alternatives approved by the building official on an equal level with cast-in-place anchor bolts.		X		
RB219-13	Spelling Correction in Figure R403.4(1) and clarification of Table R403.4.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB221-13	change adds expanded polystyrene insulation as an alternate product for horizontal insulation for frost protection of footings to Table R403.3(1)		X		
RB222-13	Clarification and note were added to Table 403.4 pointing out that linear interpolation may be used under certain conditions to determine stone depth for wall widths not shown.		X		
RB223-13	Removed standard no longer available from R404.1.1		X		
RB224-13	Table R404.1.1(1) 530/ASCE 5, using the allowable flexural tensile stresses in Table 2.2.3.2, the values shown in Table R404.1.1 (1) cannot be justified. The proposed change is to make the values shown in Table R404.1.1 (1) compliant with the prescriptive and analytical requirements of TMS 402/ACI 530/ASCE 5. It should be noted that in Table R404.1.1 (1) footnote d currently lumps solid grouted hollow units with solid masonry units. However, in both TMS 402/ACI 530/ASCE 5 Tables 5.6.3.1 and 2.2.3.2 the limitations of solid units are less than those of solid grouted hollow units. Depending on the type of mortar, the capacity from Table 2.2.3.2 for solid units is either 62% or 40% the capacity of solid grouted hollow units. With this proposal the IRC table for plain masonry wall will meet the requirements found in the referenced standard.			X	Minimal cost increase primarily impacting 8ft and 9ft walls where solid masonry units are currently specified.
RB225-13	The use of Tables R404.1.1(1), R404.1.1(2), R404.1.1(3), R404.1.1(4) and R404.1.2(2) thru R404.1.2(8) is prohibited for soil classifications not shown. Wall design is a function of a maximum of 60 psf hydraulic pressure. Soils with CH, MH, OL, OH and Pt have higher hydraulic pressures and therefore are not allowed for backfilling purposes unless the wall is designed by a registered design professional.			X	
RB226-13	The first sentence in Section R404.1.4.1 is changed so that the requirements for masonry and concrete foundation walls follow the same format. No. 3 bars are changed to No. 4 bars for seismic reinforcement in SDC D0, D1 and D2. TMS 402/ACI 530/ASCE 5, the adopted standard for masonry design, section 1.18.4.4.1 requires vertical reinforcement to be a minimum diameter of No. 4 bar spaced at a maximum of 48 inches. Footnote b in Tables R404.1.1(2), R404.1.1(3) and R404.1.1(4), are modified to reflect the maximum spacing limitation. The change in bar size and spacing will bring the minimum requirements of the referenced standard into the IRC.			X	Slight increase
RB227-13	Editorial change in Sections R403.3.4 and R404.1.2.3.6.1		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB228-13	Changes addresses conflicts and confusing language for when a design is required in Section R404.1.3 and retaining walls in Section R404.4.		X		
RB230-13	Section R405.1 revision provides an exception to the filter fabric requirement if the drain manufacturer's installation instructions recommend against using the filter fabric.		X		
RB233-13	Change the requirements of R406.1 and R406.2 for damp-proofing and water-proofing of concrete and masonry foundation walls to eliminate unnecessary damp-proofing or water-proofing on wall areas that do not affect the livability of interior spaces and floors below grade.		X		
RB234-13	Section R501.3 moved to R302.13		X		
RB235-13	Changed Section R501.3 to allow openings for drainage where membranes protect the underside of floors exposed to the weather.		X		
RB241-13	Changes R502.1 (NEW), R502.1.1, R502.1.1.1, R502.1.2, R502.2.2 (NEW) to a format nearly identical to what is used in Section 2302 of the International Building Code and addresses the use of wood structural panels in subflooring in Sec. R503.2		X		
RB242-13	R502.1.6, R602.1.3 and R802.1.5 adds language referring to ICC400 where Section 302.2.1 covers stress grading of logs.		X		
RB243-13	Adds cross-Laminated timber to Sections R202 (NEW), R502.1.8 (NEW), R502.8.2, R602.1.5 (NEW), R802.1.6 (NEW), R802.7.2 and Chapter 44.		X		
RB244-13	Add language in R202 (NEW), R502.1.8 (NEW), R602.1.5 (NEW), R802.1.7 (NEW), Chapter 44 for classifying the structural capacities engineered wood rim boards in accordance with ANSI/APA PRR 410 or ASTM D 7672.		X		
RB247-13	Add in Tables R502.3.3(1) and R502.3.3(2) an exception to the requirement for full-depth blocking at the supported end of cantilever floor joists for low-seismic areas and short cantilevers.		X		
RB248-13	Revises span Tables R502.3.1(1), R502.3.1(2), 802.4(1), R802.4(2) and Tables R802.5.1(1) through R802.5.1(8) for Select Structural, #2, and #3 grades of Douglas fir-Larch and #1 grade of Hem-Fir using the slightly higher bending values.		X		
RB249-13	Change to footnote "b" of Tables R502.3.3(1) and R502.3.3(2) to prohibit the unintended use of these spans with southern pine lumber until they have been corrected for anticipated changes in design values.		X		
RB250-13	Changes to Tables R502.5(1), R502.5(2), Table R802.4(1), R802.4(2) and Tables R802.5.1(1) through R802.5.1(8) to reflect lower spans resulting from newly certified design values.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB251-13	Changes in Section R502.5 and Table R502.5(3) (NEW) provide a table based on post construction to support headers for porches with an 8 foot or 14 foot width.		X		
RB252-13	Change to R301.2.2.2.5, R404.1.9.2, R502.5, Table R502.5(1), Table R502.5(2), R602.3, R602.7 and Table R602.7.1 incorporate the single-ply header table into the main header table and moves the main header tables back to Chapter 6, the wall chapter, since headers and girders are often considered wall elements and the header tables are commonly referenced in wall provisions.		X		
RB254-13	Change to R502.10 to correct conflicting language		X		
RB255-13	Clarification of R503.2.1, R602.3, R604.1 and R803.2.1		X		
RB256-13	Addition of fiber-cement underlayment to the Table R503.2.1.1(1) provides for the choice and use of fiber-cement underlayment currently used in this type of application and permitted in ICC-ES Evaluation Service Reports.		X		
RB257-13	Addition of fiber-cement underlayment to the Table R503.2.1.1(2) provides for the choice and use of fiber-cement underlayment currently used in this type of application and permitted in ICC-ES Evaluation Service Reports.		X		
RB258-13	Section 505 - Skipped				
RB259-13	Change specifically adds crushed (recycled) concrete to the list of acceptable base materials in R506.2.2.		X		
RB260-13	Change to R507.2.3 to provide guidance as to where to locate the lateral load hold-down devices for decks with an upper limit of 24”.	X			Min.
RB262-13	Provides an alternative prescriptive method in R507.2.3 and Figure R507.2.3(2) (NEW) to achieve an acceptable lateral load connection for residential decks.	X			Min.
RB264-13	Added additional guidance for wood decks in residential structures to R507.1, R507.4 (NEW), R507.5 (NEW), Figure R507.5 (NEW), Table R507.5 (NEW), R507.5.1, R507.6, Figure R507.6 (NEW), Table R507.6 (NEW), R507.7 (NEW), R507.8 (NEW), R507.8.1 (NEW), Figure R507.8.1 (NEW), R507.8.2 (NEW), Figure R507.8.2 (NEW)		X		
RB265-13	Clarified deck ledger to band joist connection in R507.2, Table 507.2, R507.2.1, R507.2.2, R507.2.3 (NEW)		X		
RB267-13	Clarification of requirements in R202, Table R301.5, R311.7.5.4, R311.7.8.1, R311.7.8.4, R312.1.4, R317.4, R317.4.1, R317.4.2, R318.1, R507, R507.3, R507.3.1, R507.3.2 (NEW), R507.3.3 (NEW), R507.3.4 (NEW), R507.3.5 (NEW), and INDEX B for plastic composite (i.e. wood		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
	/plastic composite or plastic lumber) exterior deck boards, stair treads, guards, and handrails.				
RB269-13	Clarification of the process by which sawn lumber design values are certified and recognized in R602.1 (NEW), R602.1.5 (NEW), R602.1.6 (NEW) and R602.3.		X		
RB271-13	Update to bring the wind provisions of the IRC in line with the 2012 IBC and ASCE 7-10 in Tables R602.3(1), R602.3(2), R602.3(3), R602.3.1, R602.3.5, R602.10.1.3, R602.10.3(1), R602.10.4, R602.10.4.1, R602.10.5, R602.10.6.1, R602.10.6.4, R613.5(1) and R613.5(2) and Sections R602.10.6.5.1, R602.10.8.2, R602.12, R612.2 and R613.2.		X		
RB272-13	Changes in Table R602.3(1) to create greater consistency between the IRC Table R602.3(1) wood frame nailing schedule and IBC Table 2304.9.1, as it will appear in the 2015 edition of the IBC.				
RB273-13	Clarification of attachment requirements for wood structural panel exterior wall sheathing in Table R602.3(1).		X		
RB274-13	Clarifies Table R602.3(1) by removing the top plate splice nailing for seismic from the footnote into the fastener schedule.		X		
RB275-13	Provides a toenail connection option for the stud to top plate connection in Table R602.3(1)		X		
RB276-13	Changes to create greater consistency between the IRC Table R602.3(1) and IBC Table 2308 with respect to Band or Rim Joist to Joist nailing requirements.		X		
RB278-13	Changes in the ordering, modification, addition, and combination of the fastening descriptions to create greater consistency between the IRC Table R602.3(1) and IBC Table 2304.9.1.		X		
RB279-13	Deletion of footnote “f “in Table R602.3(1) to remove a conflict with wind limitations of R301.2.1.1.		X		
RB280-13	Added fiber cement to the allowable type of permitted underlayment in Table R602.3(2) and Chapter 44.		X		
RB281-13	Change to remove ambiguous language and add clarity to the footnote “a” of Table 602.3(5)		X		
RB283-13	Clarified stud size, height and spacing Exception (2) in Section R602.3.1 and Table R602.3.1.		X		
RB284-13	Clarified exception for single top plate used as an alternative to a double top plate in R602.3.2.		X		
RB285-13	Requires that the bottom plate as well as the top plate are continuous at the header locations in Figure R602.7.2.		X		
RB286-13	Clarification on supporting headers to prevent header rotation in Figure R602.3(2) and Section R602.7.4 (New).		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB287-13	Specified king stud requirements for wall openings spanned by single member headers over the span of wall openings in Sections R602.7 and R602.7.1 and Tables R602.7.1 and Table R602.7.1(2) (NEW).			X	~$100
RB288-13	Rim board header and king stud requirements are added to ensure adequate support of rim board headers in R602.7, R602.7.2 (NEW), Table R602.7.2(1) (NEW), Table R602.7.2(2) (NEW), Table R602.7.3(1) (NEW), R602.7.3(2) (NEW), Figure R602.7.2 (NEW)		X		
RB290-13	Addition as Exception 4 of Methods ABW or PFH to a list of methods to provide alternative corner attachment requirements for braced wall panels in R602.10.2.2.1.		X		
RB292-13	Remove Exception 3 under R602.10.2.2.1.		X		
RB293-13	Change in Table R602.10.3(1) provides a method to determine the bracing where the braced wall line spacing is different on each side.	X	X		~$100
RB295-13	Deleted and explained footnotes in Tables R602.10.3(1), R602.10.3(3) and R602.10.4 to clarify the use of Structural Fiber Board for wall bracing.		X		
RB296-13	Correct editorial deficiencies in Tables R602.10.3(2) and R602.10.3(4).		X		
RB297-13	Clarification in Table R602.10.3(3) of what to do where a building is greater than 50 feet in length.	X			Min.
RB301-13	Clarify the number of building stories in Table R602.10.3(4).		X		
RB302-13	Editorial clarification of Table R602.10.3(4).		X		
RB306-13	Clarification in Section R602.10.4.1 that intermittent methods ABW, PFH and PFG are permitted with continuous sheathing methods.		X		
RB307-13	Clarification in Section R602.10.4.1 of when intermittent and continuous bracing methods can be mixed within a building story.		X		
RB310-13	Clarification of Table R602.10.5 to allow for using method CS-PF in low seismic areas.		X		
RB311-13	Reduction in the hold-down capacity of straps in Figure R602.10.6.2.		X		
RB312-13	Clarified where the panel splice is to be made in Figures R602.10.6.2, R602.10.6.3 and R602.10.6.4.		X		
RB313-13	Restored missing notes to add clarity and direction for the spacer and fastening of the king stud in Figures R602.10.6.2, R602.10.6.3 and R602.10.6.4.		X		
RB315-13	Clarification of Section R602.10.6.5.1 of the required maximum spacing of braced wall lines supporting brick veneer in Seismic Design and when the spacing is permitted to be increased.	X	X		None in FL
RB319-13	Clarified the use of blocking panels in R602.10.8.2		X		
RB320-13	Clarified the placing of ventilation in openings in blocking panels in R602.10.8.2(3)		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB321-13	Provides for the proper adjustment in R602.10.11 when cripple walls do not have gypsum board on the interior side.		X		
RB322-13	Error correction in braced wall spacing for cripple wall bracing in low seismic areas in R602.10.11.		X		
RB324-13	Adjusted wind speeds in Section R602.12 and Table R602.12.4 to comply with ASCE 7-10.		X		
RB325-13	Clarified Section R602.12, Table R602.12.4 to allow the simplified method to be used where the exposure category is C.		X		
RB327-13	Increased contribution of each CS-PF Braced–Wall panel to 0.75 bracing units in Section R602.12.6.2.		X		
RB328-13	Added the traditional bracing method with hold-downs (Method ABW (narrow wall bracing)) to permitted bracing methods that may be used with the Simplified Bracing Provisions in Section R602.12.6.3.		X		
RB330-13	Added the traditional bracing method with hold-downs (Method ABW (narrow wall bracing)) to permitted bracing methods that may be used with the Simplified Bracing Provisions in Sections R603, M1308.1, M2101.6 and P2603.2.		X		
RB331-13	Clarification and editorial change to Section R604.3.		X		
RB332-13	Consolidated and organized the masonry design and construction requirements into one section and added reference standards in Sections R606.2 , R606.2.1, R606.2.2, R606.2.3, R606.2.4, R606.2.5 (NEW), R606.2.6 (NEW), R606.2.7 (NEW), R606.2.8 (NEW), R606.2.9 (NEW), R606.2.10 (NEW), R606.2.12 (NEW), R606.3, R606.3.4 (NEW), R606.3.4.1 (NEW), R606.3.4.2 (NEW), R606.3.4.3 (NEW), R606.8, R606.11, R606.12, R606.12.3, R606.13, R606.14 (NEW), R606.14.1 (NEW), R606.14.2 (NEW), R606.15, R606.15.1, Table R606.15.1, R607.1.1, R607, R607.1.2, R607.1.3, R607.2.1, R607.2.1.1, R607.2.2, R607.2.2.1, R607.2.2.2, R607.3, R608, R608.1, R608.1.1, R608.1.1.1, R608.1.1.2, R608.1.2, R608.1.2.1, R608.1.2.2, R608.1.2.3, R608.1.3, R608.1.3.1, R608.1.3.2, R608.2, R608.2.1, R608.2.2, R609, R609.1, R609.1.1, Table R609.1.1, R609.1.2, Table R609.1.2, R609.1.3, R609.1.4, R609.1.4.1, R609.1.5, R609.1.5.1, R609.1.5.2, R609.2, R609.2.1, R609.2.2, R609.2.3, R609.3, R609.3.1, R609.4, R609.4.1 and Chapter 44.		X		
RB334-13	Updates the concrete wall provisions to agree with PCA 100-2012, ACI 318-11, ASCE 7-10 and the 2012 IBC in Sections R611.2, R611.6.2, Table R611.6(1), Table R611.6(2), Table R611.6(3), Table R611.6(4), R611.7.1.1, Table R611.7(1A), Table R611.7(1B), Table R611.7(1C), Figure R611.9(1), Table R611.9(1), Figure R611.9(2), Table R611.9(2), Figure R611.9(3), Table R611.9(3), Figure R611.9(4),		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
	Table R611.9(4), Figure R611.9(5), Table R611.9(5), Figure R611.9(6), Table R611.9(6), Figure R611.9(7), Table R611.9(7), Figure R611.9(8), Table R611.9(8), Figure R611.9(9), Table R611.9(9), Figure R611.9(10), Table R611.9(10), Figure R611.9(11), Table R611.9(11), Figure R611.9(12), Table R611.9(12), R611.9.2, R611.9.3 and R611.10.				
RB335-13	Changed Section 611.5.1 to provide coordination with PCA 100		X		
RB336-13	Added ASTM C 150-12, ASTM C 595-12 and ASTM C 1157-11 standards for cement to Section R611.5.1.1 (NEW), Chapter 44.		X		
RB340-13	Added AMD-100 standard for component substitution for tested side hinged exterior doors to Section R612.3, Chapter 44.		X		
RB343-13	Changed to add method WDMA I.S. 11-13 for use in for Design Pressure rating based on comparative analysis for units larger than tested in Section R612.3.1 and Chapter 44.		X		
RB344-13	Corrected error in Table R613.5(1).		X		
RB345-13	Changed R613.7 to allow one horizontal chase at 14 inches (360 mm) plus or minus 2 inches (51 mm) from the bottom of the SIP panel and one at mid-height of the wall panel core at 48 inches (1 220 mm) plus or minus 2 inches (51 mm) from the bottom edge of the SIPs panel		X		
RB346-13	Changed R613.7 to allow additional SIP wall penetrations only were justified by analysis.		X		
RB349-13	Updates code terminology for gypsum products to be consistent with ASTM standards and the IBC in Sections R109.1.5.1, R202 (NEW), R702.3, R702.3.1, R702.3.2, R702.3.3, R702.3.5, Table R702.3.5, R702.3.6, R702.3.7, Table R702.3.7, R702.5, R703.11.2.1 and R703.11.2.2.		X		
RB350-13	Integrates AISI S200-12 and S220-11 standards for Cold-formed Steel Framing into Section R702.3.3 and Chapter 44.		X		
RB351-13	Clarification of application of Table R702.3.5, and that the fastening requirements of current Section R702.3.6 are actually a subsection of Section R702.3.5 and Table R702.3.5.		X		
RB352-13	Removed the term drywall and replaced it with the proper term and definition in Sections R202, Table R702.3.5, R1001.11 and Table N1102.4.1.1 (IECC R402.4.1.1)		X		
RB353-13	Clarified requirements for gypsum boards on garage ceilings underneath habitable rooms in Section R302.6 and Table R702.3.5		X		
RB354-13	Changed to make the 2015 IRC consistent with referenced industry standards and the 2015 IBC for water-resistant gypsum board in Section R702.3.8 (Will require fewer framing members).	X			~$100
RB355-13	Editorial changes to Section R702.4.2, Table R702.4.2 (NEW) and Chapter to better clarify and present the code recognized backer board products.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB357-13	Replaces spray foam density requirement with a permeance requirement for consistency with ASHRAE 90.1 and other IECC proposals in Section R202 (NEW) and Table R702.7.1.		X		
RB359-13	Changed Section R703.1 to accept that where exterior walls are constructed using logs, the log components and joinery system provide the exterior covering, structure, thermal barrier, and interior covering all in one assembly in accordance with ICC400. Weather protection is specifically covered in 305.1.		X		
RB363-13	Clarified Section R703.2 by deleting reference to paperbacked stucco lath.		X		
RB366-13	Changed Sections R703.4, R703.11.2.1 and R703.11.2.2 to align the wind speed in with the 2012 IBC and ASCE 7-10.		X		
RB367-13	Changed Section R703.4 and Table R703.5 (NEW) to better establish the current limits of the prescriptive fastening table (Table 703.4) for wall coverings.		X		
RB368-13	Addition of a new hardboard standard to Table R703.4 and Chapter 44.		X		
RB369-13	Sections R703.5.1, R703.5.3, Table R703.5.1(2) (New), Table R703.5.1(3) (NEW), Table R703.5.2, R703.5.3.1, R905.7.5, Table R905.7.5(2) (NEW) and R905.8.6		X		
RB371-13	Changed to provide for masonry veneer to be used with cold-formed steel framing in high seismic areas and limits Table R603.9.5(4) to two stories since the overturning anchorage for 3 story is marginal in Sections R603.9.2, R603.9.5, R603.9.5.1 (NEW) and R603.9.5.2 (NEW) and Table R603.9.5(1) (NEW), Table R603.9.5(2) (NEW), TableR603.9.5(3) (NEW), Table R603.9.5(4) and Table R703.7(2).			X	None in FL
RB374-13	Changed to consolidate and clarify the requirements for adhered masonry veneer in Table R703.4 and Sections R703.7 and R703.12.		X		
RB376-13	Changed to address potential misapplication of, and particularly improper enforcement of, the masonry veneer wall details in Figure R703.7.		X		
RB378-13	Added new requirements for mechanically attached flexible flashing materials in Section R703.8 and Chapter 44.		X		
RB379-13	Added new requirements for fluid-applied membranes used as flashing materials in Section R703.8 and Chapter 44		X		
RB380-13	Provided a pointer to the code section which specifies water-resistive barriers and their installation in R703.8.		X		
RB381-13	Clarification of EIFS use in Sections R703.9, R703.9.1, R703.9.2, R703.9.2.1, R703.9.2.2, R703.9.3, R703.9.4, R703.9.4.1 and R703.9.4.2.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB382-13	Added ISO 8336 as an accepted product standard to Section R703.10.1 and Chapter 44.		X		
RB383-13	Adds information on vinyl siding fastener specifications, penetration, and spacing in Sections R202 (NEW), Table R703.4, R703.11.1.1, R703.11.1.2 (NEW) and R703.11.1.3 (NEW).		X		
RB385-13	Added insulated vinyl siding in Table R703.4 and Section R703.11.2.		X		
RB386-13	Added ASTM D 7793-12 Standard Specification for Insulated Vinyl Siding in Sections R202 (New), R703.13 (New) and R703.13.1 (New) and Chapter 44.		X		
RB387-13	Added requirements for polypropylene siding conforming to ASTM D7254 in Sections R202 (NEW), Table R703.4, R703.13 (NEW), R703.13.1 (NEW), R703.13.1.1 (NEW), R703.13.1.2 (NEW), R703.13.2 (NEW) and R703.13.2.1 (NEW) and Chapter 44.		X		
RB389-13	Added cladding connections requirements in Sections R703.4, R703.13 (NEW) and R703.13.1 (NEW), R703.13.2 (NEW) and Table R703.4, Table R703.13.1 (NEW) and Table R703.13.2 (NEW).		X		
RB390-13	Added cladding attachment requirements and foam sheathing thickness limits in Sections R703.4, R703.13 (NEW) and R703.13.1 (NEW), R703.13.2 (NEW) and Table R703.4, Table R703.13.1 (NEW) and Table R703.13.2 (NEW).		X		
RB391-13	Added requirement for engineered design of cladding connections through foam sheathing to masonry/concrete in Sections R703.4 andR703.13 (NEW) and Table R703.4.		X		
RB392-13	Changed and replaced the existing Table R703.4 with a revised and simplified version and improved content relating to siding attachment in Sections R703.2, R703.3, Table R703.3 (New), R703.3.1, R703.3.2, R703.4, R703.3.1, R703.3.2, R703.3.3 (New), R703.5.1 (New), R703.8, R703.12 and R703.12.3 (New) and Table R703.4.		X		
RB393-13	Clarified in Sections R802.1, R802.1.1, R802.1.2, R802.1.3, R802.1.3.1, R802.1.3.2, R802.1.3.3, R802.1.3.4, R802.1.3.5, R802.1.3.5.1, R802.1.3.5.2, R802.1.3.6, R802.1.3.7, R802.1.3.8, R802.1.4, R802.1.5 and R802.1.6 that wood products other than sawn lumber must comply with specific product standards.		X		
RB394-13	Required rafters to be framed directly opposite each other to ridge board or directly opposite or to each other with a gusset plate as a tie in R802.3.		X		
RB396-13	Changed the wind provisions of the IRC to bring them in line with the 2012 IBC and ASCE 7-10 in R802.10.2.1 and R802.11.1 and Table R802.11.		X		
RB397-13	Clarified requirements for determining uplift loads for trusses in R802.11.1.2.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB400-13	Skip Section R804.				
RB401-13	Remove attic ventilation exception in Section R806.1.		X		
RB404-13	Clarified insulation requirements to align IRC and IBC requirements in Section R806.5.		X		
RB405-13	Provided a calculation procedure to determine rigid board or air impermeable insulation R-values for roof assemblies that have different ceiling insulation R-values in footnote to Table R806.5.		X		
RB407-13	Clarified that the volume of space required for an attic access should be measured as the actual usable space in Section R807.1.		X		
RB408-13	Added fire testing exception for slate roofs in Section R902.1.		X		
RB412-13	Clarified the intent for roofing materials not complaint with Section R904.3.		X		
RB417-13	Modified Section R905.2.4 to remove ASTM D 225 (organic felt-reinforced asphalt shingles) as an acceptable product standard.		X		
RB418-13	Changes change to bring the wind provisions of the IRC in line with the 2012 IBC and ASCE 7-10 in Sections R905.2.4.1, R905.2.7.2, R905.3.3.3, R905.3.7, R905.4.3.2, R905.5.3.2, R905.6.3.2, R905.7.3.2, R905.8.3.2, R905.10.5.1 and Table R905.2.4.1, Table R905.2.4.1(1) and Table R905.2.4.1(2).		X		
RB422-13	Changed to remove a redundant requirement in Section R905.2.5.		X		
RB425-13	Aligned Section R905.2.7.1 with the practical application of the ice barrier underlayment products in the field.		X		
RB429-13	Provided for the use of cap staples for underlayment attachment in Sections R905.2.7.2, R905.3.3.3, R905.4.3.2, R905.5.3.2, R905.6.3.2, R905.7.3.2, R905.8.3.2 and R905.10.5.1.		X		
RB430-13	Changed to lower the minimum shank diameter based on tests indicating underlayment tears before proposed cap nails fail attachment in Sections R905.2.7.2, R905.3.3.3, R905.4.3.2, R905.5.3.2, R905.6.3.2, R905.7.3.2, R905.8.3.2 and R905.10.5.1.		X		
RB435-13	Reorganization of the underlayment provisions in Sections R905.1.1 (NEW), R905.1.2 (NEW), R905.2.3, R905.2.7, R905.2.7.1, R905.2.7.2, R905.3.3, R905.3.3.1, R905.3.3.2, R905.3.3.3, R905.4.3, R905.4.3.1, R905.4.3.2, R905.5.3, R905.5.3.1, R905.5.3.2, R905.6.3, R905.6.3.1, R905.6.3.2, R905.7.3, R905.7.3.1, R905.7.3.2, R905.8.3, R905.8.3.1, R905.8.3.2, R905.10.5 and R905.10.5.1 and Table R905.1.1(1) (NEW), Table R905.1.1(2) (NEW) and Table R905.1.1(3) (NEW).		X		
RB439-13	Clarification regarding drip edges for asphalt shingle roofs in Section R905.2.8.5.		X		
RB442-13	Removed “slate-type” shingle products Section R905.6.		X		

Table 10. 2015 IRC Structural Changes Cost Impact					
CODE CHANGE #	2015 IRC STRUCTURAL CHANGE SUMMARY	IRC STRUCTURAL COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
RB443-13	Added ASTM D 7425-11 for spray polyurethane foam used for roofing in Section R905.14.2 and Chapter 44.		X		
RB445-13 PART I	Clarified the use of Photovoltaic shingles in Sections R202, R905.16, R905.16.1, R905.16.2 and R905.16.3.		X		
RB446-13	Added specific requirements for roof decks, roof deck slope, underlayment, underlayment application, ice barrier, and underlayment for high wind areas in Sections R905.16, R905.16.1, R905.16.2, R905.16.3, R905.16.4, R905.16.4.1, and R905.16.4.2.		X		
RB447-13	Added specific requirements applicable to rooftop-mounted photovoltaic panels and modules to Section R907.		X		
RB449-13	Added ASTM C 1278 and ASTM C1177 to Table R906.2 for fiber reinforced gypsum board and glass-faced gypsum board used in roof assemblies.		X		
RB451-13	Added an exception in Section R907.1 that waives the secondary drainage requirement when reroofing existing buildings when the roof drains properly.		X		
RB453-13	Clarification of requirements for roof recover and roof replacement in Sections R907.3, R907.3.1 (NEW) and R907.3.1.1 (NEW).		X		
RB455-13	Clarified the use of thermal mass storage devices of masonry construction in Sections R1002.2 and R1002.5 and Chapter 44.		X		
RB458-13	Reduce required 12" chimney wall thickness for the chimney to be in contact with combustible trim in Section R1003.18.		X		
RB459-13	Changed in Section R1004.5 to restrict installation of gasketed fireplace doors on factory -built fireplaces.		X		
RB461-13	Amended Sections R1006.2 and R1006.5 to clarify the requirements for the exterior air intake and exterior air outlet for fireplaces.		X		
RB475-13	Amended Section R703.10.2 to require that fiber-cement lap siding having a maximum width of 12 inches comply with the requirements of ASTM C 1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2.		X		
RB476-13	Added to Section R302.2.2 to clarify the test method for the Class C rating the ASTM E 108 and UL 790L standards.		X		
RB477-13	Amended Sections R302.10.1, R302.10.2 and R302.10.3 to require that the flame spread test for the cellulose fiber loose fill insulation be conducted in accordance with CAN/ULC S102.2 and not ASTM E84.		X		
RB478-13	Added to Sections R703.7.2.1 and R703.7.2.2 cold-formed steel framing as an option for support of masonry veneer when anchoring masonry chimneys to residential buildings.		X		
RB479-13	Added R1001.4.1.1 and R1003.4.1.1 to provide adequate bearing area for cold-formed steel framing to support masonry chimneys.		X		

*For prescriptive Code changes only.

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APPENDIX K

Table 11. 2015 IFGC Changes Cost Impact					
CODE CHANGE #	2015 IFGC CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
FG5–12	Section: 307.6 307.6 Condensate pumps. Condensate pumps located in uninhabitable spaces, such as attics and crawl spaces, shall be connected to the appliance or equipment served such that when the pump fails, the appliance or equipment will be prevented from operating. Pumps shall be installed in accordance with the manufacturers' installation instructions.		X		
FG6– 12	Section: 308.2, Chapter 8 308.2 Reduction table. The allowable *clearance* reduction shall be based on one of the methods specified in Table 308.2 or shall utilize ~~an~~ a reduced clearance protective assembly *listed* for ~~such application~~ and labeled in accordance with UL 1618. Where required clearances are not listed in Table 308.2, the reduced clearances shall be determined by linear interpolation between the distances listed in the table. Reduced clearances shall not be derived by extrapolation below the range of the table. The reduction of the required clearances to combustibles for *listed* and *labeled* appliances and *equipment* shall be in accordance with the requirements of this section except that such clearances shall not be reduced where reduction is specifically		X		
FG12 – 12	Section: 404.5 404.5 Piping Fittings in concealed locations**.** Portions of a piping system Fittings installed in concealed locations shall be limited to the following types: not have unions, tubing fittings, right and left couplings, bushings, compression couplings and swing joints made by combinations of fittings. 1. Threaded elbows, tees and couplings 2. Brazed fittings 3. Welded fittings 4. Fittings listed to ANSI LC-1/CSA 6.26, Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST), or ANSI LC-4, Press-Connect Copper and Copper Alloy Fittings for Use in Fuel Gas Distribution Systems. **Exceptions:** ~~1. Tubing joined by brazing.~~ ~~2. Fittings listed for use in concealed locations.~~		X		
FG15 – 12	Section(s): 404.7, 404.7.1 (New), 404.7.2 (New) 404.7 Protection against physical damage. In concealed locations where *piping*, other than black or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than 1-1/2 inches (38 mm) from the nearest edge of the member, the pipe shall be protected by steel shield plates. ~~Protective steel~~ Such shield plates shall have ~~a minimum~~ thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage). Such plates shall cover the area of the pipe where the member is notched or bored and shall extend not less than			X	$50.00 to $100.00 per location quantity

Table 11. 2015 IFGC Changes Cost Impact					
CODE CHANGE #	2015 IFGC CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	4 inches (102 mm) above sole plates, and below top plates and to each side of a stud, joist, rafter or similar member. 404.7.1 Formed steel framing members**.** *Piping*, other than black or galvanized steel, shall not be installed within the channel of a formed steel framing member except where the piping is not less than 1-1/2 inches from the backside of any fastening face of the member. 404.7.2 Piping installed parallel to framing members. In concealed locations where *piping*, other than black or galvanized steel, is installed parallel to studs, joists, rafters or similar members less than 1-1/2 inches (38 mm) from the nearest edge of the member, such pipe shall be				
FG19 – 12	Section: 404.18 (New) 404.18 Pipe cleaning. The use of a flammable or combustible gas to clean or remove debris from a piping system shall be prohibited.		X		
FG23 – 12	Section: 410.2 410.2 MP regulators. MP pressure regulators shall comply with the following: 1. The MP regulator shall be approved and shall be suitable for the inlet and outlet gas pressures for the application. 2. The MP regulator shall maintain a reduced outlet pressure under lockup (no-flow) conditions. 3. The capacity of the MP regulator, determined by published ratings of its manufacturer, shall be adequate to supply the appliances served. 4. The MP pressure regulator shall be provided with access. Where located indoors, the regulator shall be vented to the outdoors or shall be equipped with a leaklimiting device, in either case complying with Section 410.3. 5. A tee fitting with one opening capped or plugged shall be installed between the MP regulator and its upstream shutoff valve. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument and to serve as a sediment trap. 6. A tee fitting with one opening capped or plugged shall be installed not less than 10 pipe diameters downstream of the MP regulator outlet. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument. 7. Where connected to rigid piping, a union shall be installed within 1 foot of either side of the MP regulator.			X	$400.00 to $600.00 per Regulator quantity
FG24 – 12	Section(s): 411.1, 411.1.1, 411.1.4 411.1 Connecting appliances**.** Except as required by Section 411.1.1, appliances shall be connected to the piping system by one of the following: 1. Rigid metallic pipe and fittings. 2. Corrugated stainless steel tubing (CSST) where installed in accordance with the manufacturer's instructions.		X		

Table 11. 2015 IFGC Changes Cost Impact					
CODE CHANGE #	2015 IFGC CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	3. Semirigid metallic tubing and metallic fittings. Lengths shall not exceed 6 feet (1829 mm) and shall be located entirely in the same room as the appliance. Semirigid metallic tubing shall not enter a motor-operated appliance through an unprotected knockout opening. 4. Listed and labeled appliance connectors in compliance with ANSI Z21.24 and installed in accordance with the manufacturer's instructions and located entirely in the same room as the appliance. 5. Listed and labeled quick-disconnect devices used in conjunction with listed and labeled appliance connectors. 6. Listed and labeled convenience outlets used in conjunction with listed and labeled appliance connectors. 7. Listed and labeled outdoor appliance connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's instructions. 8. Listed outdoor gas hose connectors in compliance with ANSI Z21.54 used to connect portable outdoor appliances. The gas hose connection shall be made only in the outdoor area where the appliance is to be used, and shall be to the gas piping supply at an appliance shutoff valve, a listed quick-disconnect device, or listed gas convenience outlet. 411.1.1 Commercial cooking appliances. Commercial cooking appliances installed on casters and appliances that are moved for cleaning and sanitation purposes shall be connected to the piping system with an appliance connector listed as complying with ANSI Z21.69 ~~or in accordance with Item 1 or 3 of Section 411.1~~. The commercial cooking appliance connector installation shall be configured in accordance with the manufacturer's installation instructions. Movement of appliances with casters shall be limited by a restraining device installed in accordance with the connector and appliance manufacturer's instructions. ~~411.1.4 Movable appliances. Where appliances are equipped with casters or are otherwise subject to periodic movement or relocation for purposes such as routine cleaning and maintenance, such appliances shall be connected to the supply system piping by means of an approved flexible connector designed and labeled for the application. Such flexible connectors shall be installed and protected against physical damage in accordance with the manufacturer's installation instructions.~~				
FG29 – 12	Section: 502.7.1 (New) 502.7.1 Door swing. Appliance and equipment vent terminals shall be located such that doors cannot swing within 12 inches (305 mm) horizontally of the vent terminal. Door stops or closures shall not be installed to obtain this clearance.		X		

Table 11. 2015 IFGC Changes Cost Impact					
CODE CHANGE #	2015 IFGC CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
FG30 – 12	Section: 503.8 503.8 Venting system termination location. The location of venting system terminations shall comply with the following (see Appendix C): 1. A mechanical draft venting system shall terminate at least 3 feet (914 mm) above any forced-air inlet located within 10 feet (3048 mm). Exceptions: 1. This provision shall not apply to the combustion air intake of a direct-vent appliance. 2. This provision shall not apply to the separation of the integral outdoor air inlet and flue gas discharge of listed outdoor appliances. 2. A mechanical draft venting system, excluding direct vent appliances, shall terminate at least 4 feet (1219 mm) below, 4 feet (1219 mm) horizontally from, or 1 foot (305 mm) above any door, operable window or gravity air inlet into any building. The bottom of the vent terminal shall be located at least 12 inches (305 mm) above finished ground level. 3. The vent terminal of a direct-vent appliance with an input of 10,000 Btu per hour (3 kW) or less shall be located at least 6 inches (152 mm) from any air opening into a building, and such an appliance with an input over 10,000 Btu per hour (3 kW) but not over 50,000 Btu per hour (14.7 kW) shall be installed with a 9-inch (230 mm) vent termination clearance, and an appliance with an input over 50,000 Btu/h (14.7 kW) shall have at least a 12-inch (305 mm) vent termination clearance.The bottom of the vent terminal and the air intake shall be located at least 12 inches (305 mm) above finished ground level. 4. Through-the-wall vents for Category II and IV appliances and noncategorized condensing appliances shall not terminate over public walkways or over an area where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves or other equipment. Where local experience indicates that condensate is a problem with Category I and III appliances, this provision shall also apply. Drains for condensate shall be installed in accordance with the appliance and vent manufacturers' instructions. <u>5. Vent systems for Category IV appliances that terminate through an outside wall of a building and discharge flue gases perpendicular to the adjacent wall shall be located not less than 10 ft (3 m) horizontally from an operable opening in an adjacent building. This requirement shall not apply to vent terminals that are 2 ft (0.6 m) or more above or 25 ft (7.6 m) or more below operable openings.</u>		X		
FG37 – 12	Section: 623.2 623.2 Prohibited location. Cooking appliances designed, tested, *listed and labeled for use in commercial occupancies* shall not be installed		X		

Table 11. 2015 IFGC Changes Cost Impact					
CODE CHANGE #	2015 IFGC CHANGE SUMMARY	COST IMPACT			ESTIMATED AMOUNT*
		Decrease	None	Increase	
Sub Code:					
	within dwelling units or within any area where domestic cooking operations occur. Exception: Appliances that are also listed as domestic cooking appliances.				
FG39– 12	Section(s): 704.1.2, 704.1.2.4, 705.2, 705.3, Chapter 8 704.1.2 Piping systems. Piping, tubing, valves and fittings conveying gaseous hydrogen shall be designed and installed in accordance with Sections 704.1.2.1 through 704.1.2.5.1, Chapter 50 of the International Fire Code, and ASME B31.3 ASME B31.12. Cast-iron pipe, valves and fittings shall not be used. 704.1.2.4 Joints. Joints in piping and tubing in hydrogen service shall be listed as complying with ASME B31.3 to include the use of welded, brazed, flared, socket, slip and compression fittings. Gaskets and sealants used in hydrogen service shall be listed as complying with ASME B31.3 ASME 31.12. Threaded and flanged connections shall not be used in areas other than hydrogen cutoff rooms and outdoors. 705.2 Inspections. Inspections shall consist of a visual examination of the entire piping system installation and a pressure test. Hydrogen piping systems shall be inspected in accordance with this code. Inspection methods such as outlined in ASME B31.3 ASME 31.12shall be permitted where specified by the design engineer and approved by the code official. Inspections shall be conducted or verified by the code official prior to system operation. 705.3 Pressure tests. A hydrostatic or pneumatic leak test shall be performed. Testing of hydrogen piping systems shall utilize testing procedures identified in ASME B31.3 ASME 31.12 or other approved methods, provided that the testing is performed in accordance with the minimum provisions specified in Sections 705.3.1 through 705.4.1. Add new standard to Chapter 8 as follows: ASME B31.12-2008 Hydrogen Piping and Pipelines		X		

*For prescriptive Code changes only.

DRAFT

APPENDIX L

DISCLAIMER

Probable Construction Costs Opinions

Assumptions

This Estimate is not a guarantee of Final Bid Cost or of Final Project Cost.
This is an Opinion of Probable Cost of Mechanical, Electrical, and Piping (M.E.P.) Systems for the proposed buildings.

- The estimate was compiled using documents provided by various sources.
- The estimate is representative of average unit pricing and labor from historical job costs of similar type, cost and labor data from Mechanical Contractors Association of America (MCAA), CostWorks 2015 Qtr. 2 (Change Date and Qtr) by R.S. Means Company Inc, National Electrical Contractors Association (NECA) and Sheet Metal Estimating by Herbert C. Wendes.
- The subcontractor unit rates include the subcontractor's overhead and profit, unless otherwise stated.
- The mark-ups included in the unit prices cover the cost of field overhead, home office overhead and profit, and range from 15% to 25% of the costs of a particular item.

Since we have no control over the cost of labor, material and equipment, or the contractor's method of carrying out the work and determining the price, or over competitive bidding or market conditions, this opinion of probable construction cost provided is made on the basis of experience and qualifications. This opinion represents our best judgment as professional construction consultants with the Construction Industry. However, we cannot and do not guarantee that proposals, bids or the construction cost will not vary from the opinions of probable cost in this estimate.

General Assumptions:

- "Allowances" are considered to be an allotted sum of money for a particular system or scope of work for which sufficient detail is not available to determine a definitive cost.
- These cost allowances are included to project a final cost to include labor, material, equipment and any subcontractor costs.
- The owner receives the savings for any amount under the allowance and is at risk for any amount over the allowance.
- The estimate is in today's dollars, and has been adjusted to the local area.
- This estimate does not include any fees or permits.
- This estimate is intended to reflect construction costs only.
- This estimate is intended to reflect normal construction schedules only.
- Variations in material costs, labor efficiencies, wage rates, union practices, and bid climate will effect final costs.
- Workers will report to the actual job site.
- Materials delivered to the actual job site will need to be scheduled.
- No premium or overtime has been included.
- No General Construction costs have been included.
- All utilities have sufficient capacity for the added loads.